

CALENDAR FOR THE BOARD OF SUPERVISORS
CONTRA COSTA COUNTY
AND FOR SPECIAL DISTRICTS, AGENCIES, AND AUTHORITIES GOVERNED BY THE BOARD
BOARD CHAMBERS, ADMINISTRATION BUILDING, 1025 ESCOBAR STREET
MARTINEZ, CALIFORNIA 94553-1229

DIANE BURGIS, *CHAIR*, 3RD DISTRICT

FEDERAL D. GLOVER, *VICE CHAIR*, 5TH DISTRICT

JOHN GIOIA, 1ST DISTRICT

CANDACE ANDERSEN, 2ND DISTRICT

KAREN MITCHOFF, 4TH DISTRICT

MONICA NINO, CLERK OF THE BOARD AND COUNTY ADMINISTRATOR, (925) 655-2075

To slow the spread of COVID-19, in lieu of a public gathering, the Board meeting will be accessible via television and live-streaming to all members of the public as permitted by Government Code section 54953(e). Board meetings are televised live on Comcast Cable 27, ATT/U-Verse Channel 99, and WAVE Channel 32, and can be seen live online at www.contracosta.ca.gov.

PERSONS WHO WISH TO ADDRESS THE BOARD DURING PUBLIC COMMENT OR WITH RESPECT TO AN ITEM THAT IS ON THE AGENDA MAY CALL IN DURING THE MEETING BY DIALING **888-278-0254** FOLLOWED BY THE ACCESS CODE **843298#**. To indicate you wish to speak on an agenda item, please push "#2" on your phone. Access via Zoom is also available via the following link: <https://cccouny-us.zoom.us/j/87344719204>. To indicate you wish to speak on an agenda item, please "raise your hand" in the Zoom app.

Meetings of the Board are closed-captioned in real time. Public comment generally will be limited to two minutes. Your patience is appreciated. A Spanish language interpreter is available to assist Spanish-speaking callers.

A lunch break or closed session may be called at the discretion of the Board Chair. Staff reports related to open session items on the agenda are also accessible online at www.contracosta.ca.gov.

AGENDA
December 14, 2021

9:00 A.M. Convene, call to order and opening ceremonies.

Closed Session

A. CONFERENCE WITH REAL PROPERTY NEGOTIATORS

Property: 2555 El Portal Drive, San Pablo

Agency Negotiators: Stephen Harris, Director, Planning and Evaluation, Health Services and Karen Laws, Real Estate Consultant

Negotiating Parties: Contra Costa County and Clarence Perry, LLC

Under Negotiation: Purchase and Lease Price and Terms of Payment

B. CONFERENCE WITH LEGAL COUNSEL--EXISTING LITIGATION (Gov. Code § 54956.9(d)(1))

1. *Christopher Garcia v. Aaron Heath-Paez, et al.*; Contra Costa County Superior Court Case No. C18-02361

C. CONFERENCE WITH LEGAL COUNSEL--ANTICIPATED LITIGATION

Initiation of litigation pursuant to Gov. Code, § 54956.9(d)(4): [One potential case]

D. CONFERENCE WITH LEGAL COUNSEL--ANTICIPATED LITIGATION

Significant exposure to litigation pursuant to Gov. Code, § 54956.9(d)(2): [One potential case]

Inspirational Thought- *“You don’t need a cape to be a hero. You just need to care.” – Kid President*

CONSIDER CONSENT ITEMS (Items listed as C.1 through C.116 on the following agenda) – Items are subject to removal from Consent Calendar by request of any Supervisor or on request for discussion by a member of the public. **Items removed from the Consent Calendar will be considered with the Discussion Items.**

PRESENTATIONS (5 Minutes Each)

- PR.1** PRESENTATION of the 2021 Chair of the Board Award. (Supervisor Burgis)

DISCUSSION ITEMS

- D.1** CONSIDER adopting Measure X one-time funding allocation in the amount of \$75 million for the Contra Costa Regional Medical Center capital projects. (Lisa Driscoll, County Finance Director/Anna Roth, Health Services Director)
- D.2** APPOINT Ellen McDonnell to the position of Public Defender – Exempt at Step 5 of the salary range, effective December 14, 2021, including all benefits provided in the current Management Resolution applicable to the position of Public Defender – Exempt. CONSIDER adopting Position Adjustment Resolution No. 25856 to add one (1) Public Defender – Exempt (25A1) at salary plan and grade BD5 2637 (\$23,098) and cancel one (1) Public Defender – Exempt (25A1) (Position 3835) effective January 1, 2022. (Monica Nino, County Administrator)
- D.3** HEARING to consider adoption of Ordinance No. 2021-41, to regulate the construction, placement, display, and maintenance of signs in the unincorporated area of the County, as recommended by the County Planning Commission. **(Will be continued and re-noticed)**
- D.4** ACCEPT update on COVID-19; and PROVIDE direction to staff. (Anna Roth, Health Services Director)

- D.5** CONSIDER adopting Urgency Ordinance No. 2021-43, an interim urgency ordinance imposing a temporary moratorium on the establishment or expansion of fulfillment centers, parcel hubs, and parcel sorting facilities in the North Richmond area. (Supervisor John Gioia and John Kopchik, Department of Conservation and Development Director)
- D.6** CONSIDER introducing Ordinance No 2022-02, adopting and amending the 2019 California Energy code to require certain newly constructed buildings to be all-electric buildings; waiving reading; and fixing January 18, 2022 for a public hearing to consider adoption. (Demian Hardman, Department of Conservation and Development)
- D.7** CONSIDER authorizing the Board of Supervisors, in all its capacities, and its subcommittees and advisory bodies, to continue teleconference meetings under Government Code section 54953(e), make related findings, and take related actions. (Mary Ann McNett Mason, County Counsel)

D. 8 CONSIDER Consent Items previously removed.

D. 9 PUBLIC COMMENT (2 Minutes/Speaker)

D. 10 CONSIDER reports of Board members.

ADJOURN

CONSENT ITEMS

Road and Transportation

- C. 1** APPROVE the Bridge Preventative Maintenance Program for various bridges in Contra Costa County Project and take related actions under the California Environmental Quality Act, and AUTHORIZE the Public Works Director, or designee, to advertise the Project, Countywide. (89% Highway Bridge Program Funds and 11% Local Road Funds)

Engineering Services

- C. 2** ADOPT Resolution No. 2021/394 accepting for recording purposes only an Offer of Dedication for Roadway Purposes for minor subdivision MS18-00009, for a project being developed by Michael Joseph Delahousaye, Trustee of the Michael Joseph Delahousaye Revocable Trust Dated December 29, 2015, as recommended by the Public Works Director, Alamo area. (No fiscal impact)

- C. 3** ADOPT Resolution No. 2021/395 approving the Parcel Map and Subdivision Agreement for minor subdivision MS18-00009, for a project being developed by Crowell Development, Inc., as recommended by the Public Works Director, Alamo area. (No fiscal impact)
- C. 4** ADOPT Resolution No. 2021/399 approving the Final Map and Subdivision Agreement for subdivision SD17-09467, for a project being developed by Forecast Land Investment, LLC, as recommended by the Public Works Director, Bay Point area. (No fiscal impact)

Special Districts & County Airports

- C. 5** Acting as the governing body of the Contra Costa County Flood Control and Water Conservation District, APPROVE and AUTHORIZE the Chair, Board of Supervisors, to execute a Grant Deed and two Assignment of Easements to the City of Antioch, in connection with the West Antioch Creek Project, as recommended by the Chief Engineer, Antioch area. (100% Drainage Area 55 Funds)
- C. 6** APPROVE the Montalvin Park Sports Court Improvements Project and take related actions under the California Environmental Quality Act, and AUTHORIZE the Public Works Director, or designee, to advertise the Project, San Pablo area. (13% Community Development Block Grant Funds, 15% California Prop 68 Per Capita Grant Funds, and 72% County Service Area M-17)
- C. 7** APPROVE the Regatta Park Playground Equipment Installation Project and take related actions under the California Environmental Quality Act, and AUTHORIZE the Public Works Director, or designee, to advertise the Project, Discovery Bay area. (80% California Prop 68 Per Capita Grant Funds and 20% Countywide Landscaping District (LL-2) Zone 57 Funds)

Claims, Collections & Litigation

- C. 8** DENY claims filed by Jose Armino Interiano Amaya, Denise A. Barry, Sharla Calip, Maria Santos Cruz, Maria Guadalupe Figueroa, James H. Flournoy, Elois Block Fox, Nache Harris, Kristine Keala Meredith, Chung Ming, Maria Elena Rubalcava, Jared Lee Waldon and Edwin Michael Wohler. DENY late claim filed by Ramon Pruitt.

Statutory Actions

- C. 9** ACCEPT Board members meeting reports for November 2021.

Honors & Proclamations

- C. 10** ADOPT Resolution No. 2021/410 recognizing Jill Eisenberg-Ray upon her 25th Anniversary with Contra Costa County, as recommended by Supervisor Andersen.
- C. 11** ADOPT Resolution No. 2021/411 honoring the life and service of local Journalist and Historian Chris Treadway, as recommended by Supervisor Gioia.

Ordinances

- C. 12** INTRODUCE Ordinance No. 2022-01, requiring property owners to keep sidewalks adjacent to their property free of obstructions, WAIVE reading, and FIX January 11, 2022, for adoption, as recommended by the Public Works Director, Countywide. (No fiscal impact)
- C. 13** ADOPT Ordinance No. 2021-38, to implement state regulations regarding the reduction of organic waste disposal, and FIND the adoption of Ordinance No. 2021-38 is exempt from environmental review under section 15308 of the California Environmental Quality Act Guidelines, as recommended by the Conservation and Development Director. (No General Fund impact)
- C. 14** ADOPT Ordinance No. 2021-42, authorizing the Contra Costa Health Plan to serve as the single local plan for Medi-Cal managed care enrollees in the County upon approval of the California Department of Health Care Services.

Appointments & Resignations

- C. 15** APPOINT Michael Rigsby to the Oakley Local Committee seat on the Advisory Council on Aging for a term ending September 30, 2023, as recommended by the Employment and Human Services Director.
- C. 16** APPOINT Alison McKee to the Private/Non-Profit Seat No. 3 on the Economic Opportunity Council for a term ending on June 30, 2023 as recommended by the Employment and Human Services Director.
- C. 17** ACCEPT the resignation of Micaela Mota, DECLARE a vacancy in the Sector Specific Child Development Early Childhood Education Seat on the Family and Children's Trust Committee for a term ending September 30, 2022, and DIRECT the Clerk of the Board to post the vacancy, as recommended by the Employment and Human Services Director.

- C. 18** ACCEPT the resignation of David Barclay, effective December 31, 2021; DECLARE a vacancy in the Appointee 1 Seat on the Alamo Municipal Advisory Council, and DIRECT the Clerk of the Board to post the vacancy, for a term with an expiration date of December 31, 2024, as recommended by Supervisor Andersen.
- C. 19** ACKNOWLEDGE receipt of the preference forms for Board of Supervisors appointments to 2022 committees, boards and commissions, submitted to the Clerk of the Board.

Personnel Actions

- C. 20** Acting as the governing board of the Contra Costa County Fire Protection District, ADOPT Position Adjustment Resolution No. 25858 to reallocate the salary of the unrepresented single-position classification of Fire District Chief of Administrative Services. (100% CCCFPD)
- C. 21** ADOPT Position Adjustment Resolution No. 25850 to add one Network Administrator II (represented) position in the Clerk-Recorder Department. (100% County General Fund)

Leases

- C. 22** ACCEPT the 2021 Semi Annual Report of Real Estate Delegation of Leases and Licenses, dated January 1, 2021 through June 30, 2021, as recommended by the Public Works Director, Concord and Martinez areas. (No fiscal impact)

Grants & Contracts

APPROVE and AUTHORIZE execution of agreements between the County and the following agencies for receipt of fund and/or services:

- C. 23** APPROVE and AUTHORIZE the Employment and Human Services Director, or designee, to submit an application to the U.S. Department of Health and Human Services, Administration for Children and Families to extend the grant project period to allow sufficient time to complete grant activities under the Early Head Start Child Care Partnership grant, including the facility renovation and construction of the central kitchen, for the term January 1, 2022 through December 31, 2022. (100% Federal)

- C. 24** ADOPT Resolution No. 2021/407 to approve and authorize the Employment and Human Services Director, or designee, to apply for and accept grant funding from the California State Preschool Program (CSPP) in an amount not to exceed \$11,562,313 for CSPP services for the period July 1, 2022 through June 30, 2023, and authorize the Employment and Human Services Director to sign the continued CSPP funding application. (100% State)
- C. 25** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a contract with the California Department of Public Health, to pay the County an amount up to \$1,163,574 for the Perinatal Health Equity Initiative to improve birth outcomes for Contra Costa County residents for the period July 1, 2021 through June 30, 2023. (No County match)
- C. 26** APPROVE the allocation of 2020 Housing Opportunities for Persons with HIV/AIDS (HOPWA) Program CARES Act funds from the U.S. Department of Housing and Urban Development, and APPROVE and AUTHORIZE the Conservation and Development Director, or designee, to execute a contract with the City of Oakland for the County to administer \$131,685 in 2020 HOPWA Program CARES Act funds to provide housing and supportive services for low-income persons with HIV/AIDS in response to the public health order related to the COVID-19 pandemic, for the period April 1, 2020 through August 15, 2022. (100% Federal, no County match)
- C. 27** ADOPT Resolution No. 2021/406 authorizing the submittal of a Permanent Local Housing Allocation grant application to the State of California for an allocation of up to \$13,061,028, and AUTHORIZE the Conservation and Development Director, or designee, to execute the grant Standard Agreement and all related documents. (100% State funds, no County match)

APPROVE and AUTHORIZE execution of agreement between the County and the following parties as noted for the purchase of equipment and/or services:

- C. 28** APPROVE and AUTHORIZE the Chief Information Officer, Department of Information Technology, or designee, to execute a contract with AT&T Corp. in an amount not to exceed \$521,000 to provide support services for the period of December 1, 2021 through November 30, 2022. (100% User Fees)
- C. 29** APPROVE and AUTHORIZE the Chief Information Officer, Department of Information Technology, or designee, to execute a contract with Sirius Computer Solutions, Inc., in an amount not to exceed \$220,000 to provide IBM System Z Mainframe Operating System services for the period of November 1, 2021 through October 31, 2023. (100% User Fees)

- C. 30** APPROVE and AUTHORIZE the Conservation and Development Director, or designee, to execute a contract amendment with Benchmark Land Use Group, Inc., to extend the term from December 31, 2021 through December 31, 2022 and increase the payment limit by \$86,208 to a new payment limit of \$382,160 to complete the Environmental Impact Report for the CEMEX quarry project located in the Clayton area. (100% Applicant fees, Land Development Fund)
- C. 31** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a contract with the Contra Costa County Office of Education, in an amount not to exceed \$4,347,281 to implement and oversee the Contra Costa County Wellness in Schools Program to support Contra Costa district students with behavioral health concerns for the period September 1, 2021 through August 30, 2025. (100% Mental Health Services Oversight and Accountability Commission)
- C. 32** APPROVE and AUTHORIZE the Purchasing Agent to execute, on behalf of the Chief Information Officer, Department of Information Technology, a purchase order with AT&T Corporation, in an amount not to exceed \$1,700,000 to provide County-wide Cisco network maintenance support for the period of December 1, 2021 through November 30, 2023. (100% User Fees)
- C. 33** APPROVE and AUTHORIZE the Chief Information Officer, Department of Information Technology, or designee, to execute an order form with DocuSign in an amount not to exceed \$680,000 to provide DocuSign Contract Lifecycle Management and eSignature Enterprise licenses for the electronic signature and contract lifecycle management project for the period of December 15, 2021 through December 14, 2022. (100% User Fees)
- C. 34** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a novation contract with Desarrollo Familiar, Inc. (dba Familias Unidas), in an amount not to exceed \$296,975 to provide referral, consultation and education, and outpatient mental health services in West County for the period July 1, 2021 through June 30, 2022, including a six-month automatic extension through December 31, 2022 in an amount not to exceed \$148,488. (57% Mental Health Realignment, 38% Substance Abuse/Mental Health Services Administration Grant; 5% Federal Medi-Cal)
- C. 35** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a novation contract with We Care Services for Children, in an amount not to exceed \$2,208,226 to provide mental health services for high risk, delayed or severely emotionally disturbed children in Central County for the period July 1, 2021 through June 30, 2022, including a six-month automatic extension through December 31, 2022 in an amount not to exceed \$1,104,113. (50% Federal Medi-Cal, 50% Mental Health Realignment)

- C. 36** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a novation contract with Contra Costa ARC (dba VistAbility), in an amount not to exceed \$2,414,250 to provide wrap-around community-based mental health services to seriously emotionally disturbed children and their families in East County for the period July 1, 2021 through June 30, 2022, including a six-month automatic extension through December 31, 2022 in an amount not to exceed \$1,207,125. (50% Federal Medi-Cal, 50% Mental Health Realignment)
- C. 37** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a novation contract with Lincoln, in an amount not to exceed \$5,554,556 to provide residential and school-based mental health services for seriously emotionally disturbed students and their families, including case management, crisis intervention and medication support for the period July 1, 2021 through June 30, 2022, including a six-month automatic extension through December 31, 2022 in an amount not to exceed \$2,777,278. (50% Federal Medi-Cal, 41% Mental Health Realignment, 9% Antioch/Pittsburg Unified School)
- C. 38** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a novation contract with EMBRACE, in an amount not to exceed \$1,550,044 to provide therapeutic behavioral services and outpatient mental health services to children and youth, and their families, for the period July 1, 2021 through June 30, 2022, including a six-month automatic extension through December 31, 2022 in an amount not to exceed \$775,022. (50% Federal Medi-Cal, 50% Mental Health Realignment)
- C. 39** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a novation contract with Bay Area Community Resources, Inc., in an amount not to exceed \$2,540,378 to provide school and community based mental health services to seriously emotionally disturbed children and youth in West County for the period July 1, 2021 through June 30, 2022, including a six-month automatic extension through December 31, 2022 in an amount not to exceed \$1,270,189. (50% Federal Medi-Cal, 50% Mental Health Realignment)
- C. 40** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a novation contract with Mt. Diablo Unified School District, in an amount not to exceed \$6,204,660 to provide school-based mental health services to seriously emotionally disturbed students in the Mt. Diablo Unified School District for the period July 1, 2021 through June 30, 2022, including a six-month automatic extension through December 31, 2022 in an amount not to exceed \$3,102,330. (48% Federal Medi-Cal, 48% Mental Health Realignment, 4% Mt. Diablo Unified School District)

- C. 41** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a novation contract with Contra Costa Interfaith Transitional Housing, Inc. (DBA Hope Solutions), in an amount not to exceed \$424,400 to provide community based mental health services for seriously emotionally disturbed children and youth for the period July 1, 2021 through June 30, 2022, including a six-month automatic extension through December 31, 2022 in an amount not to exceed \$212,200. (50% Federal Medi-Cal, 50% Mental Health Realignment)
- C. 42** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a novation contract with Aspiranet, in an amount not to exceed \$295,038 to provide therapeutic behavioral services for children and young adults with high-risk behavior and placed in homes in Stanislaus and Contra Costa County for the period from July 1, 2021 through June 30, 2022, including a six-month automatic extension through December 31, 2022 in an amount not to exceed \$147,519. (50% Federal Medi-Cal, 50% Mental Health Realignment)
- C. 43** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a novation contract with Portia Bell Hume Behavioral Health and Training Center, in an amount not to exceed \$3,595,109 to provide mental health services to adults with severe and persistent mental illness for the period July 1, 2021 through June 30, 2022, including a six-month automatic extension through December 31, 2022 in an amount not to exceed \$1,797,554. (57% Mental Health Realignment, 43% Federal Medi-Cal)
- C. 44** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a novation contract with the Center for Psychotherapy, in an amount not to exceed \$796,800 to provide mental health services to seriously emotionally disturbed adolescents and children in East County for the period July 1, 2021 through June 30, 2022, including a six-month automatic extension through December 31, 2022 in an amount not to exceed \$398,400. (50% Federal Medi-Cal; 50% Mental Health Realignment)
- C. 45** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a novation contract with YWCA of Contra Costa/Sacramento, in an amount not to exceed \$594,970 to provide mental health services for seriously emotionally disturbed children and adolescents for the period July 1, 2021 through June 30, 2022, including a six-month automatic extension through December 31, 2022, in an amount not to exceed \$297,485. (50% Federal Medi-Cal, 50% Mental Health Realignment)
- C. 46** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a contract with Seneca Family of Agencies, in an amount not to exceed \$3,324,851 to provide mobile crisis response and community-based mental health services for seriously emotionally disturbed children for the period July 1, 2021 through June 30, 2022, including a six-month automatic extension through December 31, 2022 in an amount not to exceed \$1,662,425. (39% Mental Health Services Act, 34% Federal Medi-Cal, 27% County Realignment)

- C. 47** APPROVE and AUTHORIZE the Human Resources Director, or designee, to execute a contract amendment with Navia Benefit Solutions, Inc., to extend the term from January 1, 2022 through December 31, 2022, and increase the payment limit by \$100,000 to a new payment limit of \$500,000, to provide administrative services for employee benefit programs. (100% Participant Fees)
- C. 48** APPROVE and AUTHORIZE the Public Works Director, or designee, to execute a contract amendment with Cleanstreet, LLC, to increase the payment limit by \$271,000 to a new payment limit of \$1,521,000 to provide routine street sweeping services for curbed streets in unincorporated Contra Costa County, and to extend the term from December 31, 2021 to December 31, 2022, Countywide. (100% Local Road Funds)
- C. 49** APPROVE and AUTHORIZE advertising for the replacement of two aging outdoor generators and associated two automatic transfer switches with in-kind modern units and associated work at 1960 and 1980 Muir Road, as recommended by the Public Works Director, Martinez area. (100% State)
- C. 50** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a contract with Eric Grasso (dba Analytical Behavior Consultants), in an amount not to exceed \$1,800,000 to provide applied behavioral analysis services to Contra Costa Health Plan members for the period October 1, 2021 through September 30, 2024. (100% Contra Costa Health Plan Enterprise Fund II)
- C. 51** APPROVE and AUTHORIZE the Public Works Director, or designee, to execute an amendment with Dewberry Engineers Inc. (dba Dewberry | Drake Haglan), acknowledging the Assignment and Assumption Agreement between Drake, Haglan & Associates, Inc. and Dewberry Engineers Inc., effective September 28, 2019, and increasing the payment limit by \$100,000 to a new payment limit of \$350,000 and increasing the term from May 7, 2022 to December 31, 2023 for on-call structural engineering services, Countywide. (100% Various Funds)
- C. 52** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a contract with KYO Autism Therapy, LLC, in an amount not to exceed \$600,000 to provide applied behavioral analysis services to Contra Costa Health Plan members for the period December 1, 2021 through November 30, 2024. (100% Contra Costa Health Plan Enterprise Fund II)
- C. 53** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a contract with Antioch Dunes Healthcare LLC (dba Delta View Post Acute), in an amount not to exceed \$600,000 to provide skilled nursing facility services to Contra Costa Health Plan members for the period December 1, 2021 through November 30, 2024. (100% Contra Costa Health Plan Enterprise Fund II)

- C. 54** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a contract with Trumpet Behavioral Health, LLC, in an amount not to exceed \$900,000 to provide applied behavioral analysis services to Contra Costa Health Plan members for the period December 1, 2021 through November 30, 2024. (100% Contra Costa Health Plan Enterprise Fund II)
- C. 55** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a novation contract with Rainbow Community Center of Contra Costa County, in an amount not to exceed \$804,186 to provide mental health prevention and early intervention services for the Lesbian, Gay, Bisexual, Transgender, Queer, Questioning and Intersex+ population in Contra Costa County for the period July 1, 2021 through June 30, 2022, including a six-month automatic extension through December 31, 2022 in an amount not to exceed \$402,093. (100% Mental Health Services Act)
- C. 56** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a novation contract with Seneca Family of Agencies, in an amount not to exceed \$6,709,094 to provide school and community-based wraparound specialty mental health services and therapeutic behavioral services for seriously emotionally disturbed children and their families for the period July 1, 2021 through June 30, 2022, including a six-month automatic extension through December 31, 2022 in an amount not to exceed \$3,354,547. (50% Federal Medi-Cal, 45% Mental Health Realignment, 3% Probation Department Wrap Match, 2% Martinez/West Contra Costa Unified School District)
- C. 57** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a contract with Amara Hospice, LLC (dba Bridge Hospice Bay Area), in an amount not to exceed \$6,000,000 to provide hospice services for Contra Costa Health Plan members for the period January 1, 2022 through December 31, 2024. (100% Contra Costa Health Plan Enterprise Fund II)
- C. 58** APPROVE and AUTHORIZE the Purchasing Agent to execute, on behalf of the Health Services Department, a purchase order amendment with Central Admixture Pharmacy Services, Inc., to increase the payment limit by \$61,000 for a new payment limit of \$260,000 for the compounding of total parenteral nutrition and peripheral parenteral nutrition intravenous solutions for patients at Contra Costa Regional Medical Center with no change in the term of December 1, 2020 through November 30, 2021. (100% Hospital Enterprise Fund I)
- C. 59** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a contract with Contra Loma Healthcare LLC (dba Lone Tree Post Acute), in an amount not to exceed \$600,000 to provide skilled nursing facility services to Contra Costa Health Plan members for the period December 1, 2021 through November 30, 2024. (100% Contra Costa Health Plan Enterprise Fund II)

- C. 60** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a novation contract with Catholic Charities CYO of the Archdiocese of San Francisco, in an amount not to exceed \$462,460 to provide therapeutic behavioral services for seriously emotionally disturbed youth at its St. Vincent's School for Boys residential facility for the period July 1, 2021 through June 30, 2022, including a six-month automatic extension through December 31, 2022 in an amount not to exceed \$231,230. (50% Federal Medi-Cal, 50% Mental Health Services Act)
- C. 61** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a novation contract with Alternative Family Services, Inc., in an amount not to exceed \$1,374,404 to provide multidimensional treatment foster care services for seriously emotionally disturbed youth and their families for the period July 1, 2021 through June 30, 2022, including a six-month automatic extension through December 31, 2022 in an amount not to exceed \$687,202. (50% Federal Medi-Cal, 50% Mental Health Realignment)
- C. 62** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a novation contract with La Clinica De La Raza, Inc., in an amount not to exceed \$683,904 to provide mental health services to seriously emotionally disturbed minority children and their families in East County for the period July 1, 2021 through June 30, 2022, including a six-month automatic extension through December 31, 2022 in an amount not to exceed \$341,952. (50% Federal Medi-Cal, 50% Mental Health Realignment)
- C. 63** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a novation contract with Child Therapy Institute of Marin, in an amount not to exceed \$950,000 to provide mental health services to seriously emotionally disturbed children and their families in East and West County for the period July 1, 2021 through June 30, 2022, including a six-month automatic extension through December 31, 2022 in an amount not to exceed \$475,000. (50% Federal Medi-Cal, 50% Mental Health Realignment)
- C. 64** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a novation contract with La Cheim School, Inc., in an amount not to exceed \$2,769,860 to provide school-based and residential treatment program services, including mental health and therapeutic behavioral services to seriously emotionally disturbed youth and their families in West County for the period July 1, 2021 through June 30, 2022, including a six-month automatic extension through December 31, 2022 in an amount not to exceed \$1,384,930. (50% Federal Medi-Cal, 50% Mental Health Realignment)
- C. 65** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a novation contract with Early Childhood Mental Health Program, in an amount not to exceed \$3,687,202 to provide mental health services, wraparound services, and outpatient treatment to children in West County the period from July 1, 2021 through June 30, 2022, including a six-month automatic extension

through December 31, 2022 in an amount not to exceed \$1,843,601. (50% Federal Medi-Cal, 50% Mental Health Realignment)

- C. 66** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a novation contract with Native American Health Center, Inc., in an amount not to exceed \$257,753 to provide mental health prevention and early intervention program services for the period July 1, 2021 through June 30, 2022, including a six-month automatic extension through December 31, 2022 in an amount not to exceed \$128,876. (100% Mental Health Services Act)
- C. 67** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a contract with Silky Touch, LLC, in an amount not to exceed \$300,000 to provide electrolysis services to Contra Costa Health Plan members for the period January 1, 2022 through December 31, 2024. (100% Contra Costa Health Plan Enterprise Fund II)
- C. 68** APPROVE and AUTHORIZE the Public Works Director, or designee, to execute an Order Form and Master Agreement with AssetWorks, Inc. in an amount not to exceed \$606,282 for hosted fleet management software, upgrade services, and maintenance and support for the term January 1, 2022 through December 31, 2026, Countywide. (100% Fleet Internal Services Fund)
- C. 69** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a novation contract with Contra Costa Interfaith Transitional Housing, Inc. (dba Hope Solutions), in an amount not to exceed \$397,041 to provide an on-site, on-demand and culturally appropriate prevention and early intervention program to help formally homeless families for the period July 1, 2021 through June 30, 2022, including a six-month automatic extension through December 31, 2022 in an amount not to exceed \$198,520. (100% Mental Health Services Act)
- C. 70** APPROVE and AUTHORIZE the Purchasing Agent, to execute, on behalf of the Health Services Director, a purchase order with GE Precision Healthcare, LLC, in an amount not to exceed \$409,627 for the lease of a mobile computed tomography scanner for Contra Costa Regional Medical Center for the period July 1, 2021 through March 30, 2023. (100% Hospital Enterprise Fund I)
- C. 71** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a contract amendment with Lifelong Medical Care, with no change in the original payment limit of \$1,559,142 to continue to provide COVID-19 testing and vaccination support and extend the termination date from December 31, 2021 to June 30, 2022. (100% American Rescue Plan)
- C. 72** APPROVE and AUTHORIZE the Conservation and Development Director, or designee, to execute a contract amendment with Fehr & Peers to extend the term from December 31, 2021 through June 30, 2022 with no change to the payment limit, to continue analyzing the feasibility of multi-use trail concepts for the Marsh Creek Corridor. (84% Livable Communities Trust (District 3 portion), 8%

Road Fund, 8% East Contra Costa County Habitat Conservancy)

- C. 73** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a contract amendment with La Clinica De La Raza, Inc., with no change in the original payment limit of \$780,280 to continue to provide COVID-19 outreach, mobile testing and vaccine administration in underserved areas of the County and extend the termination date from December 31, 2021 to June 30, 2022. (100% American Rescue Plan)
- C. 74** APPROVE and AUTHORIZE the Purchasing Agent, or designee, to execute, on behalf of the Sheriff-Coroner, a purchase order amendment with Victory Supply to increase the payment limit by \$125,001 to a new payment limit of \$325,000 to purchase clothing, bedding & linen items as required for inmates for County detention facilities through March 31, 2022. (100% General Fund)
- C. 75** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a contract extension with Public Health Foundation Enterprises, Inc (dba Heluna Health), with no change in the original payment limit of \$2,947,041 to continue to provide temporary public health microbiologist, licensed vocational nurses and registered nurses for coverage at COVID-19 service sites and extend the term from December 31, 2021 to June 30, 2022. (100% American Rescue Act)
- C. 76** APPROVE and AUTHORIZE the Purchasing Agent, on behalf of the Health Services Director, to execute a purchase order with Forward Advantage, Inc., in an amount not to exceed \$1,055,292 for the renewal of Imprivata SSO Software and Confirm ID software for electronic prescribing of controlled substances and iGel Workspace Edition Solution for secure management of endpoint computing for the period December 14, 2021 through February 7, 2025. (100% Hospital Enterprise Fund I)
- C. 77** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a contract with Pinnacle Mental Wellness Group, A Family Counseling Community, Inc., in an amount not to exceed \$480,000 to provide outpatient psychotherapy services to Contra Costa Health Plan members for the period January 1, 2022 through December 31, 2024. (100% Contra Costa Health Plan Enterprise Fund II)
- C. 78** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a contract with Mission Hills Eye Center Medical Associates, Inc., in an amount not to exceed \$2,400,000 to provide ophthalmology and optometry services to Contra Costa Health Plan members and County recipients for the period January 1, 2022 through December 31, 2024. (100% Contra Costa Health Plan Enterprise Fund II)

- C. 79** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a contract amendment with Contra Costa Interfaith Transitional Housing, Inc. (dba Hope Solutions), to increase the payment limit by \$155,282 to a new total payment limit of \$615,282 with no change in the term July 1, 2021 through June 30, 2022, for additional housing navigation services to transitional aged youth who are part of the foster care system. (100% State)
- C. 80** APPROVE and AUTHORIZE the Human Resources Director, or designee, to execute a contract amendment with Biometrics4ALL, Inc. to extend the term from July 1, 2021 through June 30, 2022, and increase the payment limit by \$160,000 to a new payment limit of \$325,000, to provide technology services to facilitate social distance fingerprinting. (100% User Fees)
- C. 81** APPROVE and AUTHORIZE the Employment and Human Services Director, or designee, to execute a contract with First Baptist Church of Pittsburg, California, in an amount not to exceed \$1,160,877 for Head Start Delegate Agency childcare services for the period January 1, 2022 through June 30, 2022. (100% Federal)
- C. 82** APPROVE and AUTHORIZE the Sheriff–Coroner, or designee, to execute a contract amendment with West Advanced Technologies, Inc. to increase the payment limit by \$150,000 to a new payment limit of \$298,363 to provide additional design, development, programming, and maintenance and support services for the Automated Regional Information Exchange System, for the remaining period of the contract ending October 31, 2022. (100% General Fund)
- C. 83** APPROVE and AUTHORIZE the Sheriff-Coroner, or designee, to execute a contract with Total Firearms Training in an amount not to exceed \$293,460 to provide firearms range safety management for Sheriff's personnel and range visitors for the period January 1, 2022 through December 31, 2023. (70% General Fund, 30% participant fees)
- C. 84** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a cancellation agreement with Sodexo, Inc. for their existing contract, effective at close of business on October 31, 2021; and to execute a new contract with Sodexo, Inc., in an amount not to exceed \$1,053,451 to provide management and oversight of the Environmental Services Unit at Contra Costa Regional Medical Center and Contra Costa Health Centers for the period November 1, 2021 through October 31, 2023. (100% Hospital Enterprise Fund I)
- C. 85** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a contract amendment with Ride Roundtrip, Inc., effective December 1, 2021, to increase the payment limit by \$150,000 to a new payment limit of \$3,050,000 with no change in the term January 1, 2019 through December 31, 2021 for additional hosted software portal services for transportation coordination, scheduling, and dispatch for Medi-Cal patients. (100% State)

- C. 86** APPROVE and AUTHORIZE the Employment and Human Services Director, or designee, to execute a contract with Seneca Family of Agencies, a non-profit corporation, in an amount not to exceed \$250,020 to provide family finding services for foster youth for the period January 1, 2022 through December 31, 2022. (77% State, 23% Federal)
- C. 87** APPROVE and AUTHORIZE the Director of Risk Management to execute contracts with specified legal firms for defense of the County in workers' compensation, medical malpractice and liability tort claims for the period of January 1, 2022 through December 31, 2022. (100% Self-Insurance Internal Service Funds) **(Continued from December 7, 2021)**
- C. 88** Acting as the governing board of the Contra Costa County Fire Protection District, APPROVE and AUTHORIZE the Fire Chief, or designee, to execute a contract with Public Consulting Group, LLC, in an amount not to exceed \$335,000, for the period January 1, 2022 to December 31, 2024 to provide data collection and cost reporting services related to the District's participation in the Public Provider Ground Emergency Medical Transport Program and Medicare Ground Ambulance Data Collection Survey. (100% CCCFPD EMS Transport Fund)

Other Actions

- C. 89** ACCEPT the Contra Costa County Library Commission 2021 Annual Report and 2022 Work Plan, as recommended by the County Librarian. (No fiscal impact)
- C. 90** APPROVE and AUTHORIZE the County Librarian, or designee, to close all branches of the County Library as specified in the "2022 Library Closures" list. (No fiscal impact)
- C. 91** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a contract with William Marsh Rice University to perform certain research activity on behalf of Contra Costa Regional Medical Center and Health Centers for the period from February 23, 2021 through June 24, 2024. (No fiscal impact)
- C. 92** APPROVE and AUTHORIZE the County Librarian, or designee, to execute a contract amendment with City of Walnut Creek, to extend the term from November 30, 2021 through March 31, 2022 with no change in the Community Development Block Grant (CDBG) award to the County of \$95,000, to provide Americans with Disabilities Act upgrades to the Ygnacio Valley Library parking lot. (No County match, Library Fund)
- C. 93** ACCEPT the Contra Costa County Historical Landmarks Advisory Committee 2021 Annual Report, as recommended by the Conservation and Development Director.

- C. 94** ACCEPT the North Richmond Waste & Recovery Mitigation Fee Joint Expenditure Planning Committee Annual Report for 2021, as recommended by the Conservation and Development Director. (No fiscal impact)
- C. 95** ACCEPT the 2021 annual report of the Arts and Culture Commission, as recommended by the Commission.
- C. 96** APPROVE the list of providers recommended by the Medical Director and the Health Services Director, and as required by the State Departments of Health Care Services and Managed Health Care, and the Centers for Medicare and Medicaid Services. (No fiscal impact)
- C. 97** APPROVE clarification of Board Action of January 21, 2020 (Item 37) in which Employment and Human Services Department on behalf of the Workforce Development Board executed a contract with California Employment Development Department, Employment Training Panel to support programs for careers in the health care professions to change the payment limit of \$200,240 to \$220,230 with no change in the term October 1, 2019 through September 30, 2021. (100% State)
- C. 98** APPROVE the list of providers recommended by the Contra Costa Health Plan's Medical Director and the Health Services Director, as required by the State Departments of Health Care Services and Managed Health Care and the Centers for Medicare and Medicaid Services. (No fiscal impact)
- C. 99** ADOPT Resolution No. 2021/408 authorizing the Health Services Director, or designee, to execute amendments or modifications to Standard Agreement #28-913-2, as well as any documents required by the State in regard to the Pet Assistance and Support Program. (No fiscal impact)
- C.100** APPROVE and AUTHORIZE the Health Services Director, or designee to execute a contract amendment with the City of Antioch, to allow the Health Services Department to continue using the City's Nick Rodriguez Community Center for COVID-19 testing and immunizations and extend the term date from December 31, 2021 to June 30, 2022. (No fiscal impact)
- C.101** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a contract amendment with the City of Antioch, to allow the Health Services Department to continue using the City's Antioch Community Center for COVID-19 testing and immunizations and to extend the term date from December 31, 2021 to June 30, 2022. (No fiscal impact)

- C.102** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a contract amendment with the City of Brentwood, to allow the Health Services Department and the California Department of Public Health contractors to continue using the City's Brentwood Technology and Education Center for COVID-19 testing and immunizations and extend the term date from December 31, 2021 to April 30, 2022. (No fiscal impact)
- C.103** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a contract amendment with the Contra Costa Community College District, to allow the Health Services Department to continue using the District's Diablo Valley College Overflow Lot for COVID-19 testing and immunizations and extend the term date from December 31, 2021 to June 30, 2022. (No fiscal impact)
- C.104** APPROVE and AUTHORIZE the Health Service Director, or designee, to execute a contract amendment with the City of San Pablo, for the Health Services Department to continue using the City's Davis Park Multi-Purpose Room for COVID-19 vaccination and testing services and extend the term date from December 31, 2021 to March 31, 2022. (No fiscal impact)
- C.105** ADOPT Resolution No. 2021/409 authorizing the Health Services Director, or designee, to submit an application to the California Department of Housing and Community Development for up to \$32,400,000 in Homekey Program grant funding, and AUTHORIZE the Public Works Director, or designee, to execute an exclusive negotiating rights agreement with Clarence Perry, LLC, for property at 2555 El Portal Drive, San Pablo, and related actions. (100% State)
- C.106** APPROVE and AUTHORIZE the Health Services Director, or designee, to execute a contract amendment with Kaiser Foundation Health Plan, Inc., to include data exchange requirements per Department of Health Care Services All Plan Letter APL20-017 and revise the Delegation Agreement and reporting requirements for continuing Medi-Cal services for Contra Costa Health Plan members enrolled in the Kaiser Health Plan with no change to the term or contract payment limit of \$600,000,000. (No fiscal impact)
- C.107** ACCEPT the 2021 Advisory Body Annual Report for the Juvenile Justice Coordinating Council .
- C.108** ACCEPT the Contra Costa County Planning Commission 2021 Annual Report, as recommended by the Conservation and Development Director.
- C.109** RECEIVE notice of adjustment in compensation paid to members of the Board of Supervisors, showing a 0.5562 percent salary increase for Board members effective July 1, 2021, as required by Ordinance 2019-11. (100% General Fund)

- C.110** ACCEPT the 2021 Advisory Body Annual Report for the Racial Justice Oversight Body (RJOB), as recommended by the Chief Probation Officer. (No Fiscal Impact)
- C.111** ACCEPT the 2021 Annual Report for the County Service Area P-2A (Blackhawk) - Citizen's Advisory Committee, as recommended by Supervisor Burgis.
- C.112** RECEIVE Civil Grand Jury Report No. 2104, entitled "Cyber Attack Preparedness in Contra Costa County," and REFER to the County Administrator and the Department of Information Technology for response. (No fiscal impact)
- C.113** RECEIVE the 2021 Annual Report submitted by the Finance Committee, as recommended by the Finance Committee.
- C.114** ACCEPT the 2021 Advisory Body Annual Report for the Affordable Housing Finance Committee, as recommended by the Conservation and Development Director. (No fiscal impact)
- C.115** ACCEPT the Contra Costa County Fish and Wildlife Committee 2021 Annual Report, as recommended by the Fish and Wildlife Committee. (No fiscal impact)

Successor Agency to the Contra Costa County Redevelopment Agency

- C.116** APPROVE and AUTHORIZE the Conservation and Development Director, or designee, to execute a contract between ERM-WEST, INC., a California corporation, and Contra Costa County, the Hookston Group, and Union Pacific Railroad ("the Hookston Parties"), effective November 23, 2021, with a payment limit of \$210,233 and a term ending January 31, 2023, to continue providing remediation and related environmental services at the Hookston Site. (100% Successor Agency Funds)

GENERAL INFORMATION

The Board meets in all its capacities pursuant to Ordinance Code Section 24-2.402, including as the Housing Authority and the Successor Agency to the Redevelopment Agency. Persons who wish to address the Board should complete the form provided for that purpose and furnish a copy of any written statement to the Clerk.

Any disclosable public records related to an open session item on a regular meeting agenda and distributed by the Clerk of the Board to a majority of the members of the Board of Supervisors less than 96 hours prior to that meeting are available for public inspection at 1025 Escobar Street, First Floor, Martinez, CA 94553, during normal business hours.

All matters listed under CONSENT ITEMS are considered by the Board to be routine and will be

enacted by one motion. There will be no separate discussion of these items unless requested by a member of the Board or a member of the public prior to the time the Board votes on the motion to adopt.

Persons who wish to speak on matters set for PUBLIC HEARINGS will be heard when the Chair calls for comments from those persons who are in support thereof or in opposition thereto. After persons have spoken, the hearing is closed and the matter is subject to discussion and action by the Board. Comments on matters listed on the agenda or otherwise within the purview of the Board of Supervisors can be submitted to the office of the Clerk of the Board via mail: Board of Supervisors, 1025 Escobar Street, First Floor, Martinez, CA 94553.

The County will provide reasonable accommodations for persons with disabilities planning to attend Board meetings who contact the Clerk of the Board at least 24 hours before the meeting, at (925) 655-2000. An assistive listening device is available from the Clerk, First Floor.

Copies of recordings of all or portions of a Board meeting may be purchased from the Clerk of the Board. Please telephone the Office of the Clerk of the Board, (925) 655-2000, to make the necessary arrangements.

Forms are available to anyone desiring to submit an inspirational thought nomination for inclusion on the Board Agenda. Forms may be obtained at the Office of the County Administrator or Office of the Clerk of the Board, 1025 Escobar Street, Martinez, California.

Subscribe to receive to the weekly Board Agenda by calling the Office of the Clerk of the Board, (925) 655-2000 or using the County's on line subscription feature at the County's Internet Web Page, where agendas and supporting information may also be viewed:

www.contracosta.ca.gov

STANDING COMMITTEES

To slow the spread of COVID-19 and in lieu of a public gathering, if the Board's STANDING COMMITTEES meet they will provide public access either telephonically or electronically, as noticed on the agenda for the respective STANDING COMMITTEE meeting.

The **Airport Committee** TBD

The **Family and Human Services Committee** TBD

The **Finance Committee** TBD

The **Hiring Outreach Oversight Committee**TBD

The **Internal Operations Committee** TBD

The **Legislation Committee** TBD

The **Public Protection Committee** (Supervisors Andersen and Federal D. Glover) meets on the fourth Monday of the month at 10:30 a.m. in Room 110, County Administration Building, 1025

Escobar Street, Martinez.

The **Sustainability Committee** TBD

The **Transportation, Water & Infrastructure Committee** TBD

Airports Committee	TBD in 2022		See above
Family & Human Services Committee	TBD in 2022		See above
Finance Committee	TBD in 2022		See above
Hiring Outreach Oversight Committee	TBD in 2022		See above
Internal Operations Committee	TBD in 2022		See above
Legislation Committee	TBD in 2022		See above
Public Protection Committee	December 16, 2021	1:00 p.m.	See above
Sustainability Committee	TBD in 2022		See above
Transportation, Water & Infrastructure Committee	TBD in 2022		See above

AGENDA DEADLINE: Thursday, 12 noon, 12 days before the Tuesday Board meetings.

Glossary of Acronyms, Abbreviations, and other Terms (in alphabetical order):

Contra Costa County has a policy of making limited use of acronyms, abbreviations, and industry-specific language in its Board of Supervisors meetings and written materials. Following is a list of commonly used language that may appear in oral presentations and written materials associated with Board meetings:

AB Assembly Bill

ABAG Association of Bay Area Governments

ACA Assembly Constitutional Amendment

ADA Americans with Disabilities Act of 1990

AFSCME American Federation of State County and Municipal Employees

AICP American Institute of Certified Planners

AIDS Acquired Immunodeficiency Deficiency Syndrome

ALUC Airport Land Use Commission

AOD Alcohol and Other Drugs

ARRA American Recovery & Reinvestment Act of 2009

BAAQMD Bay Area Air Quality Management District

BART Bay Area Rapid Transit District

BayRICS Bay Area Regional Interoperable Communications System

BCDC Bay Conservation & Development Commission

BGO Better Government Ordinance

BOS Board of Supervisors

CALTRANS California Department of Transportation

CalWIN California Works Information Network

CalWORKS California Work Opportunity and Responsibility to Kids

CAER Community Awareness Emergency Response

CAO County Administrative Officer or Office
CCE Community Choice Energy
CCCPFD (ConFire) Contra Costa County Fire Protection District
CCHP Contra Costa Health Plan
CCTA Contra Costa Transportation Authority
CCRMC Contra Costa Regional Medical Center
CCWD Contra Costa Water District
CDBG Community Development Block Grant
CFDA Catalog of Federal Domestic Assistance
CEQA California Environmental Quality Act
CIO Chief Information Officer
COLA Cost of living adjustment
ConFire (CCCFPD) Contra Costa County Fire Protection District
CPA Certified Public Accountant
CPI Consumer Price Index
CSA County Service Area
CSAC California State Association of Counties
CTC California Transportation Commission
dba doing business as
DSRIP Delivery System Reform Incentive Program
EBMUD East Bay Municipal Utility District
ECCFPD East Contra Costa Fire Protection District
EIR Environmental Impact Report
EIS Environmental Impact Statement
EMCC Emergency Medical Care Committee
EMS Emergency Medical Services
EPSDT Early State Periodic Screening, Diagnosis and Treatment Program (Mental Health)
et al. et alii (and others)
FAA Federal Aviation Administration
FEMA Federal Emergency Management Agency
F&HS Family and Human Services Committee
First 5 First Five Children and Families Commission (Proposition 10)
FTE Full Time Equivalent
FY Fiscal Year
GHAD Geologic Hazard Abatement District
GIS Geographic Information System
HCD (State Dept of) Housing & Community Development
HHS (State Dept of) Health and Human Services
HIPAA Health Insurance Portability and Accountability Act
HIV Human Immunodeficiency Virus
HOME Federal block grant to State and local governments designed exclusively to create affordable housing for low-income households
HOPWA Housing Opportunities for Persons with AIDS Program
HOV High Occupancy Vehicle
HR Human Resources
HUD United States Department of Housing and Urban Development
IHSS In-Home Supportive Services
Inc. Incorporated

IOC Internal Operations Committee
ISO Industrial Safety Ordinance
JPA Joint (exercise of) Powers Authority or Agreement
Lamorinda Lafayette-Moraga-Orinda Area
LAFCo Local Agency Formation Commission
LLC Limited Liability Company
LLP Limited Liability Partnership
Local 1 Public Employees Union Local 1
LVN Licensed Vocational Nurse
MAC Municipal Advisory Council
MBE Minority Business Enterprise
M.D. Medical Doctor
M.F.T. Marriage and Family Therapist
MIS Management Information System
MOE Maintenance of Effort
MOU Memorandum of Understanding
MTC Metropolitan Transportation Commission
NACo National Association of Counties
NEPA National Environmental Policy Act
OB-GYN Obstetrics and Gynecology
O.D. Doctor of Optometry
OES-EOC Office of Emergency Services-Emergency Operations Center
OPEB Other Post Employment Benefits
ORJ Office of Reentry and Justice
OSHA Occupational Safety and Health Administration
PACE Property Assessed Clean Energy
PARS Public Agencies Retirement Services
PEPRA Public Employees Pension Reform Act
Psy.D. Doctor of Psychology
RDA Redevelopment Agency
RFI Request For Information
RFP Request For Proposal
RFQ Request For Qualifications
RN Registered Nurse
SB Senate Bill
SBE Small Business Enterprise
SEIU Service Employees International Union
SUASI Super Urban Area Security Initiative
SWAT Southwest Area Transportation Committee
TRANSPAC Transportation Partnership & Cooperation (Central)
TRANSPLAN Transportation Planning Committee (East County)
TRE or **TTE** Trustee
TWIC Transportation, Water and Infrastructure Committee
UASI Urban Area Security Initiative
VA Department of Veterans Affairs
vs. versus (against)
WAN Wide Area Network
WBE Women Business Enterprise

WCCHD West Contra Costa Healthcare District

WCCTAC West Contra Costa Transportation Advisory Committee



Contra
Costa
County

To: Board of Supervisors
From: Monica Nino, County Administrator
Date: December 14, 2021

Subject: Measure X Sales Tax Revenue Allocation - Follow-up on Hospital Capital Projects

RECOMMENDATION(S):

CONSIDER adopting Measure X funding allocation in the amount of \$75 million and associated appropriation adjustment (5021) for the Contra Costa Regional Medical Center capital projects.

FISCAL IMPACT:

The recommendations included in this follow-up report have a one-time cost of \$75 million and will be funded with sales tax revenues generated through Measure X, which are general purpose revenues.

BACKGROUND:

On November 16, 2021, the Board of Supervisors received a report regarding their recommendations for allocating Measure X revenues. Included in the report was \$80 million in one-time monies to provide much need infrastructure at the Contra Costa County Regional Medical Center (CCRMC) and Health Clinics (HCs).

As the primary Medi-Cal hospital and clinic delivery system for Contra Costa County, the current facilities are inadequate in size and scope to accommodate CCRMC/HCs continued need to provide clinical and health services to our assigned patient population. Over the last 2 decades, after construction of the Martinez Medical Campus, CCRMC/HCs empaneled patient assignment has grown over 540% to well over 142,000 individuals. An additional 78,000 lives seek specialty services, care coordination services, and hospital services within CCRMC/HCs infrastructure.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Lisa Driscoll, County Finance
Director (925) 655-2047

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Robert Campbell, Auditor-Controller, Eric Angstadt, Chief Deputy County Administrator, Anna M. Roth, Director, CCC Health Services

BACKGROUND: (CONT'D)

The projects were to expand the office complex by 40,000 square feet (\$30 million); replace the Public Health Lab at 15,000 square feet (\$25 million); build a parking structure with 325 additional spaces (\$15 million); and expand the Interventional Radiology Suite by 5,000 square feet (\$5 million). Note that the original recommendation included a 3,000 square foot expansion of Psychiatric Emergency Services (\$5 million), which was approved on November 16. During the meeting, the Board unanimously supported the need for improved infrastructure at the CCRMC in order to provide health services to the Contra Costa County community. The Board also acknowledged the significant planning that has been performed over the last decade on these projects (see attached 2009 CCRMC Master Plan). Staff were requested to return with more details on four of the projects in order to provide the Board and public with a comprehensive presentation of the capital improvements planned for the CCRMC campus. Attached and below is additional information which will be expanded upon during the Board's discussion. At the conclusion of the discussion, staff recommends that the attached appropriation adjustment be adopted.

CCRMC Medical Clinic and Office Complex – 40,000 square feet expansion

Currently Building One serves as the primary medical clinic for the Martinez campus while Miller Wellness Center is primarily a Behavioral Health oriented clinic site. Over the last two decades CCRMC/HCs has dedicated efforts to provide community standard clinical services on campus. Meeting the clinical demand of our current and future patients requires expansion of services in areas such as primary care, ophthalmology, dermatology, oncology, urology, maxillofacial services, orthopedics, oncology, cardiology and pulmonary. At present, our biggest constraint to expanding these services is the limited amount of physical space to provide direct patient care on the Martinez Campus.

The Contra Costa Regional Medical Center campus master plan developed in 2009 called for construction of three medical office buildings to meet the demands of patient growth and increasing clinical care. CCRMC/HCs has largely outgrown its space and requires more exam rooms and clinical office space to improve patient access and allow care teams to provide the high-quality care our patients deserve. With the new clinical spaces CCRMC/HCs will be able to support better diagnostic services, better social services, improved access to medical and surgical specialists, and improved access to primary care providers. Not only will this improve patient care and outcomes, it will also support the County's Medi-Cal Waiver and supplemental funding requirements. Additionally, recruitment of staff and providers is difficult due to the dearth of medical office space required to perform mandatory activities like care coordination, electronic medical record keeping, quality improvement and regulatory oversight. This space would become available in the medical office space expansion.

CCRMC Parking Structure – 325 spaces

The growth in patient volume has spotlighted the urgent need for additional parking for both patients and staff. The 2009 campus master plan called for additional parking construction which has not yet been completed. The resulting traffic and congestion have become a critical safety concern. Compounding the problem is the upcoming loss of 72 spaces currently being leased from the Teamsters effective 2022. At an annual cost of \$480,000, CCRMC is using valet service for patient and staff parking to capitalize on space around parking spaces that are 'stacked' in order to provide more parking. Due to space limitations, the valet does not meet the County's current demand. Additionally, due to the COVID-19 pandemic, many patients and staff do not feel comfortable using this service. Patients with physical disabilities, small children, and cognitive difficulties often miss appointments because they are unable to find convenient and safe parking. Families coming to see loved ones and newborns in hospital often are limited to after-hours visits due to parking limitations. We are proposing a new parking structure to enhance the patient care experience, improve safety and improve access for patients and

staff.

CCRMC Interventional Radiology – 5,000 square feet suite

Modernization of certain hospital diagnostic and interventional procedures are required to provide safer procedural care in the hospital. Over the last two decades there has been a shift to small incision and non-surgical interventions to manage acute conditions with improved outcomes – it has become the standard of care. Diagnostic and therapeutic procedures that are commonly performed require our patient's transfer to surrounding hospitals with the associated delays in care due to coordination, transportation, and availability of services. Patients needing pain control, catheter or port placements, cancer medication infusions, abscess and infection drainage, and interventional diagnostics would benefit from these services being provided on demand at CCRMC.

New Public Health Lab – 15,000 square feet

Contra Costa Health Services is proposing construction of a new \$25 million Public Health Laboratory to improve upon and expand existing clinical and public health diagnostic laboratory testing. Current facilities are inadequate to permit expansion for modernization as well as accommodate current and future laboratory emergency preparedness.

The Contra Costa Public Health Laboratory and Contra Costa Regional Medical Center (CCRMC) Clinical Laboratory currently occupy the same dedicated laboratory building. A new Public Health Laboratory will result in better diagnostic and testing availability for county residents and health care providers including CCRMC, John Muir, Kaiser Permanente, Sutter Health and many others in situations such as the COVID-19 pandemic, foodborne outbreaks like E.coli and salmonella, hazardous materials incidents and rabies testing of animals.

Both laboratories, while at space capacity, are unable to onboard new, modern diagnostic and disease detection technologies due to limited laboratory bench and floor space and exceeding electrical capacity within the facility. Additionally, some supplies are stored in open spaces due to the already crowded storage spaces. Relocating the Public Health laboratory to a contemporary structure facilitates upgrading to modern molecular technologies, workflows, and instrumentation that have been heavily relied upon during the COVID-19 pandemic, such as detection of COVID-19 and identification of variants and will ensure that these crucial public health services will continue to be available for residents and health providers across the whole county. Relocation additionally permits the CCRMC hospital clinical laboratory to improve its own diagnostic testing capacity.

We are proposing that the unreinforced masonry building at 20 Allen Street, on the CCRMC campus, be demolished and a new building constructed there to accommodate a replacement to the existing Public Health Laboratory. This new building will house the Public Health Lab including current testing, expansion of molecular instrumentation, and workspace for bioinformatic computing needs. The proposed move would also fix overcrowding of the CCRMC Clinical Laboratory which shares the current building with the Public Health Laboratory, as the CCRMC Clinical Laboratory would expand into the space vacated by the Public Health Laboratory.

CONSEQUENCE OF NEGATIVE ACTION:

Delay in providing services to the Contra Costa County community.

ATTACHMENTS

CCRMC Capital Projects (November 16 - Attachment B.1)

Measure X Appropriation Adjustments 5021

CCRMC Capital Project PowerPoint

Contra Costa Regional Medical Center & Health Centers Capital Projects: \$80,000,000 (One-time)

Contra Costa Regional Medical Center & Health Centers (CCRMC/HCs) is proposing construction of the following:

1. New Medical Clinic and Office Building Complex
2. New Parking Structure
3. New Interventional Radiology Suite
4. Expanded and Modernized Psychiatric Emergency Room (PES)
5. Public Health Lab

As the primary Medi-Cal hospital and clinic delivery system for Contra Costa County, the current facilities are inadequate in size and scope to accommodate CCRMC/HCs continued need to provide clinical and health services to our assigned patient population. Over the last 2 decades, after construction of the Martinez Medical Campus, CCRMC/HCs empaneled patient assignment has grown over 540% to well over 142,000 individuals. An additional 78,000 lives seek specialty services, care coordination services, and hospital services within CCRMC/HCs infrastructure.

1. CCRMC Medical Clinic and Office Complex – 40,000 square feet expansion

Currently Building One serves as the primary medical clinic for the Martinez campus while Miller Wellness Center is primarily a Behavioral Health oriented clinic site. Over the last 2 decades CCRMC/HCs has dedicated efforts to provide community standard clinical services on campus. Meeting the clinical demand of our current and future patients requires expansion of services in areas such as primary care, ophthalmology, dermatology, oncology, urology, maxillofacial services, orthopedics, oncology, cardiology and pulmonary. At present time our biggest constraint to expanding these services is the limited amount of physical space to provide direct patient care on the Martinez Campus.

The Contra Costa Regional Medical Center campus master plan developed in 2009 called for construction of 3 medical office buildings to meet the demands of patient growth and increasing clinical care. CCRMC/HCs has largely outgrown its space and requires more exam rooms and clinical office space to improve patient access and allow care teams to provide the high-quality care our patients deserve. With the new clinical spaces CCRMC/HCs will be able to support better diagnostic services, better social services, improved access to medical and surgical specialists, and improved access to primary care providers. Not only will this improve patient care and outcomes, it will also support our Medi-Cal Waiver and supplemental funding requirements. Additionally, recruitment of staff and providers is difficult due to the dearth of medical office space required to perform mandatory activities like care coordination, electronic medical record keeping, quality improvement and regulatory oversight. This space would become available in the medical office space expansion.

2. CCRMC Parking Structure – 325 spaces

The growth in patient volume has spotlighted the urgent need for additional parking for both patients and staff. The 2009 campus master plan called for additional parking construction which has not yet been completed. The resulting traffic and congestion have become a critical safety concern. Compounding the problem is the upcoming loss of 72 spaces currently being leased from the Teamsters effective 2022. At an annual cost of \$480,000, CCRMC is using valet service for patient and staff parking to capitalize on space around parking spaces that are ‘stacked’ in order to provide more parking.

However, due to space limitations, the valet doesn't meet our current demand. Additionally, due to the COVID-19 pandemic, many patients and staff do not feel comfortable using this service. Patients with physical disabilities, small children, and cognitive difficulties often miss appointments because they are unable to find convenient and safe parking. Families coming to see loved ones and newborns in hospital often are limited to after-hours visits due to parking limitations. We are proposing a new parking structure to enhance the patient care experience, improve safety and improve access for patients and staff.

3. CCRMC Interventional Radiology – 5,000 square feet suite

Modernization of certain hospital diagnostic and interventional procedures are required to provide safer procedural care in the hospital. Over the last 2 decades there has been a shift to small incision and non-surgical interventions to manage acute conditions with improved outcomes – it has become the standard of care. Diagnostic and therapeutic procedures that are commonly performed require our patient's transfer to surrounding hospitals with the associated delays in care due to coordination, transportation, and availability of services. Patients needing pain control, catheter or port placements, cancer medication infusions, abscess and infection drainage, and interventional diagnostics would benefit from these services being provided on demand at CCRMC.

4. CCRMC Psychiatric Emergency Services (PES) – 3,000 square feet expansion

The dormitory style PES unit does not provide the needed privacy and quiet environment psychiatric patients require for recovery and crisis stabilization. The dramatic increase in clinical census from 7800 patients to 10,500 patients annually over the last decade is driving the need for additional space and a different type of treatment environment. The COVID pandemic has raised awareness that a modern physical plant is needed to address the latest infection control practices. As the county's only psychiatric hold designated intake unit, overcrowding has increasingly created concerns about safety and timely access. Due to countywide increases in psychiatric morbidity and insufficient community resources a plan for expansion of the CCRMC PES unit has been proposed to reduce overcrowding and increase therapeutic space.

Benefits of the proposed project include improved staff and patient safety, improved patient access to clinical care, improved staff wellness, more equitable care services for our patient community, community standards of care, modernization of infrastructure and care practices, and improved ability to scale services in the coming years.

5. New Public Health Lab – 15,000 square feet

Contra Costa Health Services is proposing construction of a new \$25 million Public Health Laboratory to improve upon and expand existing clinical and public health diagnostic laboratory testing. Current facilities are inadequate to permit expansion for modernization as well as accommodate current and future laboratory emergency preparedness.

The Contra Costa Public Health Laboratory and Contra Costa Regional Medical Center (CCRMC) Clinical Laboratory currently occupy the same dedicated laboratory building. A new Public Health Laboratory will result in better diagnostic and testing availability for county residents and health care providers including CCRMC, John Muir, Kaiser Permanente, Sutter Health and many others in situations such as the COVID-19 pandemic, foodborne outbreaks like E.coli and salmonella, hazardous materials incidents and rabies testing of animals.

Both laboratories, while at space capacity, are unable to onboard new, modern diagnostic and disease detection technologies due to limited laboratory bench and floor space and exceeding electrical capacity within the facility. Additionally, some supplies are stored in open spaces due to the already crowded storage spaces. Relocating the public health laboratory to a contemporary structure facilitates upgrading to modern molecular technologies, workflows, and instrumentation that have been heavily relied upon during the COVID-19 pandemic, such as detection of COVID-19 and identification of variants and will ensure that these crucial public health services will continue to be available for residents and health providers across the whole county. Relocation additionally permits the CCRMC hospital clinical laboratory to improve its own diagnostic testing capacity.

We are proposing that the unreinforced masonry building at 20 Allen Street, on the CCRMC campus, be demolished and a new building constructed there to accommodate a replacement to the existing Public Health Laboratory. This new building will house the Public Health Lab including current testing, expansion of molecular instrumentation, and workspace for bioinformatic computing needs. The proposed move would also fix overcrowding of the CCRMC Clinical Laboratory which shares the current building with the Public Health Laboratory as the CCRMC Clinical Laboratory would expand into the space vacated by the Public Health Laboratory.

The space plan includes the following components:

1. Immunology/Virology Laboratory: 1,664 sq ft
2. Bacteriology: 1,638 sq ft
3. Molecular Laboratory: 2,917 sq ft
4. Tuberculosis – Biosafety Laboratory: 1,352 sq ft
5. Rabies: 1,378 sq ft
6. Laboratory Administration and Staff Areas: 2,444 sq ft
7. Laboratory Support Space: 2,951 sq ft
8. Entrance, Reception, Lobby, Specimen Receiving: 636 sq ft

TOTAL GROSS AREA: 14,980 sq ft

A detailed space program for the new building has been developed. All lab functions would collectively require 15,000 sq ft. The cost would be approximately \$25 million, calculated as: 15,000 sq ft @ \$1,250 construction cost = \$18,750,000, plus 33% soft cost = \$25 million total project cost.

The total capital construction plan includes the following components:

1. New Medical Clinic and Office Complex: 40,000 square feet @ \$30 million
2. New Parking Structure: 325 spaces @ \$15 million
3. New Interventional Radiology Suite: 5,000 square feet @ \$5 million
4. PES Expansion and Remodel: 3,000 square feet @ \$5 million
5. New Public Health Lab: 15,000 square feet @ \$25 million

Recommendation:

The County Administrator's recommendation is that the capital plans be fully funded with a one-time allocation of \$80,000,000.

CONTRA COSTA COUNTY
APPROPRIATION ADJUSTMENT /
ALLOCATION ADJUSTMENT
T/C 27

FINAL APPROVAL NEEDED BY:



BOARD OF SUPERVISORS



COUNTY ADMINISTRATOR



AUDITOR-CONTROLLER

ACCOUNT CODING		DEPARTMENT: Health Services-Hospital Subsidy (0465), Hospital Fixed Assets (0853)			
ORGANIZATION	EXPENDITURE SUB-ACCOUNT	EXPENDITURE ACCOUNT DESCRIPTION	<DECREASE>		INCREASE
6971	4954	Medical & Lab Equipment (Office Complex)			30,000,000 00
6971	4954	Medical & Lab Equipment (Public Health Laboratory)			25,000,000 00
6971	4954	Medical & Lab Equipment (Parking Structure)			15,000,000 00
6971	4954	Medical & Lab Equipment (Interventional Radiology)			5,000,000 00
0465	3570	Contribution to Enterprise Fund			75,000,000 00
0990	6301	Reserve for Contingencies	75,000,000	00	
0990	6301	Appropriable New Revenue			75,000,000 00
TOTALS			75,000,000	00	225,000,000 00

APPROVED

AUDITOR-CONTROLLER:

BY: Analiza Pinlac DATE 12/1/21

COUNTY ADMINISTRATOR:

BY: Monica Nino 12/1/2021

BOARD OF SUPERVISORS:

YES:

NO:

BY: _____ DATE _____

EXPLANATION OF REQUEST:

Recommended Allocation of one-time Measure X monies for CCRMC Capital projects.

Lisa Driscoll

County Finance Director

12/1/2021

SIGNATURE

TITLE

DATE

APPROPRIATION APOO

5021

ADJ. JOURNAL NO.

CONTRA COSTA COUNTY
ESTIMATED REVENUE ADJUSTMENT/
ALLOCATION ADJUSTMENT
T/C 24

FINAL APPROVAL NEEDED BY:

- ☒ BOARD OF SUPERVISORS
☐ COUNTY ADMINISTRATOR
☐ AUDITOR-CONTROLLER

ACCOUNT CODING		DEPARTMENT: Measure X Revenue (0013), Health Services-Hospital Subsidy (0465)			
ORGANIZATION	REVENUE ACCOUNT	REVENUE ACCOUNT DESCRIPTION	INCREASE		<DECREASE>
0013	9045	Sales and Use Taxes (Measure X)	75,000,000	00	00
0465	8381	Hospital Subsidy	75,000,000	00	
TOTALS			150,000,000	00	0 00

APPROVED

AUDITOR-CONTROLLER:

BY: Analiza Pinlac DATE 12/1/21

COUNTY ADMINISTRATOR:

BY: Monica Nino 12/1/2021

BOARD OF SUPERVISORS:

YES:

NO:

BY: _____ DATE _____

EXPLANATION OF REQUEST:

Appropriating new revenue from Measure X sales and use taxes for CCRMC one-time capital projects.

Lisa Driscoll

County Finance Director

12/1/2021

SIGNATURE

TITLE

DATE

REVENUE ADJ.

RAOO

5021

JOURNAL NO.

Page 2 of 2



Measure X Funding Recommendations

December 14, 2021

Contra Costa Regional Medical Center and Health Centers



Contra Costa County is experiencing population growth and significant health disparities in communities across the county. Many patients face food and housing insecurity and transportation issues as they struggle to earn living wages. These daily stressors and structural inequities have a negative impact on the overall population, and particularly in the population the Contra Costa Regional Medical Center and Health Centers serves where patients have a myriad of chronic health conditions. We recognize that collaborative and integrated care methods are required to help improve health outcomes in our population.

- Approximately 50% of CCRMC/HC patients report two or more unmet basic needs such as access to food, housing and employment
- 34% our patients have behavioral health needs requiring interventions
- 57% of adults reported experiencing COVID-19 related adversity or trauma requiring resources and support
- 1/3 to 1/2 of our patients utilize interpreter services in at least 45 different languages to communicate with their provider



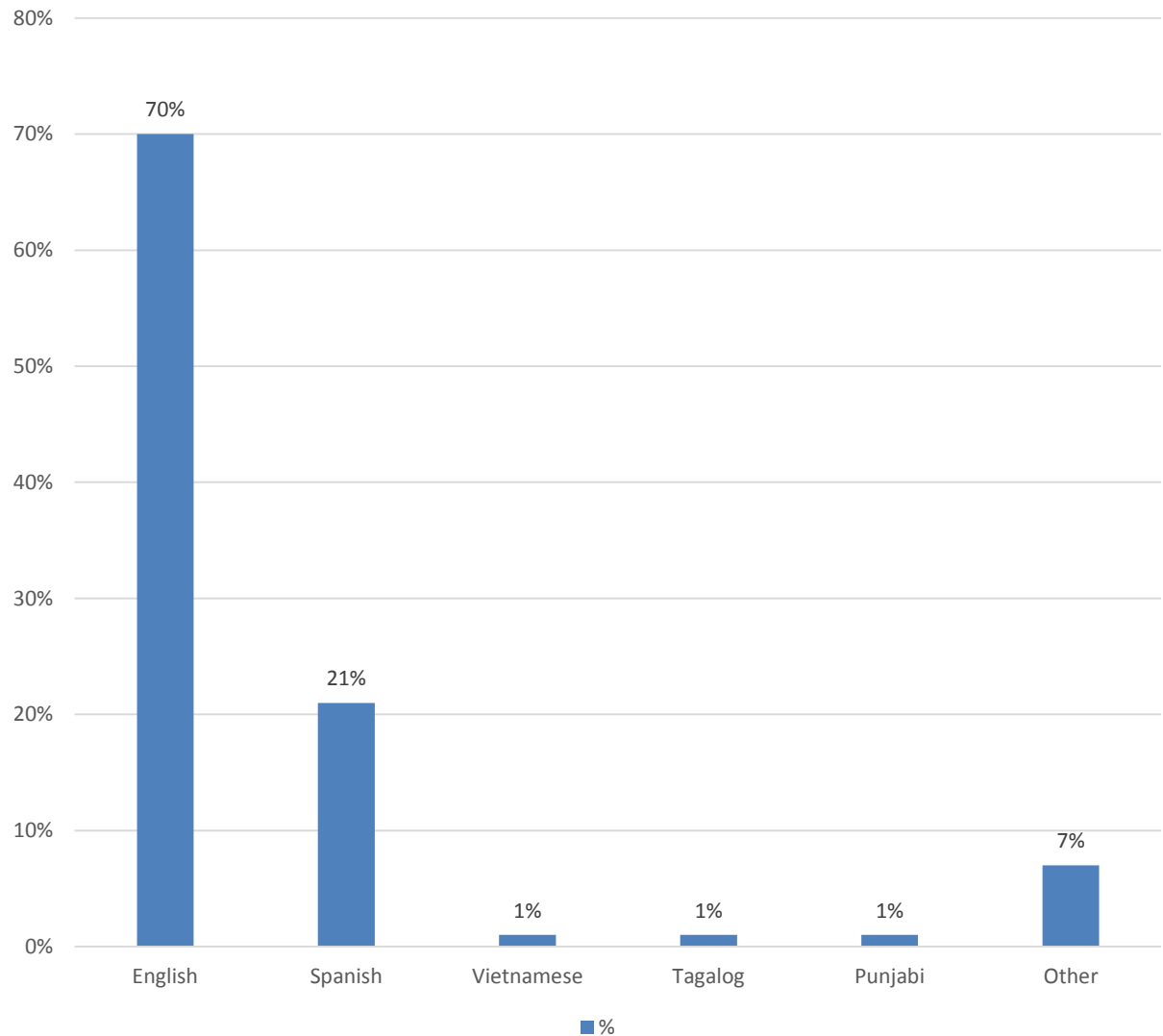
Contra Costa Regional Medical Center and Health Centers

- Greater than 70% of our patients qualify for Medi-Cal insurance based on poverty level income requirements
- On average, 18% of all county births happen at CCRMC, of those 95% are covered by Medi-Cal
- Over 1,400 foster youth supervised by the county have their medical home with CCRMC
- Approximately 11,000 individuals annually receive medical services in Detention while incarcerated and transitions to care are coordinated upon release to one of CCRMC's clinics
- 23% of all children in the county served
- 27% of all residents in the county served
- 500,000 Ambulatory visits annually, half occur on the Martinez campus

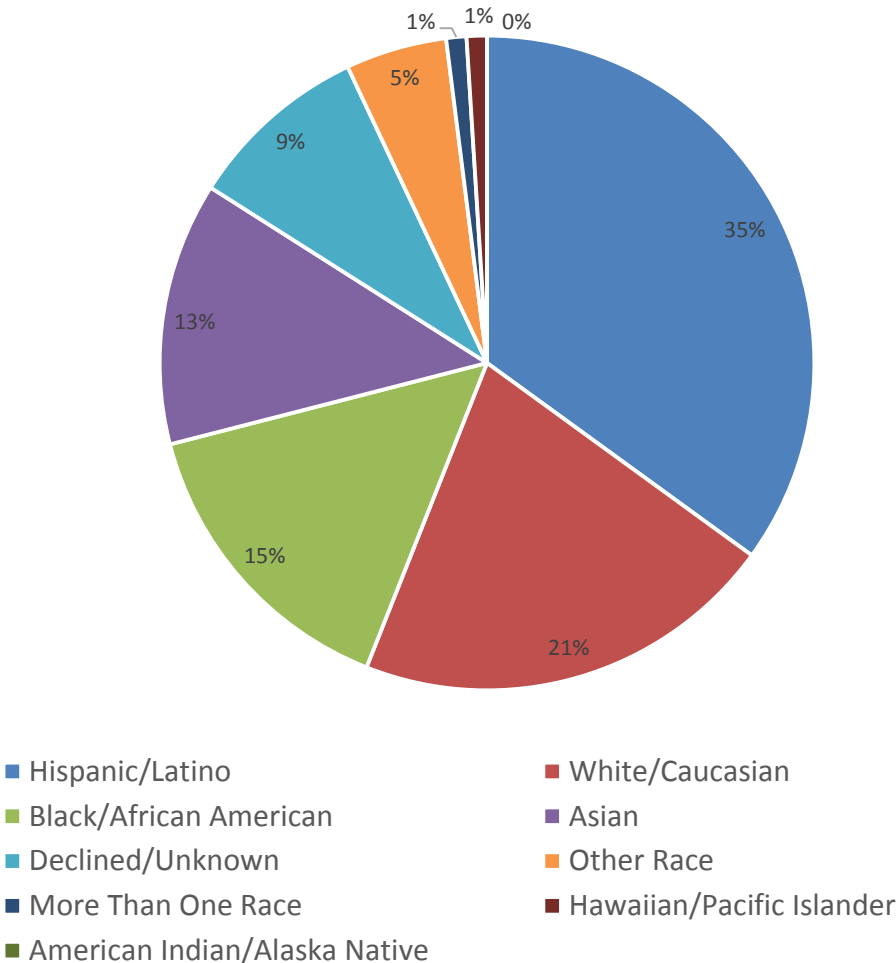


Patient Demographics

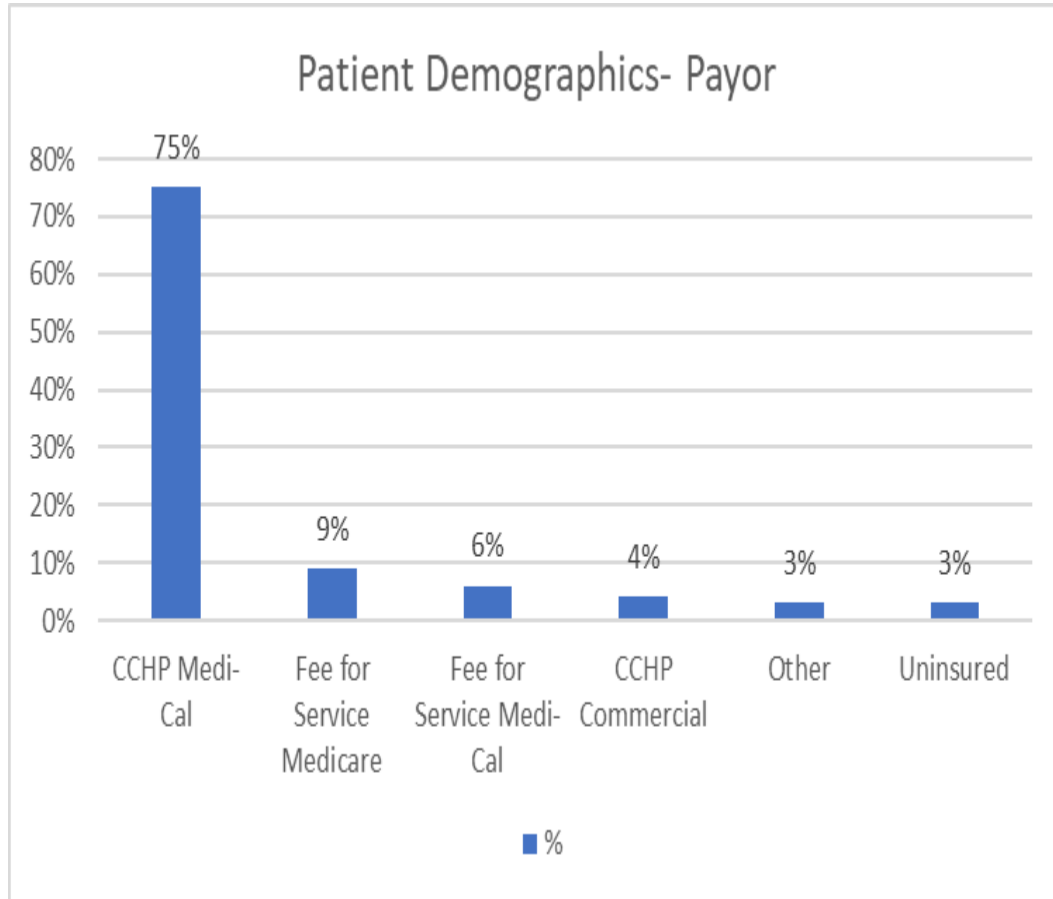
Patient Demographics- Primary Language



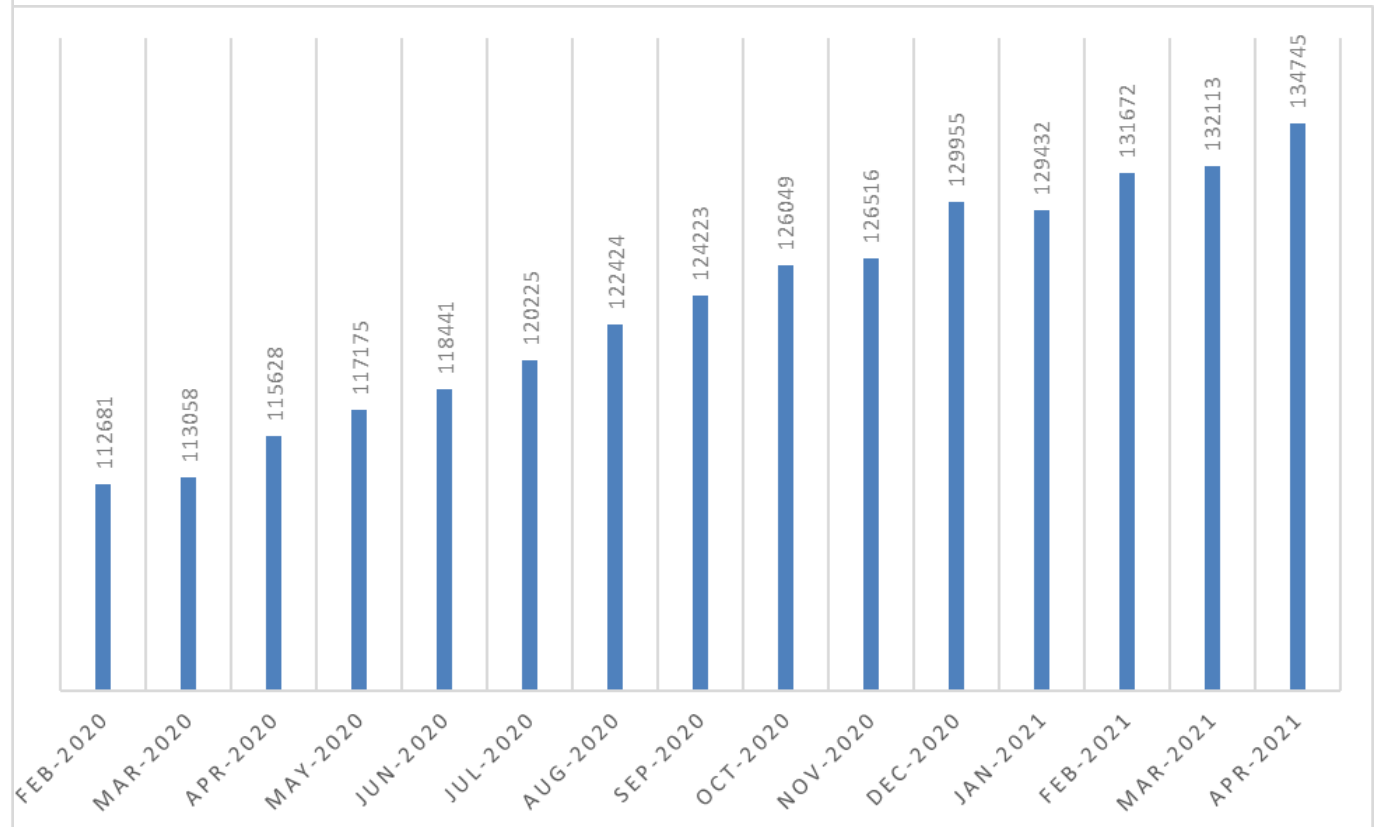
Patient Demographics- Ethnicity



Patient Demographics



Number of Empaneled patients



Contra Costa Regional Medical Center Campus Proposal



- New Medical Clinic and Office Building Complex
- New Interventional Radiology Suite
- New Parking Structure
- New Public Health Lab

Contra Costa Regional Medical Center Campus Needs

- As the primary Medi-Cal hospital and clinic delivery system for Contra Costa County, the current facilities, which serve well over 142,000 patients (an increase of 540% over 20 years), are inadequate in size and scope to provide clinical and health services to patients
- Specialty, care coordination and hospital services can be accessed by an additional 78,000 patients
- Physical space on the Martinez campus is the biggest constraint
- Meeting the clinical demand of our current and future patients requires expansion of services in areas such as primary care, pediatrics, geriatrics, dermatology, interventional radiology, urology, maxillofacial services, orthopedics, ophthalmology, oncology, behavioral health, cardiology and pulmonary.
- Added clinical space will improve:
 - Patient care and outcomes
 - Support Medi-Cal Waiver and supplemental funding requirements
- Benefits of the proposed projects include
 - Improved staff and patient safety
 - Improved patient access to clinical care
 - Improved staff wellness
 - More equitable care services for our patient community
 - Modernization of infrastructure and care practices
 - Improved ability to scale services in the coming years

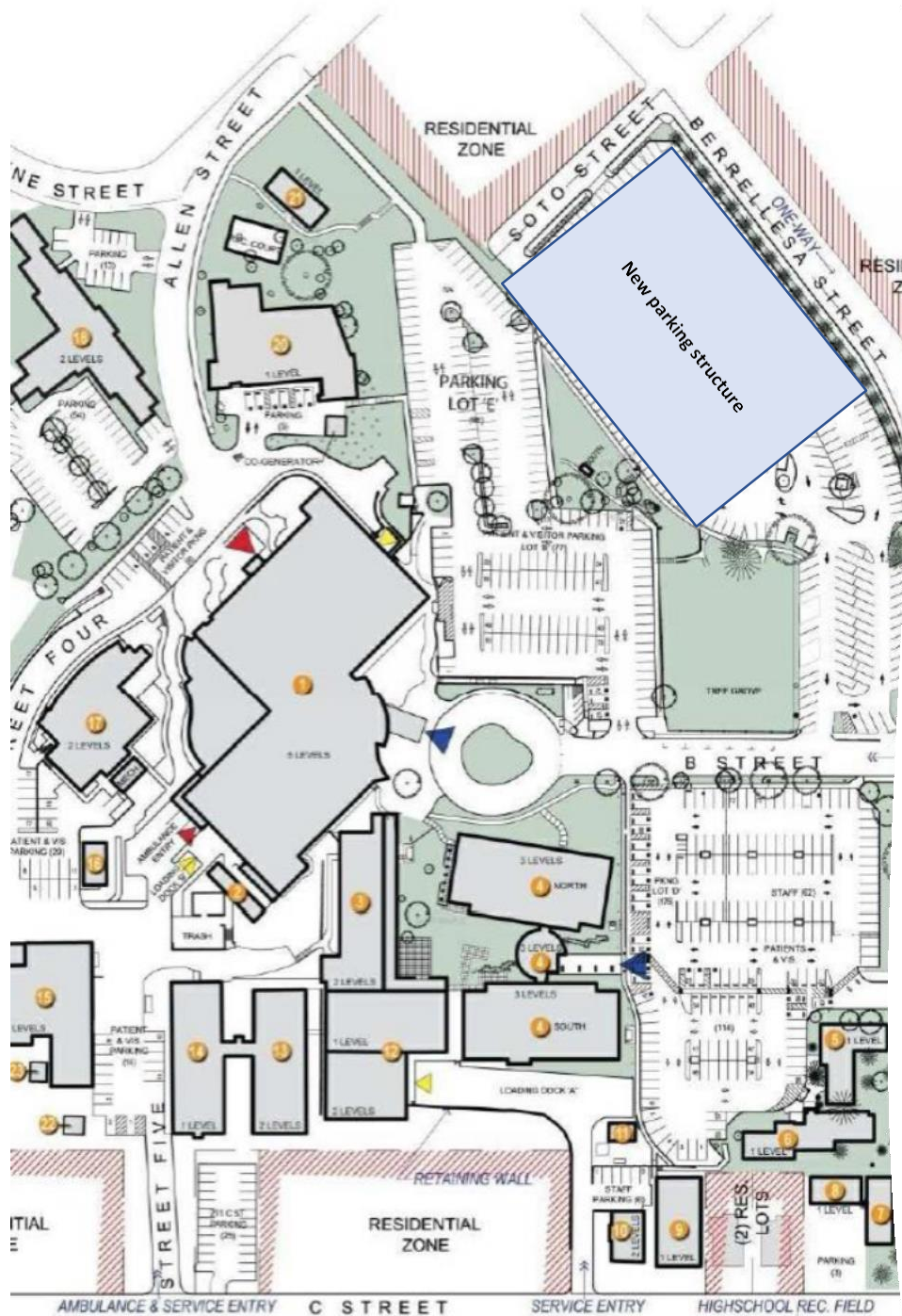
New Medical Clinic Office Complex

- The Martinez campus master plan developed in 2009 (attached) called for construction of medical office buildings, additional parking, and other improvements to meet the demands of patient growth and increasing clinical care.
- The new space will be used for:
 - Additional clinical space for primary and specialty care
 - Gastrointestinal procedure suite
 - Pulmonary bronchoscopy suite
 - Residency clinic & training center with simulation lab
 - Increased Ambulatory surgery access
 - Increased Diagnostic imaging services
 - New Specialty- Geriatric services
 - Full Integration of physical and behavioral health
 - Mandatory activities like care coordination, case management, electronic medical record keeping, telehealth, quality improvement, and regulatory oversight.
- **New Medical Clinic Office Complex: 40,000 square feet. \$30,000,000 estimated cost.**



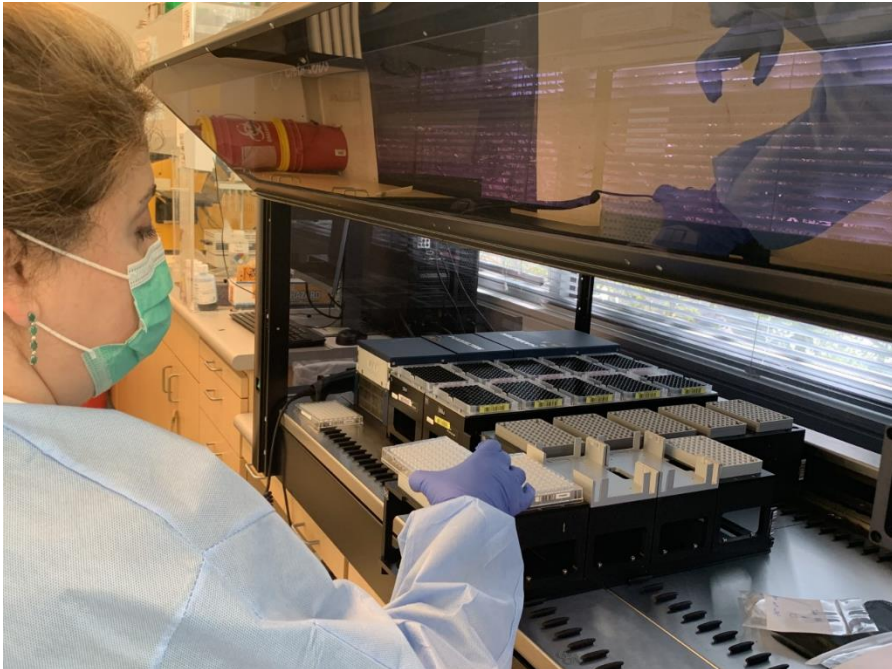
The site plan of the University of Illinois at Chicago (UIC) shows the location of the IR Suite. The plan includes various buildings, parking lots, and streets. A blue arrow points to the IR Suite location, which is situated near the central building complex. The plan also shows the locations of the IR Suite, IR Suite, and IR Suite.

- [illegible]



New Parking Structure

- Despite use of a valet service (annual cost of \$480,000) the growth in patient volume has spotlighted the critical safety concern requiring additional parking
 - More than 3000 staff and patients arrive to the Martinez campus daily
 - 140% increase in traffic accidents from February 2020 to February 2021 on Alhambra and Allen streets
 - 3 babies born in the parking lot during the last year
- The number of existing spaces are nearly 40% less than best practice for a 167-bed hospital and the other buildings currently on campus
- Patients with physical disabilities, small children, and cognitive difficulties often miss appointments because they are unable to find convenient and safe parking. Families coming to see loved ones and newborns in hospital often are limited to after-hours visits due to parking limitations.
- **New Parking Structure: 325 additional spots. \$15,000,000 estimated cost.**



Current and Future Public Health Lab

- **One-Time Allocation Request: \$25 million, estimated**
- Build a new Public Health Lab capable of supporting community health including current and future pandemic response:
 - Demolish unusable space on the Contra Costa Regional Medical Center campus
 - Build 15,000 square foot new facility
 - Acquire the latest technologies and new equipment
 - Expand testing capabilities for all county residents
 - Be prepared for the next disease outbreak, health emergency and pandemic
 - Leverage additional State and federal opportunities to partner and fund cutting-edge methodologies
 - Monitor and respond to emerging Healthcare/Hospital Acquired Infections and drug-resistant pathogens



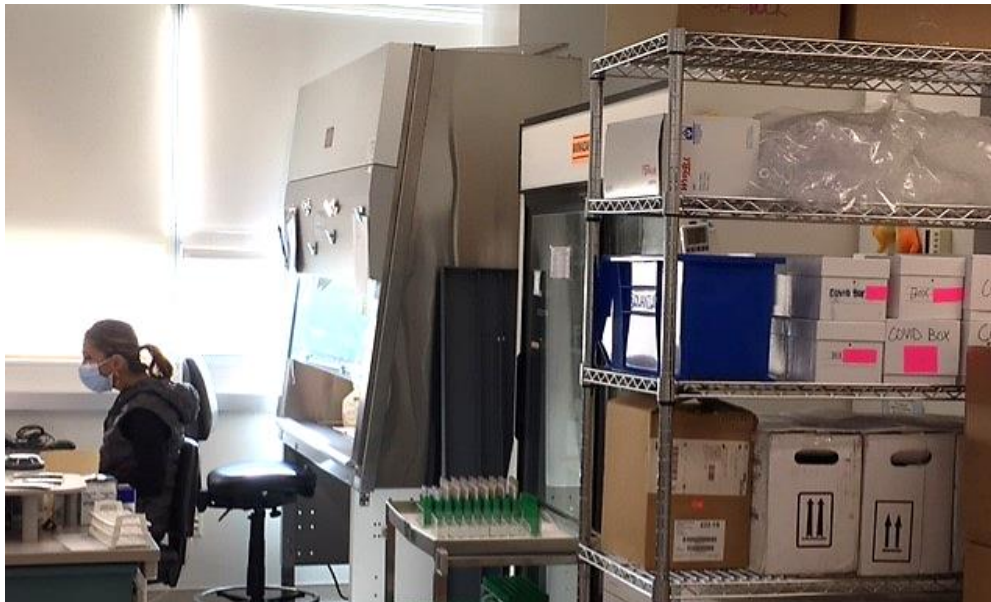
Current and Future Public Health Lab

- **Limitations of Existing Space – cannot leverage additional funding and new technologies, critical for pandemic & emergency preparedness**
 - Electrical Capacity: Cannot pursue modernization and testing expansion
 - Spatial Capacity: Cannot bring on additional equipment and improve workflows or capacity in laboratory building
 - Unable to optimize COVID-19 variant testing (whole genome sequencing) without additional freezers to hold specimens
 - Due to space constraints, stored supplies are spilling into lab work areas – creating safety, fire hazard and crowding issues





Rabies testing to determine need for immediate treatment



Contra Costa Public Health Lab

- **Public Health Lab keeps our entire community healthy:**
 - Broad-scale and individual testing for diseases and emerging health threats
 - Rapid outbreak testing and pandemic response
 - Monitoring of community recreational waters & food supplies
 - Training, information and support to all local hospital labs and health care providers
 - One of only two labs in California performing testing on meats, identifying potential causes for national and local outbreaks
 - Partners with the State and CDC to get latest technology and supplies
 - These critical activities are unique to Public Health, typically done at a fraction of the cost of commercial labs — and faster



Contra Costa Public Health Lab

- **The Public Health Lab provides services to support the entire county**
 - One of the ~30 designated Public Health Labs in California
 - Infrastructure to support high-volume testing
 - Capacity to turn around outbreak results under 24 hours
 - Confirm atypical laboratory test results and verify results of other laboratories' tests
 - Train providers across the county on handling specimens of critical importance such as suspected Bioterrorism agents, tuberculosis, malaria, novel diseases, etc.
 - Handled over 234,000 infectious disease specimen tests in the past year



Contra Costa Public Health Lab

- **Essential to COVID-19 Screening and Testing in Contra Costa:**
 - First to have access to supplies and methodology to perform COVID-19 testing in Contra Costa
 - First to have ability to perform whole genome sequencing to identify variants in Contra Costa
 - Capable of quickly detecting Omicron and Delta variants in the local community
 - Performs approximately 25% of whole genome sequencing in Contra Costa
 - Preparing to implement whole genome sequencing for other diseases of importance such as tuberculosis, salmonella, and antibiotic drug resistance
 - Without a local Public Health Lab, these activities would be diverted to State and other private labs – delaying results and limiting available testing options in the county





CONTRA COSTA
REGIONAL MEDICAL CENTER
PROPOSED MASTER PLAN
REPORT



HGA Architects and Engineers

June 2009

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Introduction

PROJECT NEED

The three following necessary improvements for the Contra Costa Regional Medical Center campus prompted this Master Plan Proposal study:

- 1. An urgent need exists for additional parking to remedy current shortage as well as address parking impacts from the new Mental Health Recovery Services Building located on an adjacent site.**
- 2. OSHPD regulations require that the existing Kitchen be replaced with a new Kitchen that complies with OSHPD minimum standards by 2013.**
- 3. CCRMC sees benefit in the expansion of its outpatient services.**

INCIDENTAL CAMPUS IMPROVEMENTS

The need-driven improvements give way to additional improvement opportunities throughout the existing campus. The Proposed Master Plan could alleviate some inefficiency and make the campus easier and safer to navigate for patients and visitors.

- The Kitchen, serving the entire campus including the Hospital, is currently located in a separate building from the Hospital.

The Kitchen is an essential service of the Hospital and is therefore required to be OSHPD compliant construction. By building a Hospital addition, as opposed to a replacement freestanding building, the Kitchen would (a) be a part of the building that it primarily serves, eliminating the need to transport food between buildings; (b) be efficient for construction, as measured by numbers of exterior walls to construct; and (c) allow the existing Kitchen to remain in service without interruption until the new one is functioning.

- The existing *intended* drop-off area for the Hospital is wide and is intuitively misunderstood as a place to leave one's car, rather than as an active drop-off and pick-up area for patients. This poses security and congestion problems.

While implementing new parking areas, the proposed road connecting them near the Hospital entrance can be redesigned to create a logical circulation in which the road is intuitively read as something to move through to get to a destination, and the drop-off is intuitively read as a one-way turnout with limited space. Additionally, the increased parking availability itself will make it easier to find an actual parking space, reducing the temptation to leave one's car in the drop-off area.

- Existing streets serving the campus are segmented and discontinuous. This can cause confusion for service and fire trucks which may have to exit and re-enter via public streets to go from one point of the campus to another.

The proposed circulation loop within the bounds of the campus will make peripheral portions of the campus more accessible to service and fire trucks. It is also intended to help patients, visitors, and staff with way-finding.

- Existing traffic patterns on campus cross staff, service, and patient/visitor vehicle circulation, resulting in congestion.

The proposed parking areas are located to minimize crossing of patient/visitor vehicle traffic (those often unfamiliar with the campus and requiring more time for way-finding) with staff vehicle traffic.

- Many of the existing older buildings have inferior construction are under- or over-utilized. In addition, the outpatient functions are dispersed throughout the campus, often in portable structures.

By moving outpatient services into three new buildings adjacent to the fully utilized Family Practice Building 1, a clear outpatient zone -- and likewise, a Hospital zone -- are created. The proximity would make way-finding intuitive and movement from building-to-building for patients and visitors simpler. It would eliminate the need to drive from one part of campus to another when patients are directed to multiple departments and specialists.

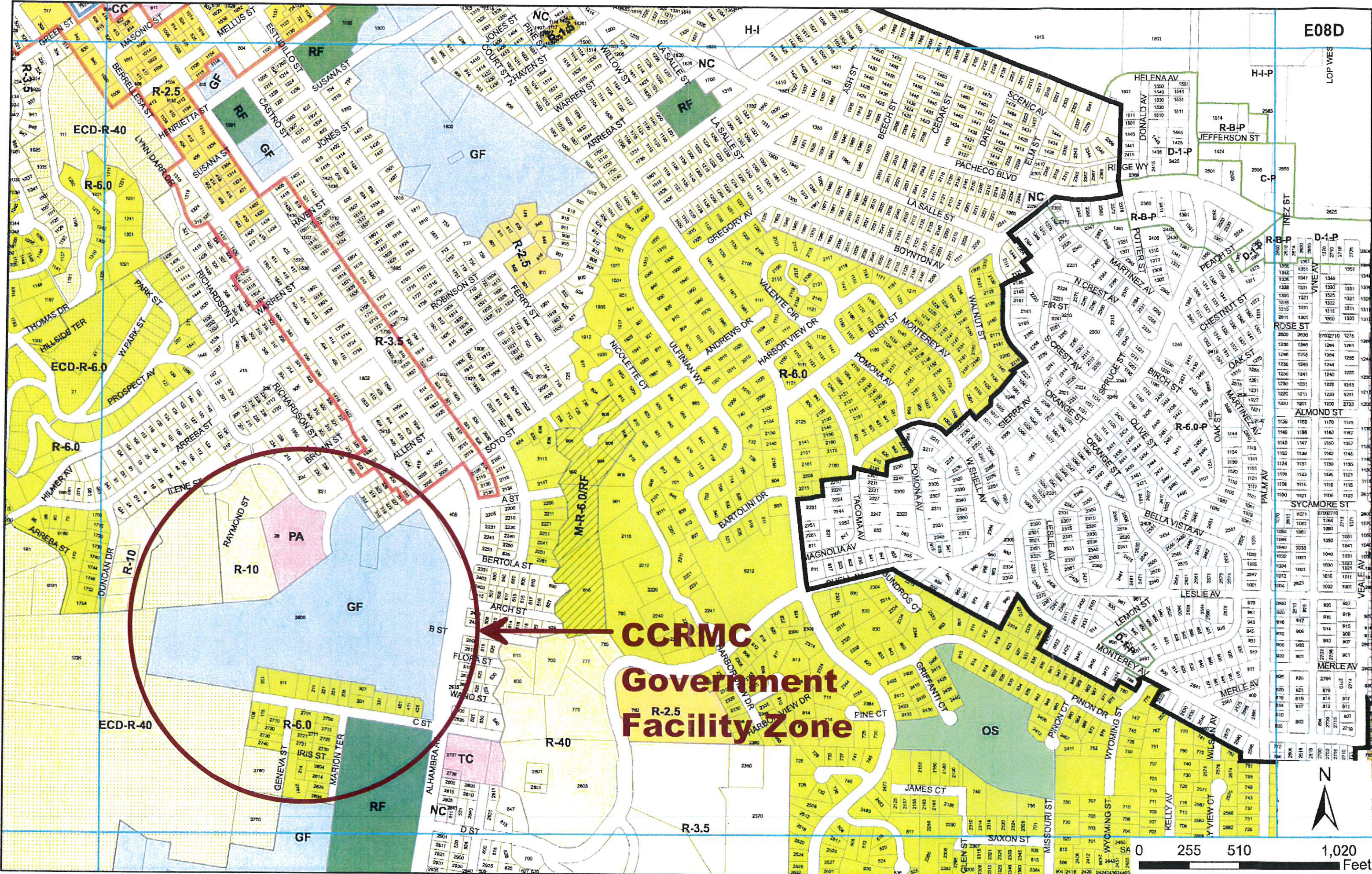
Site Evaluation

CONTRA COSTA COUNTY REGIONAL MEDICAL CENTER

Existing Campus Aerial Photograph

Scale: 1"=120'-0"





**CCRMC
Government
Facility Zone**



0 255 510 1,020 Feet

BACKGROUND

Contra Costa County Regional Medical Center is located in the city of Martinez, CA.

As a part of an organization of Health Centers around Contra Costa County, the campus includes a five-story Hospital building as well as several Outpatient buildings and various support structures. All existing parking is surface-level.

The campus is bound on the east side by Alhambra Avenue and Berrellesa Street; on the north side by Soto Street and Allen Street; on the west side by Street Four; and on the south side by C Street.

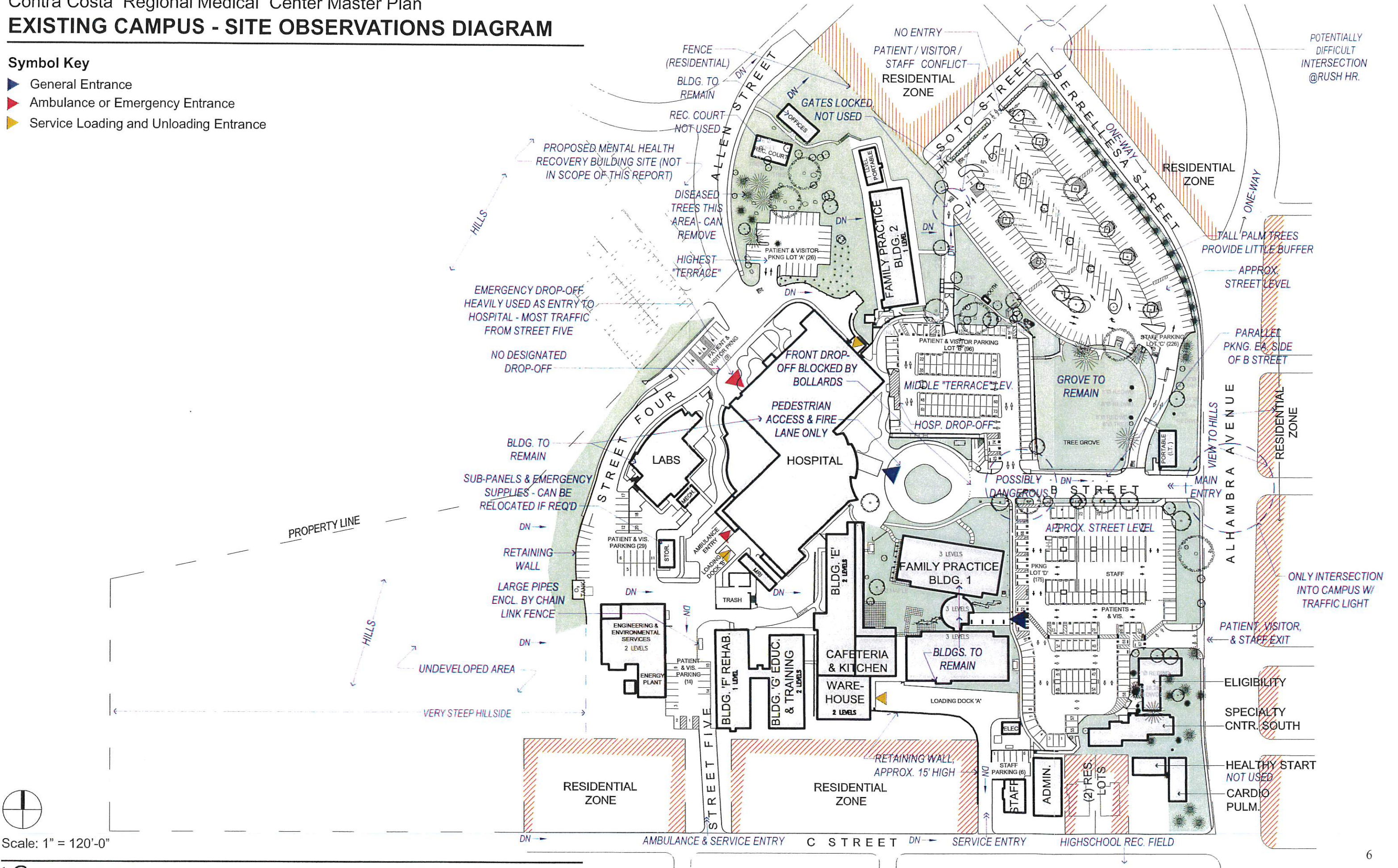


The main entrance to the campus is on-axis with the Hospital entry as one enters the campus from B Street off of Alhambra Avenue. B Street terminates on the campus directly in front of the Hospital with a large cul-de-sac, meant to serve as a patient drop-off for the Hospital. Emergency drop-off, at the rear of the Hospital, is often accessed from Allen Street, but more commonly by Street Four via Street Five. Street Five also serves as the ambulance entry.

The site measures approximately 23 acres, some of which on the western portion of campus is steeply sloped and has not been developed. The total elevation change in the developed area of campus is approximately 40'.

The site is zoned as "GF" (Government Facility). Careful consideration should be taken to buffer the areas between adjacent residential zones and the campus. This occurs at the north sides of both Soto Street and C Street. Vegetation already exists in most of these areas and can be increased where sparse.

- ▶ General Entrance
- ▶ Ambulance or Emergency Entrance
- ▶ Service Loading and Unloading Entrance



Master Plan

PROGRAM REQUIREMENTS

The proposed Master Plan design and phasing was in large part an exercise to balance amount of on-site parking versus new medical office space that can be accommodated on the site. In addition to addressing current need, any new program area generates a higher parking demand.

Buildings and features to remain:

- Hospital Building
- Outpatient Building 1
- Tree Grove

Existing functions and services to be replaced, listed by priority:

1. Kitchen and Cafeteria
Currently occupying part of Building E
OSHPD requires the Kitchen to be functioning by January 2013

Existing Kitchen	5,636 sqft.
Existing Cafeteria	1,971 sqft.
New Kitchen (minimum)	2,820 sqft. (half of existing)
New Cafeteria (minimum)	1,971 sqft. (same as existing)
2. Outpatient Services
Currently Family Practice Building 2, Building 'F' and Building 'G'

Existing Total Outpatient	40,000 sqft.
Replacement Outpatient	40,000 sqft.

New functions and services, listed by priority:

1. Clinic 11,000 sqft.
2. Additional Outpatient Services 24,000 sqft.
3. Future Outpatient Services 30,000 sqft.
(expansion space, shell only)

Parking demand, listed by priority:

1. 60 spaces, staff parking
Required in conjunction with Mental Health Recovery Services Building
NOTE: This building is not in the scope of this report.
2. 57 spaces
Currently leased from the Teamsters Union on an off-site nearby lot
3. 90 spaces
Remaining current parking deficit to be addressed as soon as possible

4. Additional parking demand generated all new program to be balanced out as each new building is constructed

After discussing several Master Plan schemes with key stakeholders at CCRMC, the final Master Plan proposal incorporates:

- Mostly surface parking
- A single parking deck over surface parking in two areas
- Three-phased construction of a Medical Office Building cluster
- An OSHPD compliant three story addition to the existing Hospital that houses the new Clinic, Cafeteria and Kitchen
- A parking arrangement that does not limit possibility of a southeast Hospital expansion in the distant future. In the event that a hospital expansion becomes necessary in the distant future, we proposed two options to address the increase in parking demand: (1) horizontal expansion of the deck over Parking Lot 'C'; or (2) structure the deck over Parking Lot 'C' to support a future third level of parking.
- Power and utilities that are dispersed throughout the campus rather than in one central plant (17 existing boilers are already incorporated in this way)

Contra Costa Regional Medical Center Master Plan

PROPOSED MASTER PLAN

Scale: 1" = 120'-0"



Master Plan for Contra Costa Regional Medical Center campus scope-of-work:

- Construction of: 32,000 sq.ft. Hospital Addition (OSHPD): Clinic, Kitchen, Cafeteria, Support Services, 3 Flrs.
40,000 sq.ft. Medical Office Building 1A (replacement of services), 3 Floors
30,000 sq.ft. Medical Office Building 1B (expansion of services), 3 Floors
24,000 sq.ft. Medical Office Building 1C (further expansion space), 3 Floors

Miscellaneous parking lot and site construction projects

- New parking: Lot 'C' Extension, Allen Street Lot, Parking Lots 'E' and 'F'
- Modifications to existing Parking Lots 'B,' 'C,' and 'D'
- Parking decks over new Parking Lot 'F' and over a portion of existing Parking Lot 'C'
- Circulation loop and north Loading Dock
- Relocation of an approximately 15' high retaining wall (indicated on the plan, south side of new Parking Lot 'E')

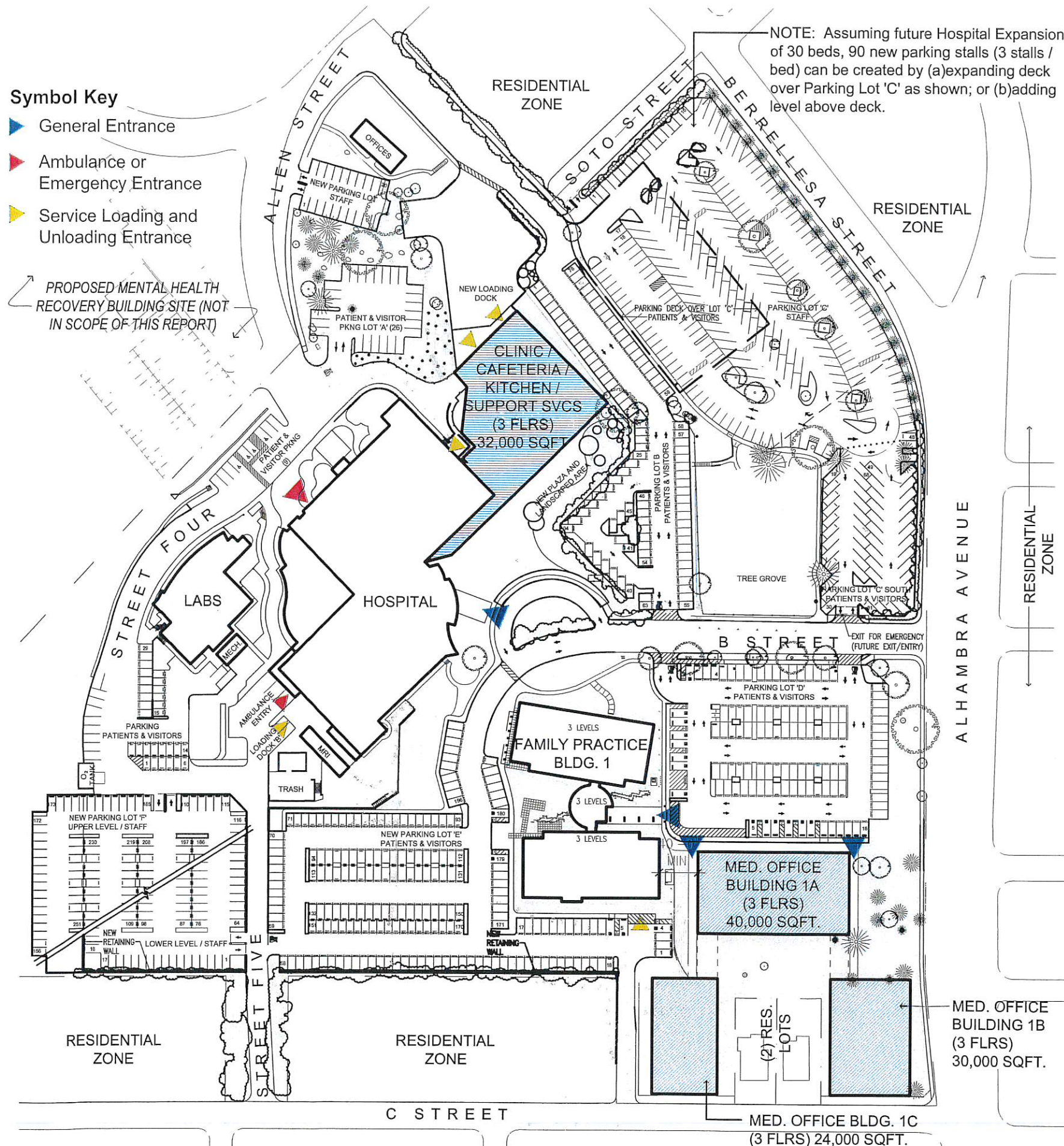
Temporary utility functions to serve Buildings 'E,' 'F,' 'G'

Possible new signal light at intersection of Berrellesa Street and Soto Street (not included in estimate)

- Demolition of: Electrical Building and Energy Plant (replaced throughout campus by decentralized bldg. services within new buildings)
Engineering & Environmental Services (relocated to Hospital addition Support Services)
Buildings 'E,' 'F,' 'G' (outpatient services relocated to new Medical Office Building, Kitchen and Cafeteria relocated to Hospital addition)
Family Practice Building 2 (services relocated to new Medical Office Building)
Eligibility and Specialty Center South (services relocated to new Medical Office Building)
I.T. Portable Building (services relocated to Hospital addition Support Services)
Administration, Healthy Start, Cardio Pulmonary (services relocated to new Medical Office Building)

Note: the estimate provides a cost comparison for additional parking options that would be triggered by a possible Hospital expansion in the distant future:

- (1) Horizontal expansion of the deck over most of Parking Lot 'C' (see lighter dashed line on plans); or
- (2) Structuring the single deck over Parking Lot 'C' to support a future third level



HIGHLIGHTED CONCEPTS

Preserve and reinforce the major existing strong points of the site.

- Reinforce Hospital functions by integrating the Kitchen and Cafeteria
- Reinforce the main Hospital entry with a redesigned patient drop-off with a covered walkway as well as outdoor south-facing cafeteria seating
- Preserve the Tree Grove and connect it along a pedestrian path
- Reinforce Medical Office Building functions by clustering the new outpatient spaces adjacent to the existing outpatient functions that are to remain.

Allow for future Hospital expansion as was originally designed into the existing building.

Increase safety.

- Incorporate a new circulation loop for fire truck access.
- Create logical traffic patterns that separate and distribute access points, circulation, and parking for staff, service, and patient/visitor vehicles.

Simplify way-finding and operations with clear zones for inpatient and outpatient clusters.

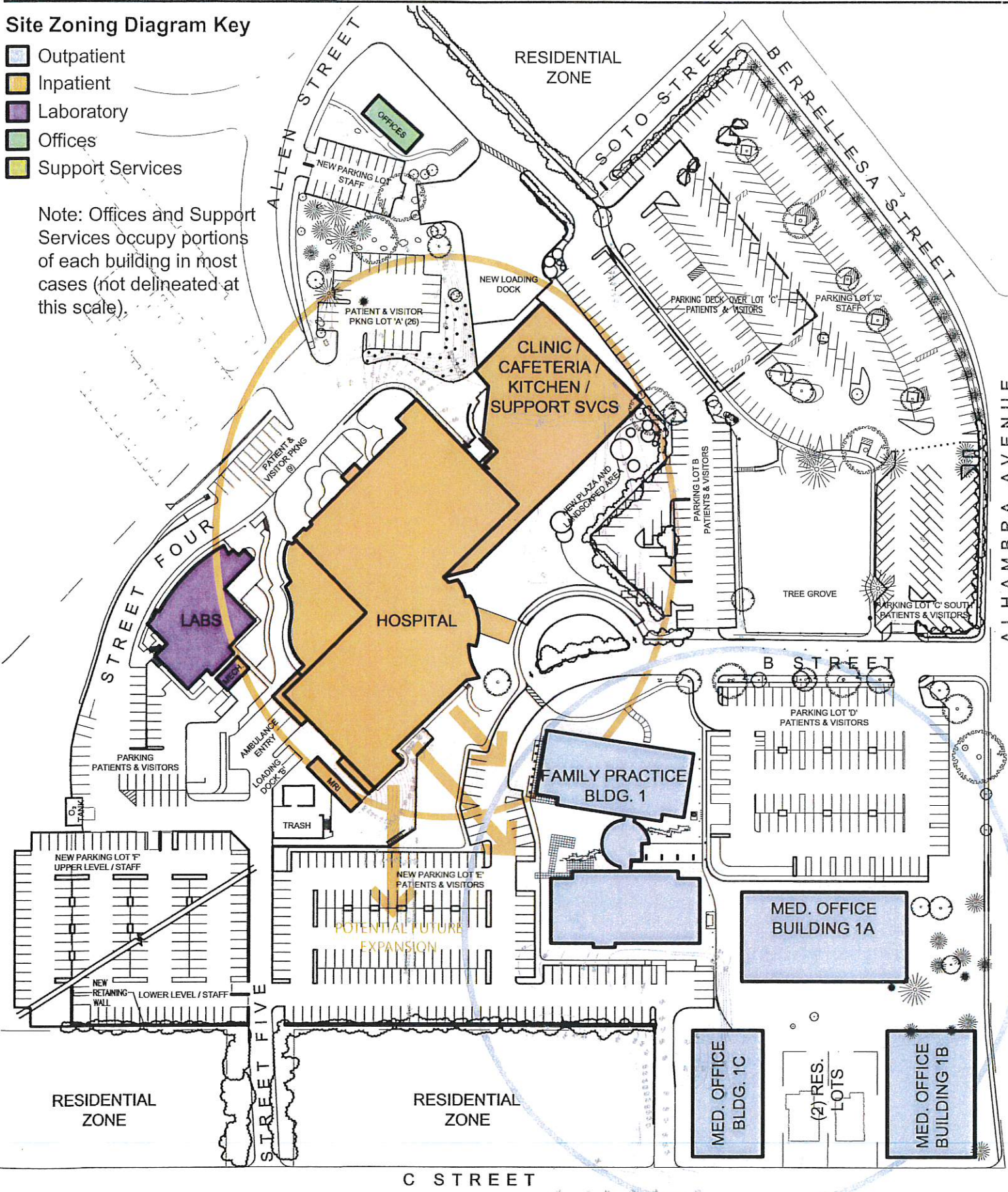
Contra Costa Regional Medical Center Master Plan
SITE ZONING & CIRCULATION DIAGRAMS

Scale: 1" = 120'-0"

Site Zoning Diagram Key

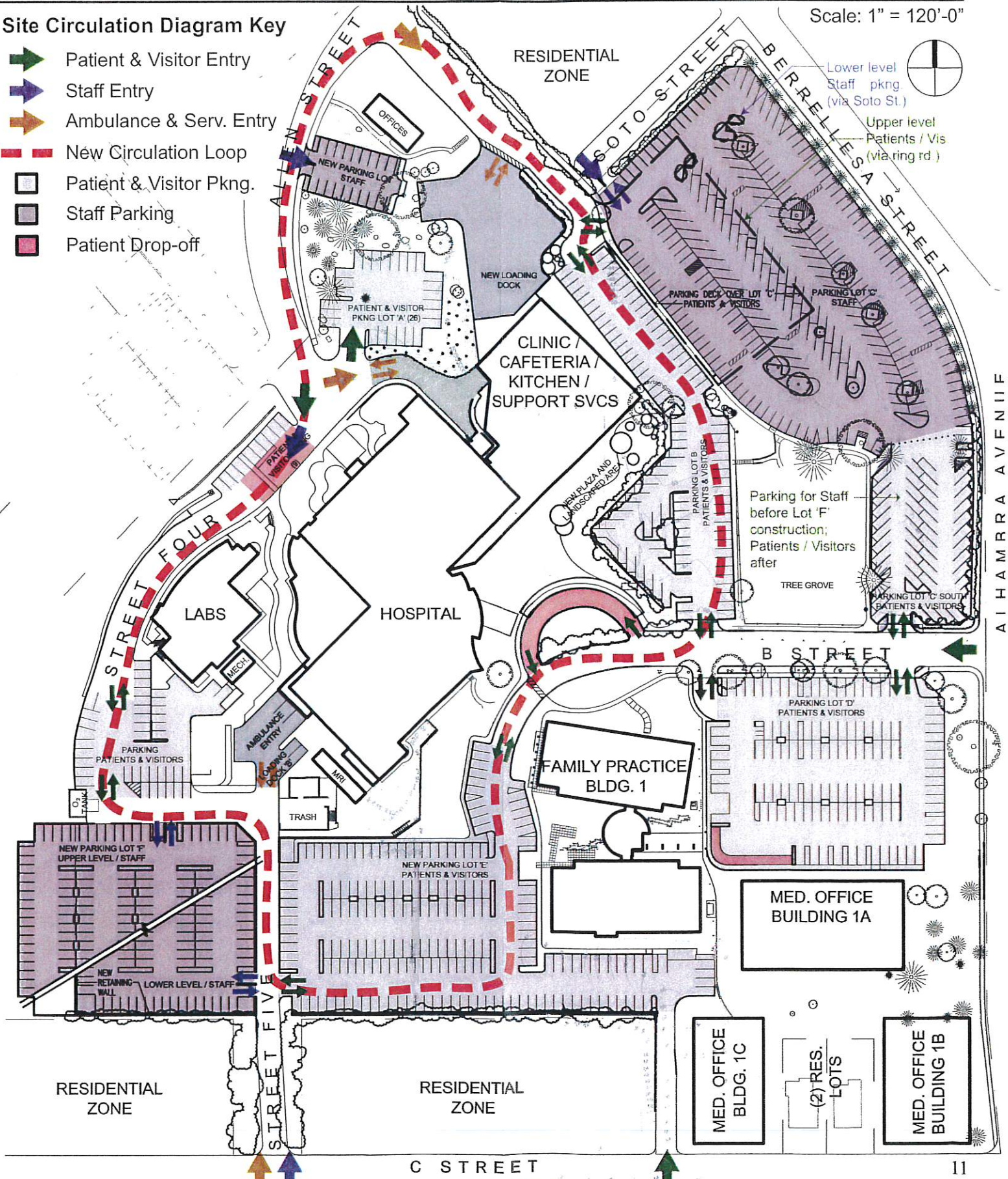
- Outpatient
- Inpatient
- Laboratory
- Offices
- Support Services

Note: Offices and Support Services occupy portions of each building in most cases (not delineated at this scale).



Site Circulation Diagram Key

- Patient & Visitor Entry
- Staff Entry
- Ambulance & Serv. Entry
- New Circulation Loop
- Patient & Visitor Pkng.
- Staff Parking
- Patient Drop-off



Phasing

Contra Costa Regional Medical Center Master Plan
PARKING COUNT BY PHASE

Phase	Description of Construction	Parking Count		Notes
		+	-	
1. Increase Parking	(a) Temporarily relocate I.T. Services to 'Eligibility' building		-207*	SPACES NEEDED
	(b) Demolish I.T. Portable Building and Recreation Court			PARKING DEMAND MET (60) FOR MENTAL HEALTH
	(c) Build new Parking on: Parking Lot 'C'	68	8	RECOVERY
	Street Four (re-stripe only)	29	20	SERVICES BLDG. (20
	Allen Street New Lot	20	-118	ALLEN ST.)
2. Hospital Addition: Clinic / Cafeteria / Kitchen / Support Services	(a) Demolish and reconfigure Parking Lot B	78	76	-116
	(b) Relocate remaining services from Family Practice Bldg. 2 and adjacent Portable Building to 'Healthy Start' Building			
	(c) Demolish Building 2 and Portable Building			
	(d) Build Hospital addition (3 flrs. total, approx. 32,000 sq.ft.): Loading Dock, Cafeteria & Kitchen; I.T. Rooms, Support Services; Clinic Space			
	(11,000 sqft new Clinic / 200 sqft per new parking stall = 55 new parking stalls required)		(55)	-171
	(21,000 sqft existing program - no new parking req'd)			
	(e) Remove Parking Lot 'D' fence, bollards, and security gate			
3. Parking Lot 'F'	(a) Provide temporary replacement utility services for Buildings 'E,' 'F,' and 'G'			
	(b) Demolish Engineering and Environmental Services Bldg.		14	-185
	(c) Build new Parking Lot 'F' (surface parking + deck level)	251		66
	(d) Build separation at Parking Lot 'C' for Patient / Visitor pkng. and re-stripe for clearance and B Street entry / exit			OVERALL PARKING DEMAND MET (207)
4. Medical Office Building 1A	(a) Relocate services from Eligibility & Specialty Center South Buildings to temporary location (TBD)			
	(b) Demolish Eligibility and Specialty Center South			
	(c) Reconfigure Parking Lot 'D'	16	75	7
	Build 3 story Medical Office Building 1A (40,000 sqft existing program - no new parking req'd)			
5. Parking Lot 'E' & retaining wall	(a) Demolish retaining wall; Buildings 'E,' 'F,' 'G,' vacant Kitchen / Cafeteria; Elec. Bldg., Loading Dock 'A'			
	(b) Build new retaining wall and Parking Lot 'E'	196		203
6. Medical Office Building 1B	Complete new circulation loop and new patient drop-off area for Hospital front entry			
	(a) Relocate services from Cardio Pulmonary Building			
	(b) Demolish Cardio Pulmonary and Healthy Start buildings			
7. Medical Office Building 1C	(c) Build 3 story Medical Office Building 1B (30,000 sqft new program / 200 sqft per new parking stall = 150 new parking stalls required)		(150)	53
	(a) Build new partial parking deck over Parking Lot 'C'	86		139
	(b) Relocate Admin. services to Medical Office Bldg. 1A or 1B			
	(c) Demolish Administration and Staff buildings			
	(d) Build 3 story Medical Office Building 1C (24,000 sqft / 200 sqft per new parking stall =120 new parking stalls required)		(120)	19
				SPACES IN EXCESS

* 207 space need was derived from the following:

- 57 spaces currently leased from Teamsters' Union off-site
- 90 spaces currently lacking on-site -- number provided by CCRMC Facilities Manager
- 60 spaces required in conjunction with new Mental Health Recovery Services Building, located on adjacent site (building not in the scope of this report)

Phasing

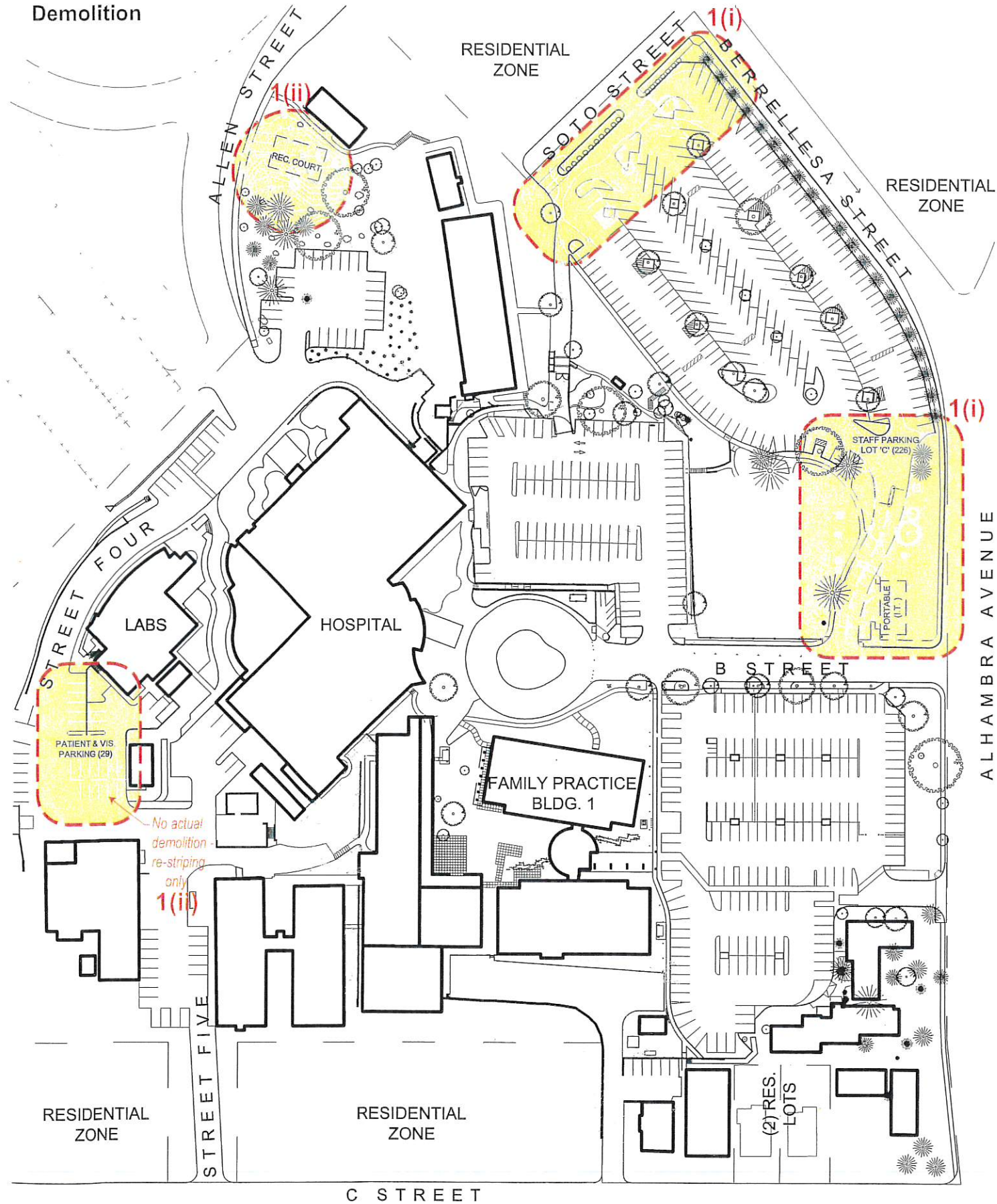
Contra Costa Regional Medical Center Master Plan
PARKING COUNT BY PHASE

Phase	Description of Construction	Parking Count		Notes
		+	-	
1. Increase Parking	(a) Temporarily relocate I.T. Services to 'Eligibility' building		-207*	SPACES NEEDED
	(b) Demolish I.T. Portable Building and Recreation Court			PARKING DEMAND MET (60) FOR MENTAL HEALTH
	(c) Build new Parking on: Parking Lot 'C'	68	8	RECOVERY
	Street Four (re-stripe only)	29	20	SERVICES BLDG. (20
2. Hospital Addition: Clinic / Cafeteria / Kitchen / Support Services	Allen Street New Lot	20	-118	ALLEN ST.)
	(a) Demolish and reconfigure Parking Lot B	78	76	-116
	(b) Relocate remaining services from Family Practice Bldg. 2 and adjacent Portable Building to 'Healthy Start' Building			
	(c) Demolish Building 2 and Portable Building			
	(d) Build Hospital addition (3 flrs. total, approx. 32,000 sq.ft.): Loading Dock, Cafeteria & Kitchen; I.T. Rooms, Support Services; Clinic Space			
	(11,000 sqft new Clinic / 200 sqft per new parking stall = 55 new parking stalls required)		(55)	-171
	(21,000 sqft existing program - no new parking req'd)			
	(e) Remove Parking Lot 'D' fence, bollards, and security gate			
3. Parking Lot 'F'	(a) Provide temporary replacement utility services for Buildings 'E,' 'F,' and 'G'			
	(b) Demolish Engineering and Environmental Services Bldg.		14	-185
	(c) Build new Parking Lot 'F' (surface parking + deck level)	251		66
	(d) Build separation at Parking Lot 'C' for Patient / Visitor pkng. and re-stripe for clearance and B Street entry / exit			OVERALL PARKING DEMAND MET (207)
4. Medical Office Building 1A	(a) Relocate services from Eligibility & Specialty Center South Buildings to temporary location (TBD)			
	(b) Demolish Eligibility and Specialty Center South			
	(c) Reconfigure Parking Lot 'D'	16	75	7
	Build 3 story Medical Office Building 1A (40,000 sqft existing program - no new parking req'd)			
5. Parking Lot 'E' & retaining wall	(a) Demolish retaining wall; Buildings 'E,' 'F,' 'G'; vacant Kitchen / Cafeteria; Elec. Bldg., Loading Dock 'A'			
	(b) Build new retaining wall and Parking Lot 'E'	196		203
	Complete new circulation loop and new patient drop-off area for Hospital front entry			
6. Medical Office Building 1B	(a) Relocate services from Cardio Pulmonary Building			
	(b) Demolish Cardio Pulmonary and Healthy Start buildings			
	(c) Build 3 story Medical Office Building 1B (30,000 sqft new program / 200 sqft per new parking stall = 150 new parking stalls required)		(150)	53
7. Medical Office Building 1C	(a) Build new partial parking deck over Parking Lot 'C'	86		139
	(b) Relocate Admin. services to Medical Office Bldg. 1A or 1B			
	(c) Demolish Administration and Staff buildings			
	(d) Build 3 story Medical Office Building 1C (24,000 sqft / 200 sqft per new parking stall =120 new parking stalls required)		(120)	19
				SPACES IN EXCESS

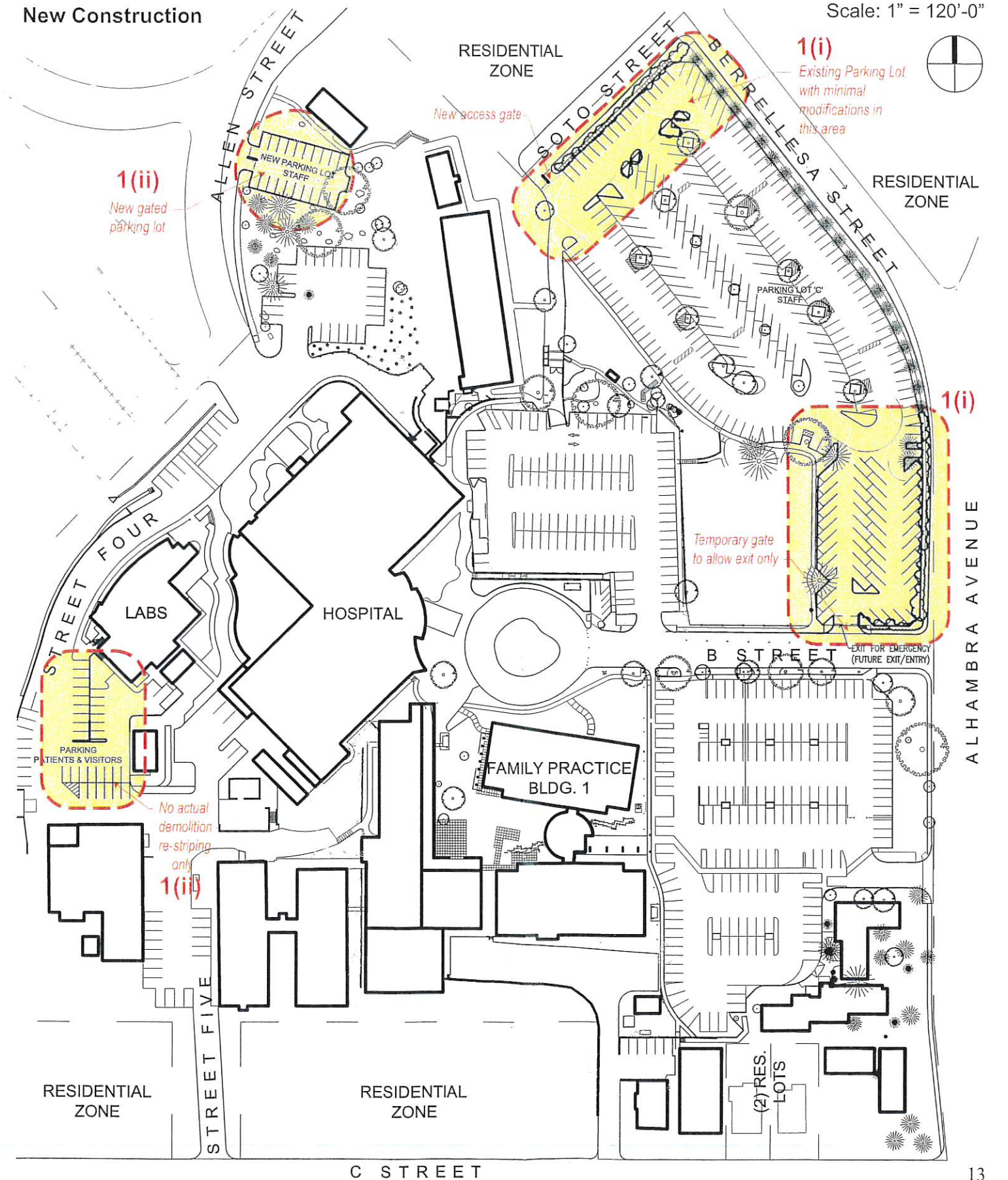
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- 57 spaces currently leased from Teamsters' Union off-site
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Demolition



New Construction

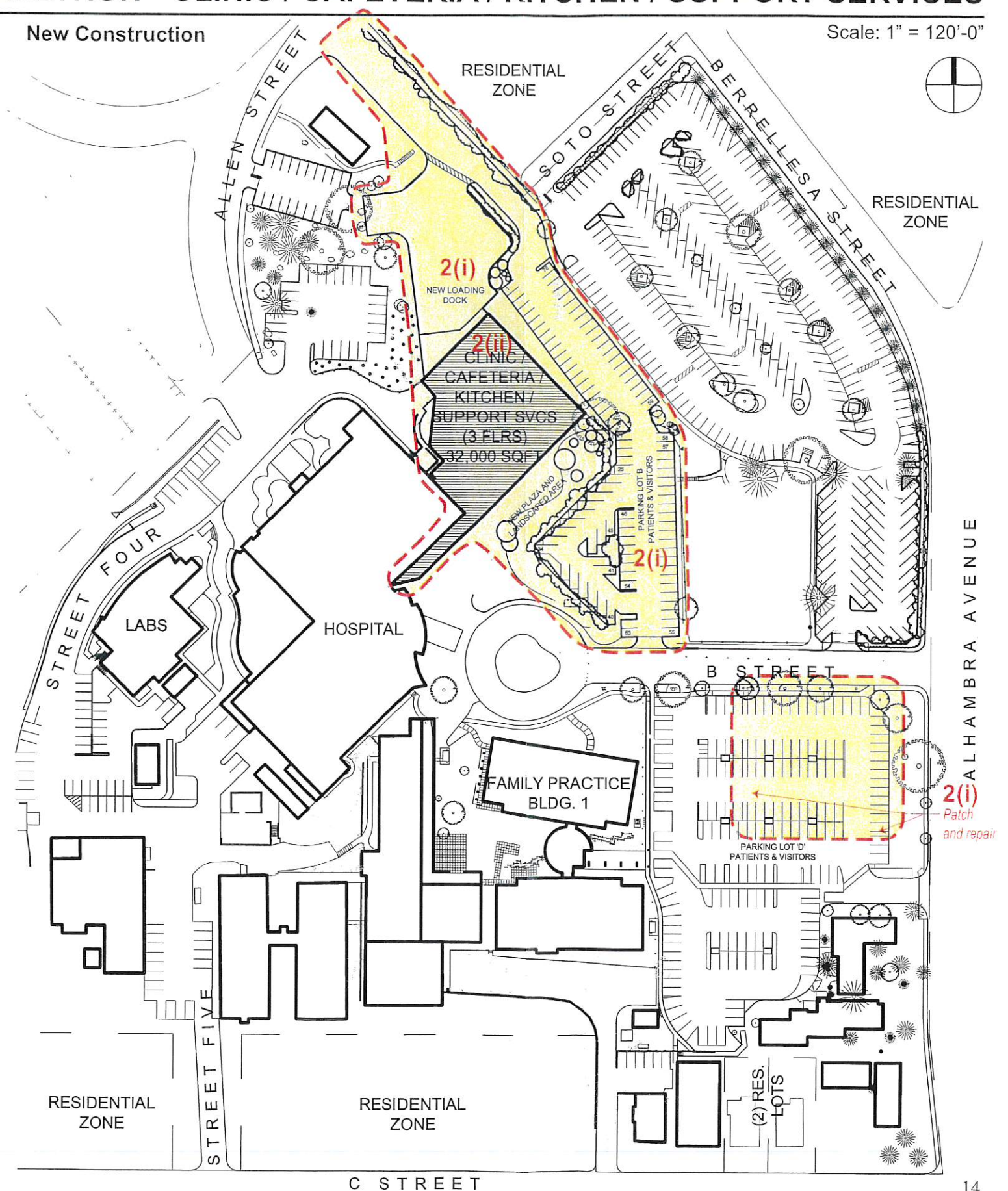
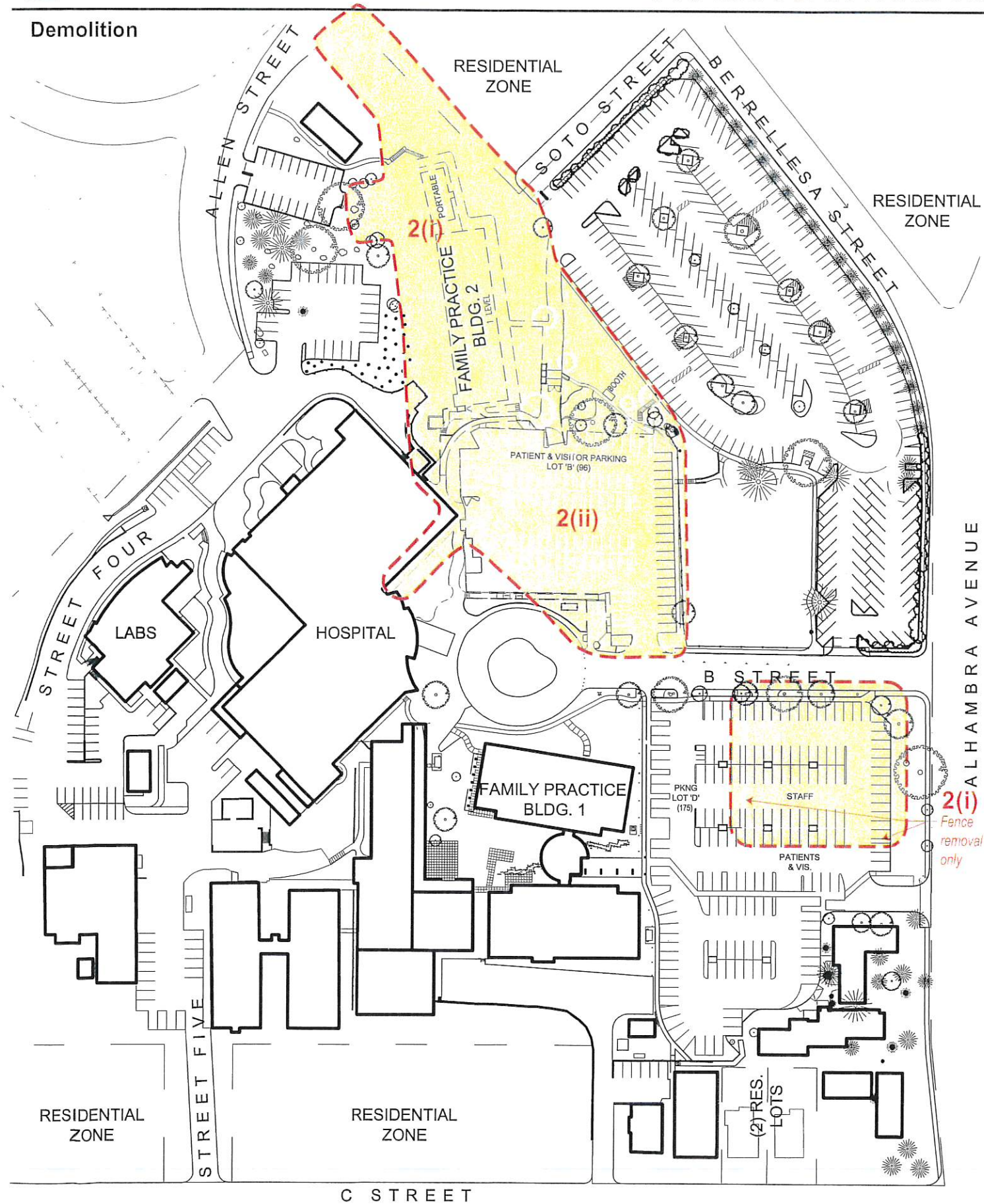


PHASE TWO: HOSPITAL ADDITION - CLINIC / CAFETERIA / KITCHEN / SUPPORT SERVICES

Demolition

New Construction

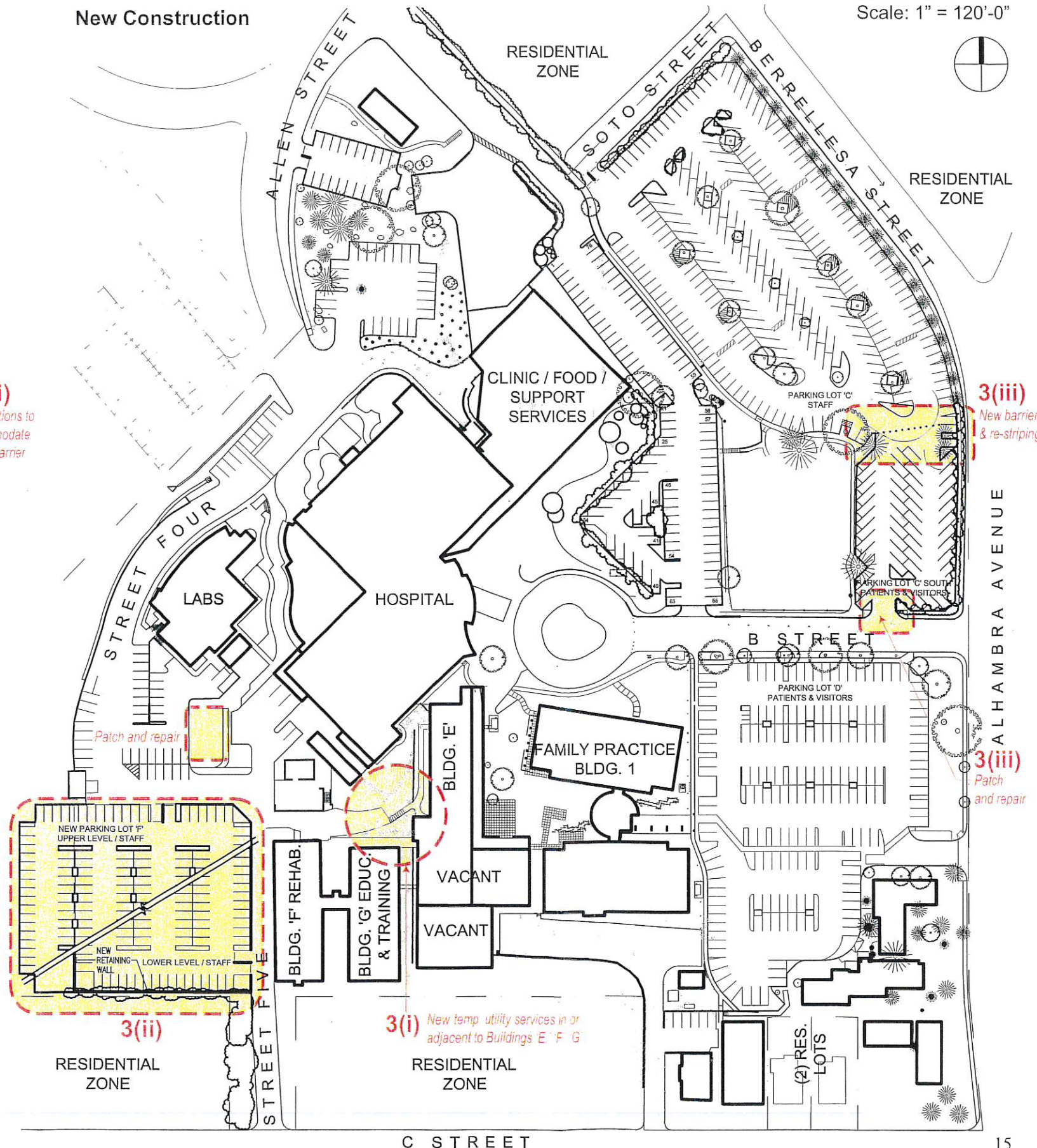
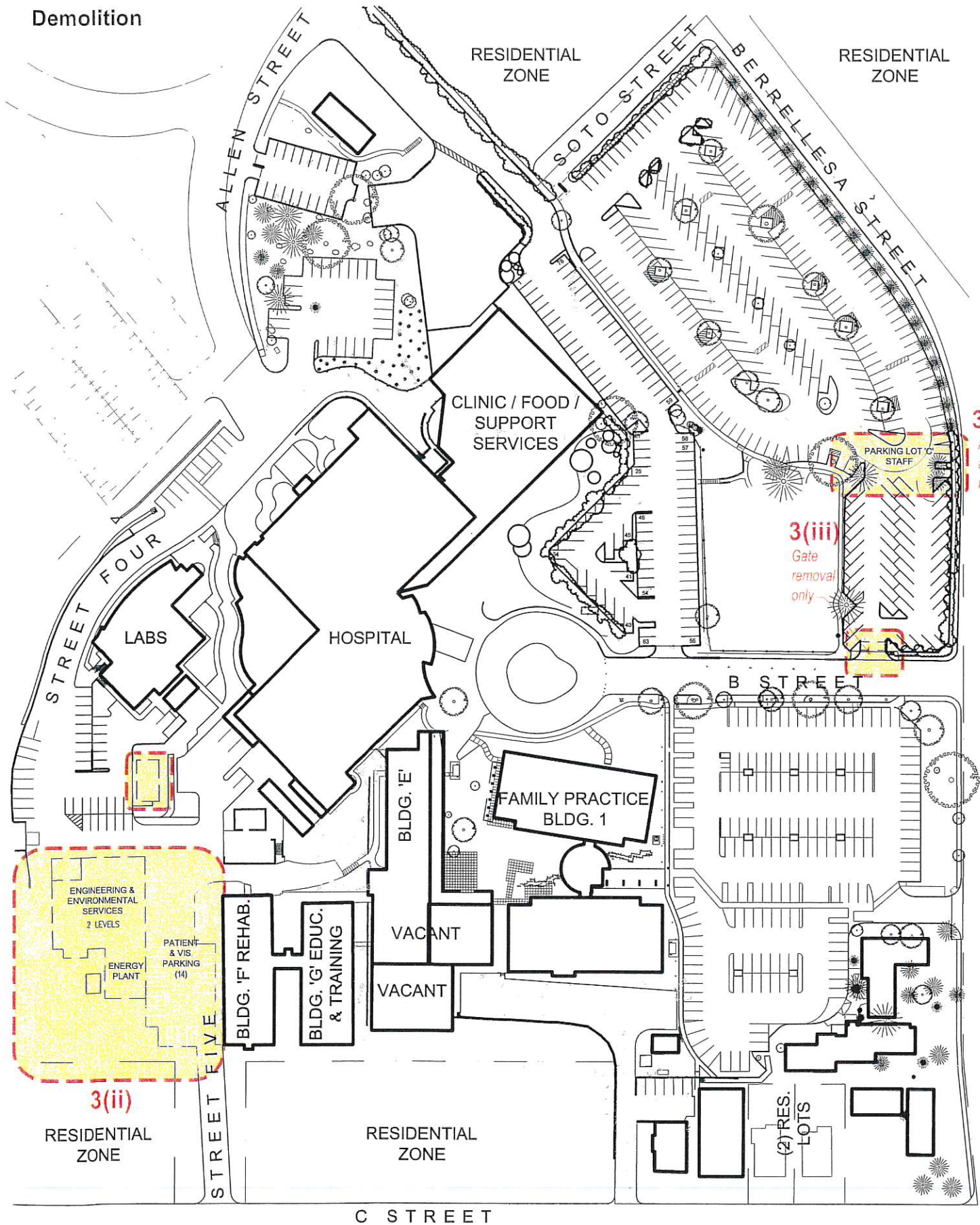
Scale: 1" = 120'-0"



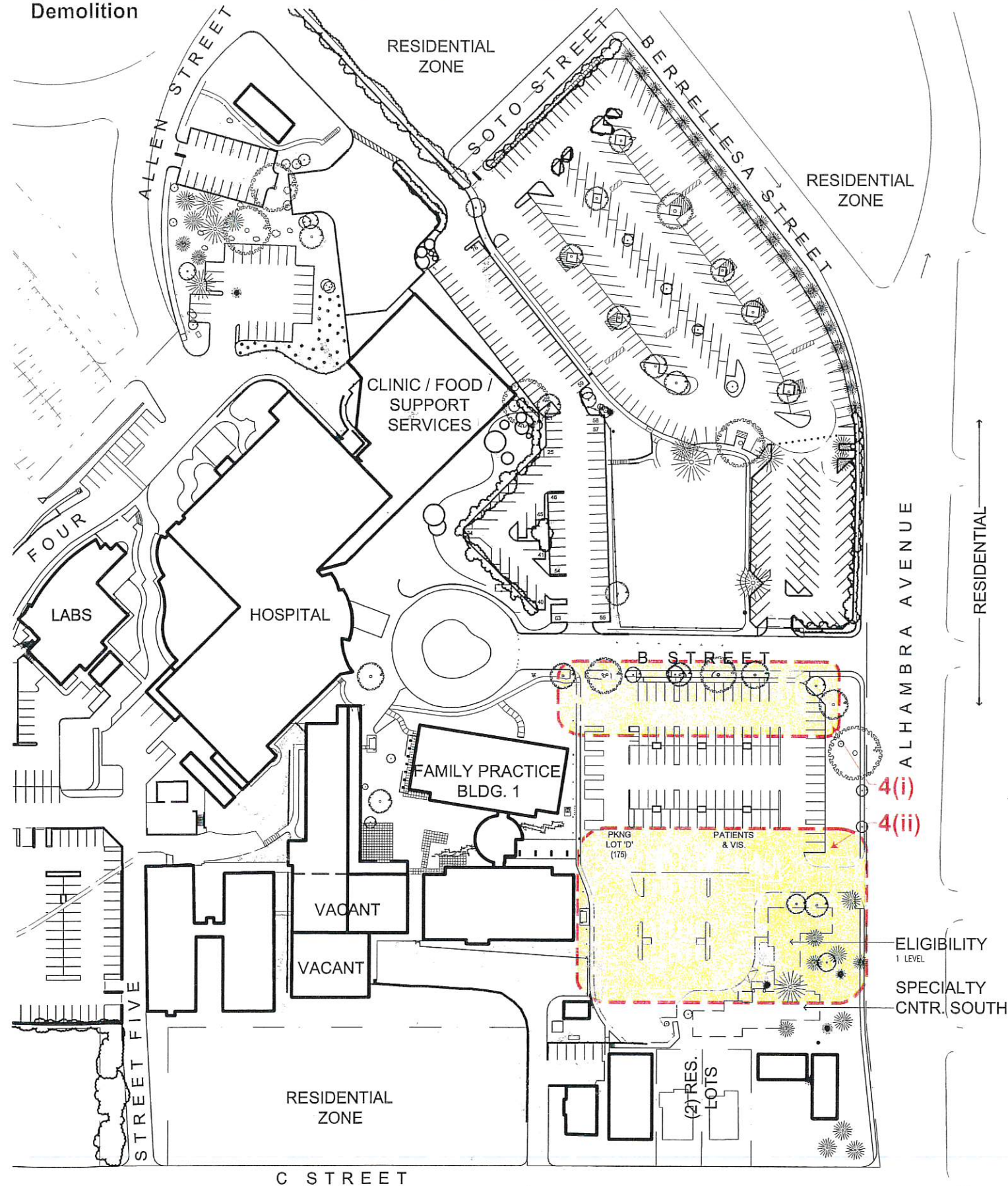
Demolition

New Construction

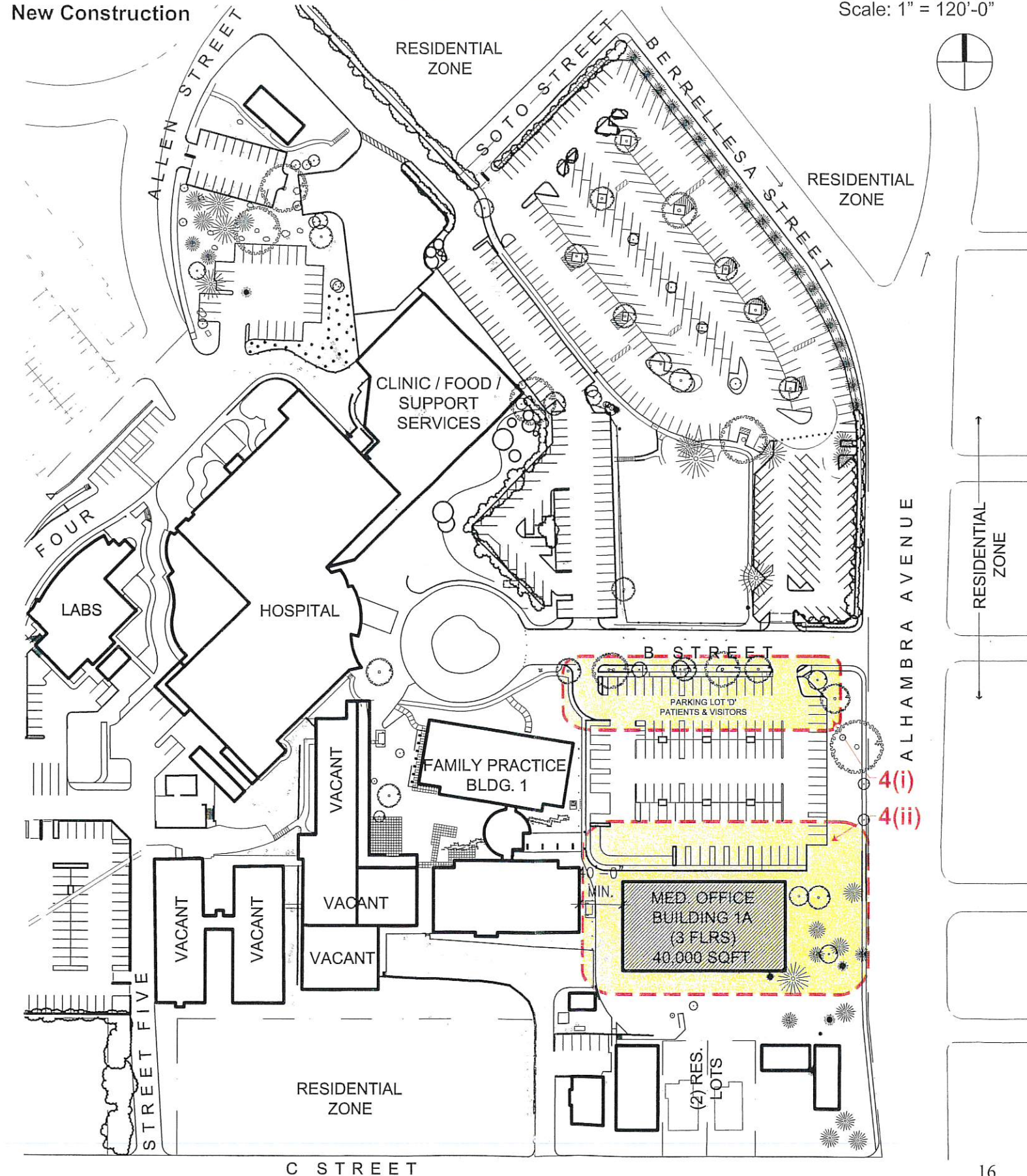
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Demolition

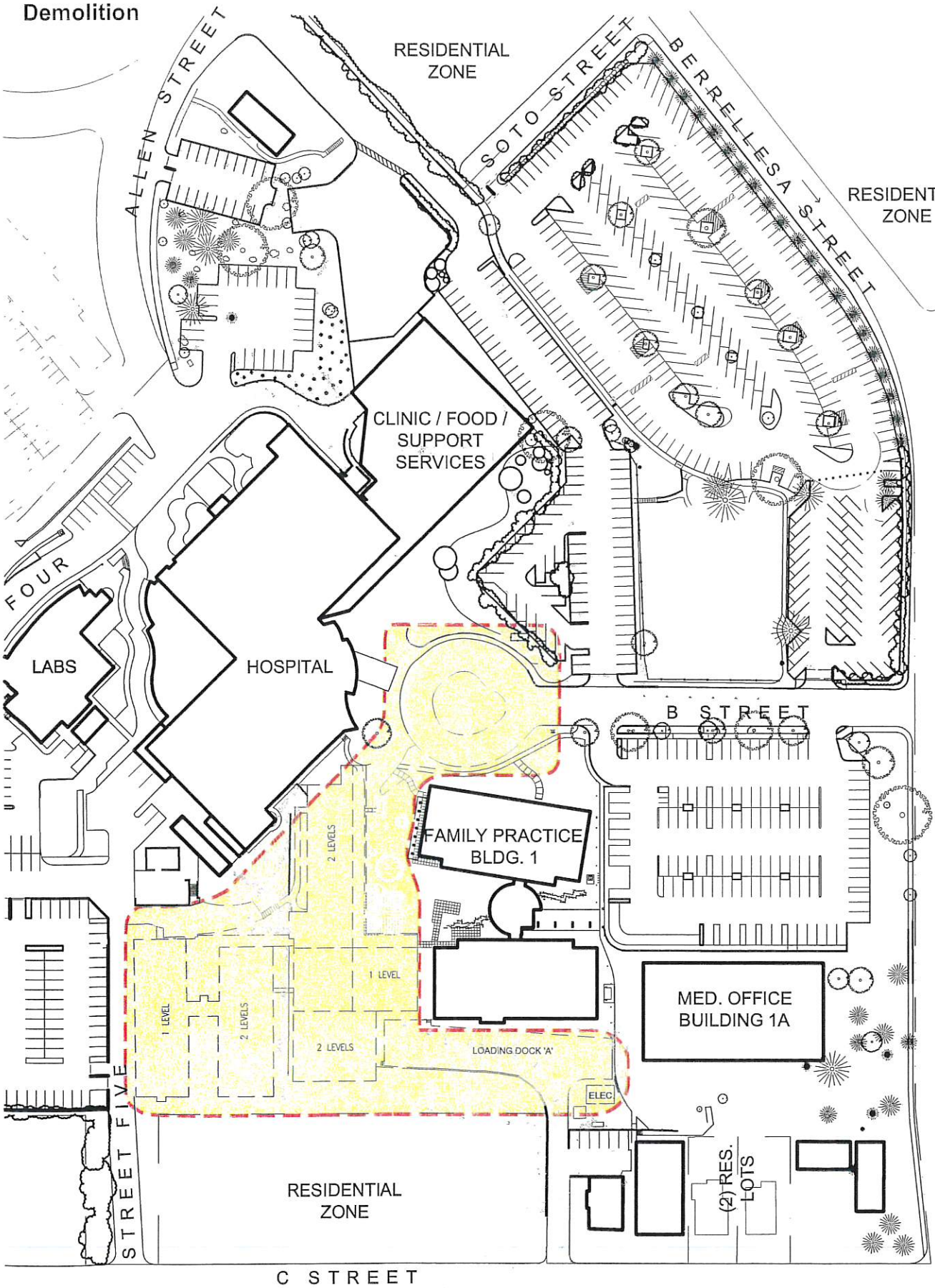


New Construction

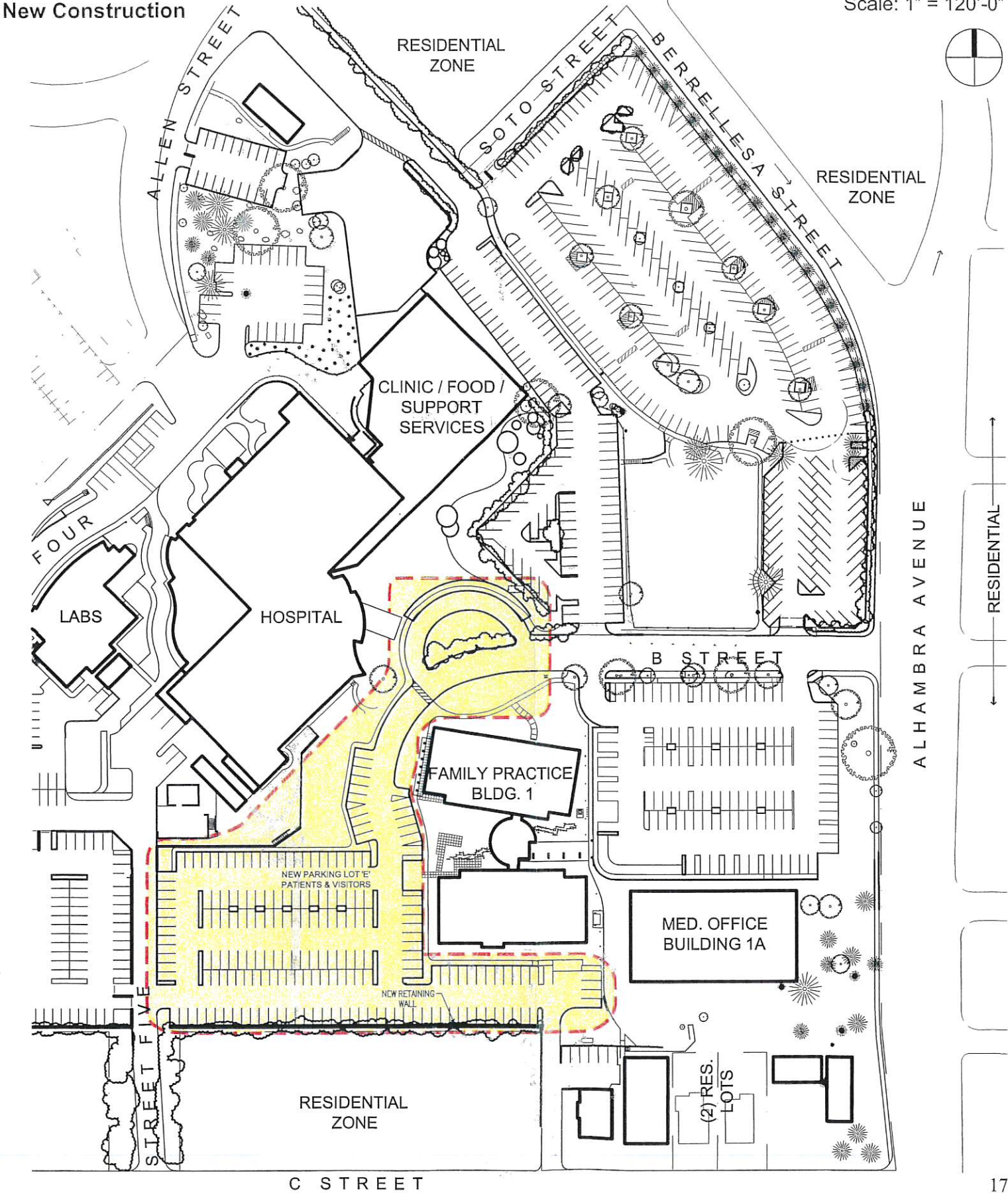


Scale: 1" = 120'-0"

Demolition

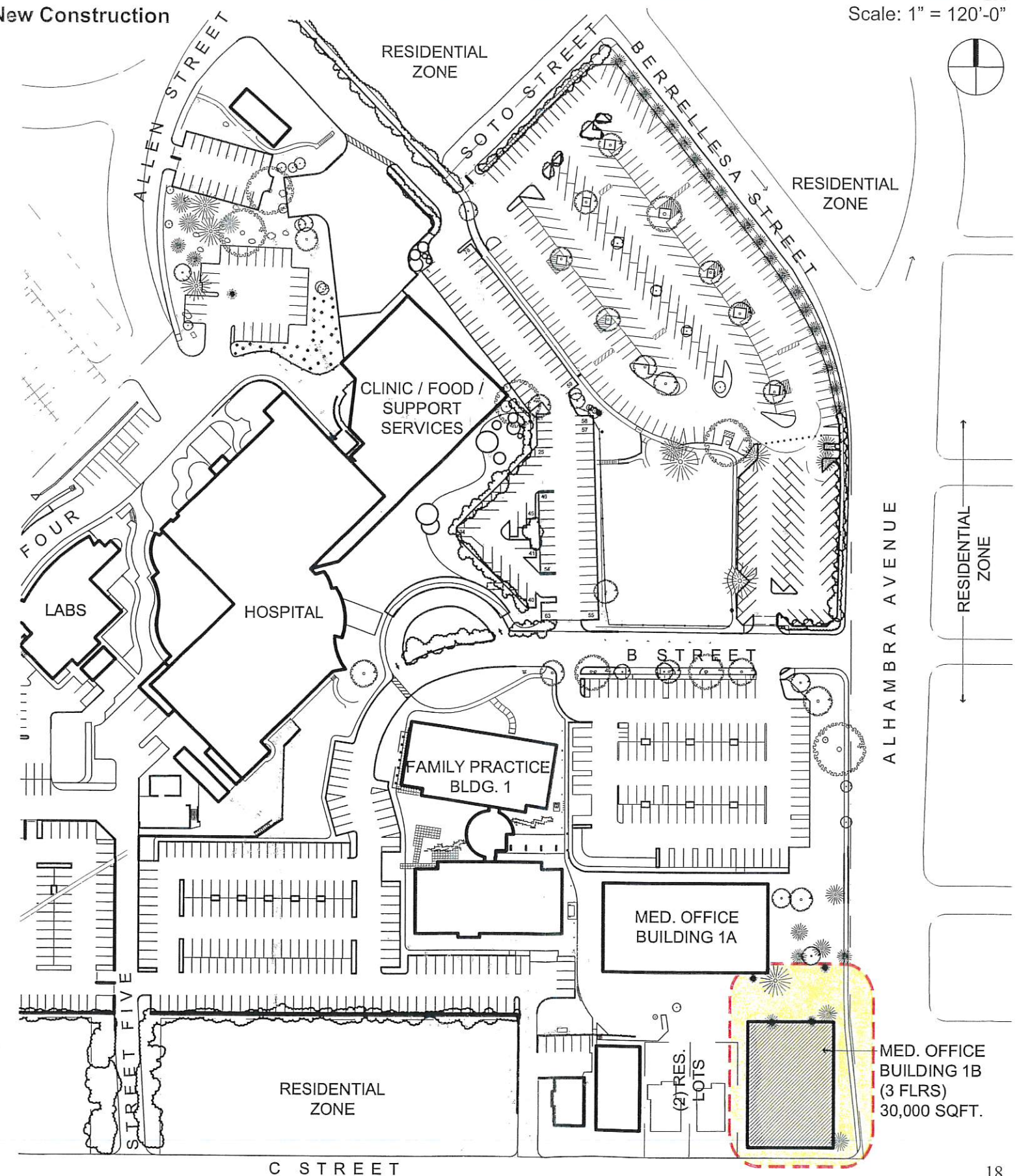


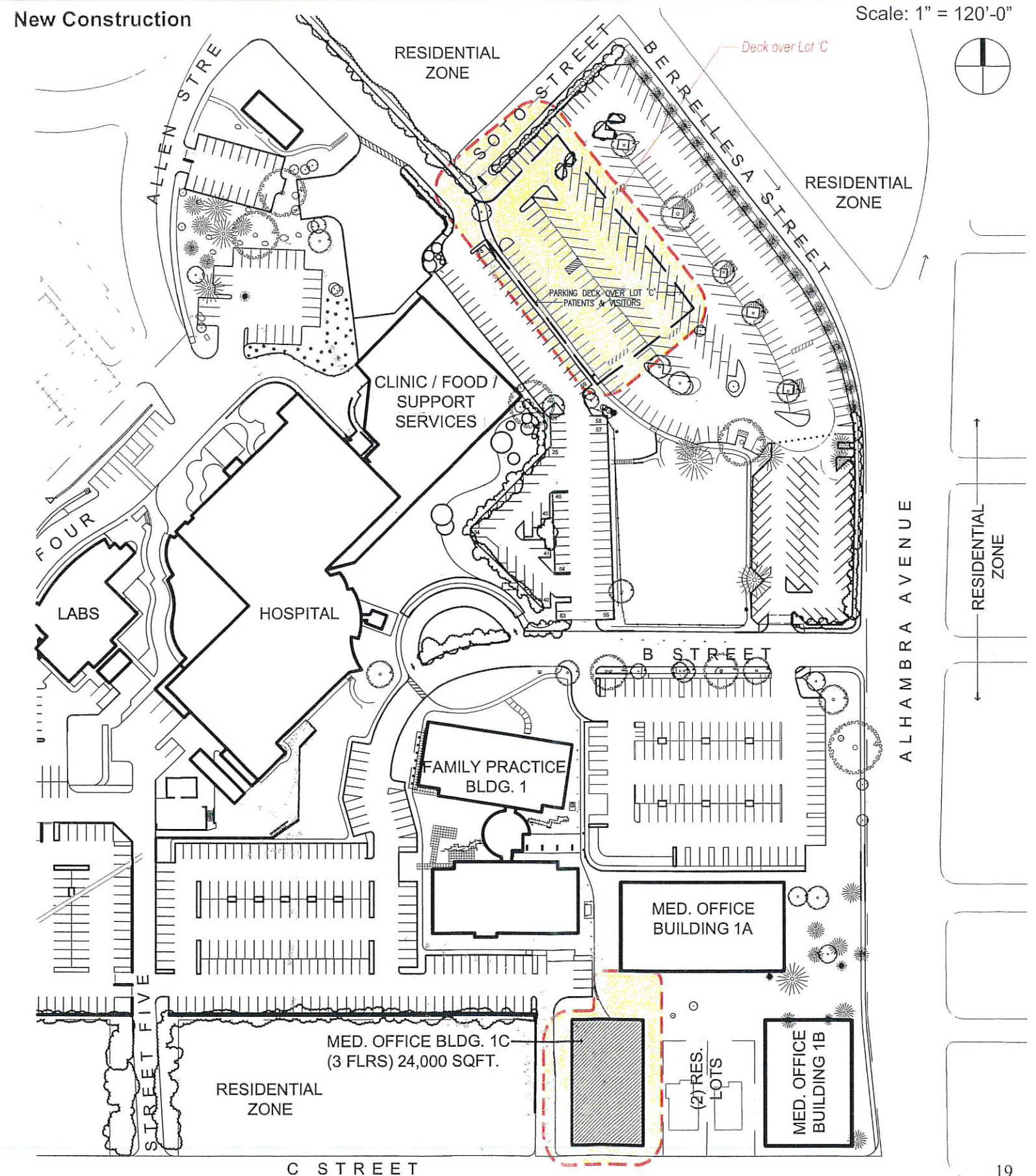
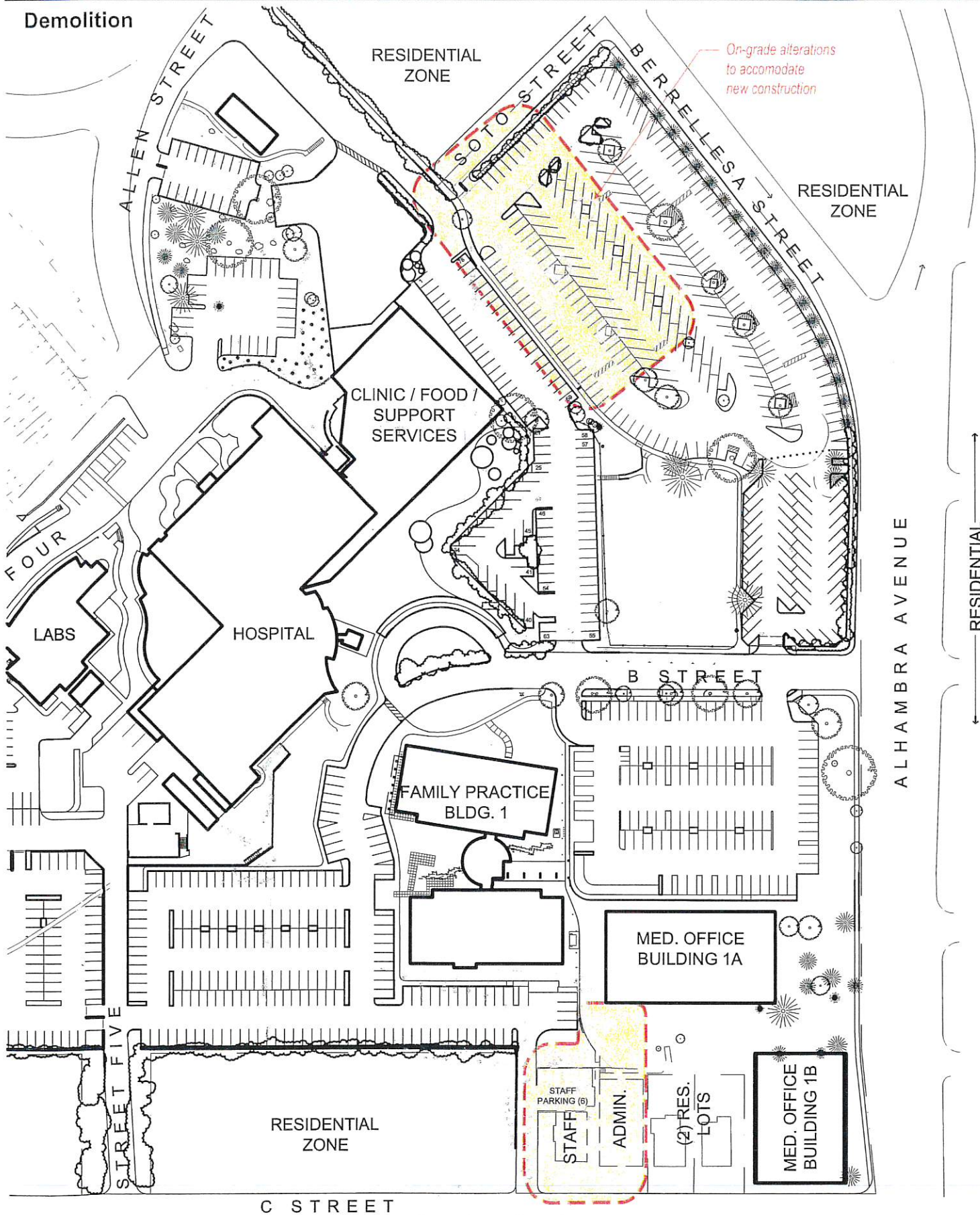
New Construction



Scale: 1" = 120'-0"

Scale: 1" = 120'-0"





Estimate & Schedule

Contra Costa Regional Medical Center : Masterplan

Preliminary Construction Cost Model : UPDATED & REVISED



		SITE / DEMO	BLDG C&S	FIT-OUT	MECH	ELEC	SUB - TOTAL	CONT.	ESCAL.	TOTAL CONSTR. COST	\$/SF	SOFT COSTS	TOTAL PROJECT COST	\$/SF
AREA OF WORK		QUANTITY	UNIT \$	UNIT \$	UNIT \$	UNIT \$	UNIT \$							
(Typical Contractors OH&P included in unit costs)														
<u>PARKING FOR FUTURE HOSPITAL EXPANSION</u>														
<u>FUTURE LOT 'C' HORIZONTAL EXPANSION</u>									future					
New parking - Lot 'C' deck	Precast structured level, open air	90 stalls	\$16,500.00				\$1,485,000	15.00%	35.00%	\$2,305,463		30.00%	\$2,997,101	
Repairs & reconfiguration - on grade	To accommodate new construction	1 lsum	\$200,000.00				\$200,000	15.00%	35.00%	\$310,500		30.00%	\$403,650	
Repairs & reconfiguration - deck	To accommodate new construction	1 lsum	\$100,000.00				\$100,000	15.00%	35.00%	\$155,250		30.00%	\$201,825	
										\$2,771,213			\$3,602,576	
<u>FUTURE LOT 'C' VERTICAL EXPANSION</u>									future					
New parking - Lot 'C' deck	Precast structured level, open air - no foundations	90 stalls	\$13,500.00				\$1,215,000	15.00%	35.00%	\$1,886,288		30.00%	\$2,452,174	
Repairs & reconfiguration - deck	To accommodate new construction	1 lsum	\$100,000.00				\$100,000	15.00%	35.00%	\$155,250		30.00%	\$201,825	
Increased footings on 1st level	Cost incurred at original construction	24,000 sqft	\$6.00				\$144,000	15.00%	35.00%	\$223,560		30.00%	\$290,628	
										\$2,265,098			\$2,944,627	

Contra Costa Regional Medical Center : Masterplan

Preliminary Construction Cost Model : UPDATED & REVISED



			SITE / DEMO	BLDG C&S	FIT-OUT	MECH	ELEC	SUB - TOTAL	CONT.	ESCAL.	TOTAL CONSTR. COST	\$/SF	SOFT COSTS	TOTAL PROJECT COST	\$/SF
AREA OF WORK		QUANTITY	UNIT \$	UNIT \$	UNIT \$	UNIT \$	UNIT \$								
(Typical Contractors OH&P included in unit costs)															
4. MEDICAL OFFICE BLDG '1A'															
(a) Relocate Specialty & Eligibility services	Make-ready work for temp location	1 lsum			\$50,000.00			\$50,000	10.00%	17.00%	\$64,350		20.00%	\$77,220	
(b) Demo Specialty Center & Eligibility	Complete demolition & removal	6,000 sqft	\$12.00					\$72,000	10.00%	17.00%	\$92,664		25.00%	\$115,830	
(c) Reconfigure parking - Lot 'D'	Minor adjustments & new	16 stalls	\$3,500.00					\$56,000	10.00%	17.00%	\$72,072		30.00%	\$93,694	
New MOB building	Typical MOB space, non-OSHDP	40,000 sqft	\$10.00	\$125.00	\$55.00	\$65.00	\$35.00	\$11,600,000	12.00%	17.00%	\$15,200,640	\$380.02	40.00%	\$21,280,896	\$532.02
											\$15,429,726			\$21,567,640	
5. PARKING LOT 'E'& RETAINING WALL															
(a) Demo Bldg E,F,G,Cafe/Kitchen, Elec, Dock	Complete demolition & removal	32,500 sqft	\$12.00					\$390,000	10.00%	20.00%	\$514,800		25.00%	\$643,500	
Demo existing retaining wall	Temp earthwork required - 15' avg. ht.	300 lft	\$150.00					\$45,000	10.00%	20.00%	\$59,400		25.00%	\$74,250	
(b) New parking - Lot 'E'	New on-grade lot complete	196 stalls	\$2,500.00					\$490,000	10.00%	20.00%	\$646,800		30.00%	\$840,840	
Circulation loop completion	Paving, curbs, etc.	15,000 sqft	\$15.00					\$225,000	10.00%	20.00%	\$297,000		30.00%	\$386,100	
Drop-off area construction	Pedestrian paving, canopy, lighting, etc.	1 lsum	\$250,000.00					\$250,000	15.00%	20.00%	\$345,000		30.00%	\$448,500	
New/relocated retaining wall	Major earthwork and wall construction - 15' avg. ht.	300 lft	\$750.00					\$225,000	15.00%	20.00%	\$310,500		30.00%	\$403,650	
											\$2,173,500			\$2,796,840	
6. MEDICAL OFFICE BLDG '1B'															
(a) Relocate CardioPulmonary services	Make-ready work for temp location	1 lsum			\$25,000.00			\$25,000	10.00%	20.00%	\$33,000		20.00%	\$39,600	
(b) Demo Cardio Pulm & Healthy Start	Complete demolition & removal	3,000 sqft	\$12.00					\$36,000	10.00%	20.00%	\$47,520		25.00%	\$59,400	
(c) New MOB building	Typical MOB space, non-OSHDP	30,000 sqft	\$10.00	\$125.00	\$55.00	\$65.00	\$35.00	\$8,700,000	12.00%	20.00%	\$11,692,800	\$389.76	40.00%	\$16,369,920	\$545.66
											\$11,773,320			\$16,468,920	
7. MEDICAL OFFICE BLDG '1C'															
(a) New parking - Lot 'C' deck	Precast structured level, open air	86 stalls	\$16,500.00					\$1,419,000	15.00%	24.00%	\$2,023,494		30.00%	\$2,630,542	
Repairs & reconfiguration - on grade	To accommodate new construction	1 lsum	\$200,000.00					\$200,000	15.00%	24.00%	\$285,200		30.00%	\$370,760	
(b) Relocate Admin services	Make-ready work for temp location	1 lsum			\$25,000.00			\$25,000	10.00%	24.00%	\$34,100		20.00%	\$40,920	
(c) Demo Administrative & Staff bldgs	Complete demolition & removal	4,700 sqft	\$12.00					\$56,400	10.00%	24.00%	\$76,930		25.00%	\$96,162	
(d) New MOB building	Typical MOB space, non-OSHDP	24,000 sqft	\$10.00	\$125.00	\$55.00	\$65.00	\$35.00	\$6,960,000	12.00%	24.00%	\$9,666,048	\$402.75	40.00%	\$13,532,467	\$563.85
											\$12,085,772			\$16,670,851	
TOTAL MASTER PLAN IMPLEMENTATION										\$61,485,415		\$86,921,126			

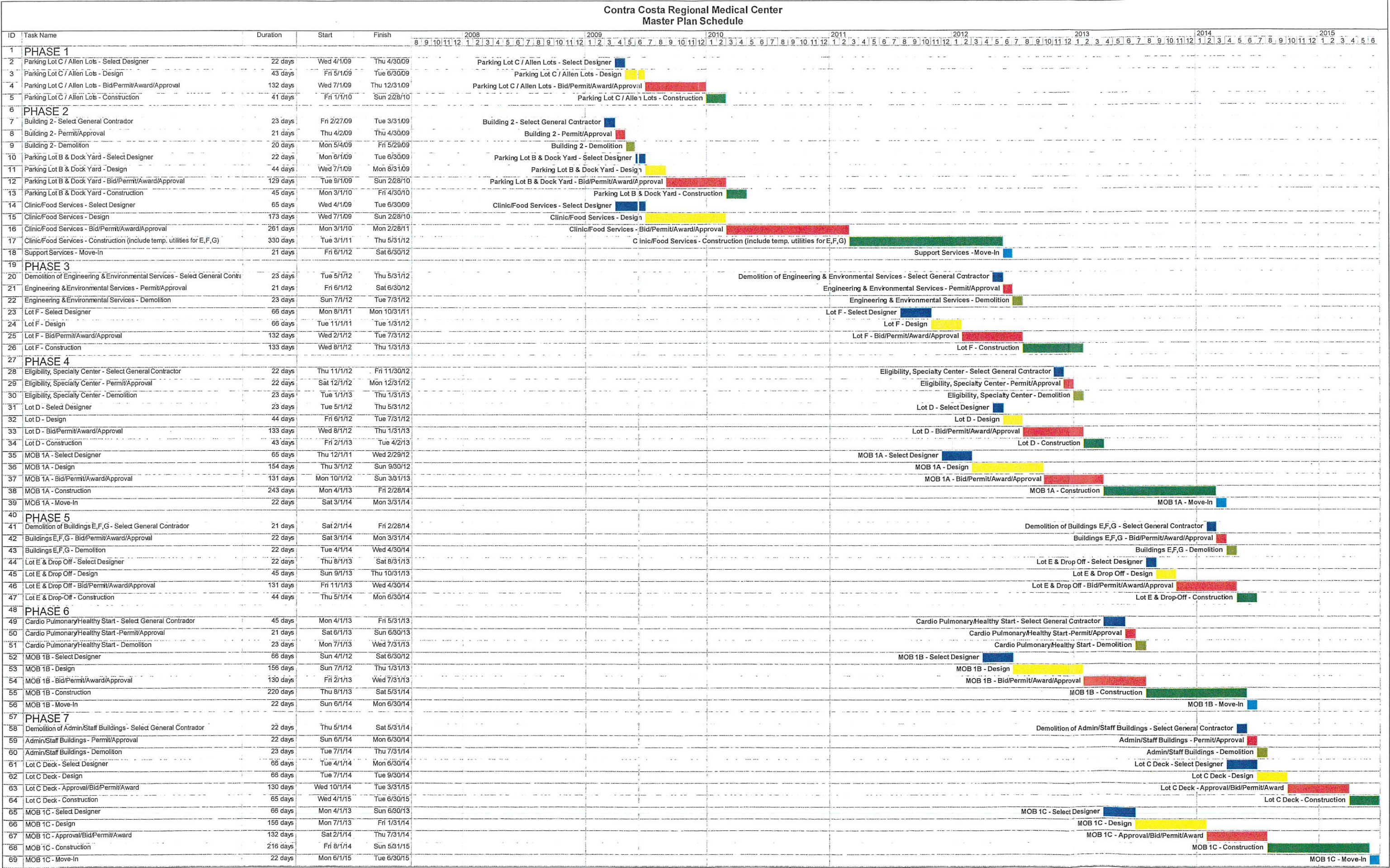
Contra Costa Regional Medical Center : Masterplan

Preliminary Construction Cost Model : UPDATED & REVISED



Architecture | Engineering | Planning

			SITE / DEMO	BLDG C&S	FIT-OUT	MECH	ELEC	SUB - TOTAL	CONT.	ESCAL.	TOTAL CONSTR. COST	\$/SF	SOFT COSTS	TOTAL PROJECT COST	\$/SF
AREA OF WORK	QUANTITY	UNIT \$	UNIT \$	UNIT \$	UNIT \$	UNIT \$									
(Typical Contractors OH&P included in unit costs)															
1. INCREASE PARKING											Q4 - 2009				
(a) Relocate IT Services	IT infrastructure relocation to temp location	1 lsum					\$25,000.00	\$25,000	10.00%	2.00%	\$28,050		20.00%	\$33,660	
(b) Demo IT portable building & Rec Court	Complete demolition & removal	2,000 sqft	\$12.00					\$24,000	10.00%	2.00%	\$26,928		25.00%	\$33,660	
(c) New parking - Lot 'C' expansion	Expansion of existing, minimal mods to existing	68 stalls	\$2,500.00					\$170,000	15.00%	2.00%	\$199,410		30.00%	\$259,233	
Parking security gate - Lot 'C' expansion	Gate structure & elec/comm connections	1 each	\$40,000.00					\$40,000	15.00%	2.00%	\$46,920		30.00%	\$60,996	
New parking - Street Four	Re-Striping only	29 stalls	\$150.00					\$4,350	10.00%	2.00%	\$4,881		30.00%	\$6,345	
New parking - Allen Street	One new on-grade lot complete	20 stalls	\$150.00					\$3,000	10.00%	2.00%	\$3,366		30.00%	\$4,376	
Parking security gate - Allen Street	Gate structure & elec/comm connections	1 each	\$40,000.00					\$40,000	15.00%	2.00%	\$46,920		30.00%	\$60,996	
											\$356,475			\$459,266	
2. HOSPITAL ADDITION :CLINIC / CAFETERIA / KITCHEN / SUPPORT SERVICES											Q1 - 2010				
(a) Demo Lot 'B'	Complete demolition & removal	25,000 sqft	\$4.00					\$100,000	10.00%	3.00%	\$113,300		25.00%	\$141,625	
Reconfigured parking - Lot 'B'	New/reconfigured on-grade lot complete	78 stalls	\$3,000.00					\$234,000	15.00%	3.00%	\$277,173		30.00%	\$360,325	
(b) Relocate Bldg 2 & portable bldg services	Make-ready work for temp location	1 lsum			\$50,000.00			\$50,000	10.00%	3.00%	\$56,650		20.00%	\$67,980	
(c) Demo Bldg 2 & portable building	Complete demolition & removal	10,000 sqft	\$12.00					\$120,000	10.00%	3.00%	\$135,960		25.00%	\$169,950	
(d) Circulation loop connection to Allen St.	Paving, curbs, etc.	10,000 sqft	\$15.00					\$150,000	10.00%	3.00%	\$169,950		30.00%	\$220,935	
New Loading Dock - Site	Paving & road work	10,000 sqft	\$10.00					\$100,000	10.00%	3.00%	\$113,300		30.00%	\$147,290	
New Loading Dock - Building	Renovation & addition to existing Hospital	1,000 sqft	\$10.00	\$175.00	\$20.00	\$60.00	\$30.00	\$295,000	10.00%	3.00%	\$334,235	\$334.24	40.00%	\$467,929	\$467.93
Kitchen addition - OSHPD	Incl. major new equipment	5,000 sqft	\$10.00	\$175.00	\$100.00	\$125.00	\$65.00	\$2,375,000	12.00%	3.00%	\$2,739,800	\$547.96	55.00%	\$4,246,690	\$849.34
Dining addition - OSHPD	Not incl. loose equipment, seating	5,000 sqft	\$10.00	\$150.00	\$60.00	\$100.00	\$45.00	\$1,825,000	12.00%	3.00%	\$2,105,320	\$421.06	55.00%	\$3,263,246	\$652.65
Clinic addition - OSHPD	Typical clinic space	11,000 sqft	\$10.00	\$150.00	\$75.00	\$100.00	\$45.00	\$4,180,000	12.00%	3.00%	\$4,822,048	\$438.37	55.00%	\$7,474,174	\$679.47
Support Services - OSHPD	Typical support space	5,000 sqft	\$10.00	\$125.00	\$20.00	\$100.00	\$45.00	\$1,500,000	12.00%	3.00%	\$1,730,400	\$346.08	55.00%	\$2,682,120	\$536.42
IT Rooms - OSHPD	Typical office space	5,000 sqft	\$10.00	\$150.00	\$45.00	\$100.00	\$55.00	\$1,800,000	12.00%	3.00%	\$2,076,480	\$415.30	55.00%	\$3,218,544	\$643.71
											\$14,674,616			\$22,460,808	
3. PARKING LOT 'F'											Q3 - 2012				
(a) Replcmnt utility services for Bldgs E,F&G	On-site energy plant, temporary	1 lsum				\$250,000.00		\$250,000	15.00%	15.00%	\$330,625		40.00%	\$462,875	
(b) Demo Engineering & Enviro Srvc	Complete demolition & removal	32,000 sqft	\$12.00					\$384,000	10.00%	15.00%	\$485,760		25.00%	\$607,200	
(c) New parking - Lot 'F' on-grade	New on-grade lot, major retaining walls, ventilation	110 stalls	\$6,000.00					\$660,000	10.00%	15.00%	\$834,900		30.00%	\$1,085,370	
New parking - Lot 'F' deck	Precast structured level, open air	141 stalls	\$16,500.00					\$2,326,500	15.00%	15.00%	\$3,076,796		30.00%	\$3,999,835	
Parking security gate - Lot 'F' upper & lower	Gate structure & elec/comm connections	2 each	\$40,000.00					\$80,000	15.00%	15.00%	\$105,800		30.00%	\$137,540	
(d) Remove Lot 'D' fence, bollards, gate	Misc. demo	1 lsum	\$25,000.00					\$25,000	10.00%	15.00%	\$31,625		25.00%	\$39,531	
Reconfigure Lot 'C' for Patient/Visitor	Modifications & re-striping	1 lsum	\$100,000.00					\$100,000	10.00%	15.00%	\$126,500		30.00%	\$164,450	
											\$4,992,006			\$6,496,801	





Contra
Costa
County

To: Board of Supervisors
From: Monica Nino, County Administrator
Date: December 14, 2021

Subject: Appointment of Public Defender; Add One Public Defender; Cancel One Public Defender

RECOMMENDATION(S):

APPOINT Ellen McDonnell to the position of Public Defender – Exempt at Step 5 of the salary range, effective December 14, 2021, including all benefits provided in the current Management Resolution applicable to the position of Public Defender – Exempt. ADOPT Position Adjustment Resolution No. 25856 to add one (1) Public Defender – Exempt (25A1) at salary plan and grade BD5 2637 (\$23,098) and cancel one (1) Public Defender – Exempt (25A1) (Position 3835) effective January 1, 2022.

FISCAL IMPACT:

The estimated annual County cost for the Public Defender - Exempt position is \$433,641, of which \$93,131 are pension costs. The estimated cost for the six and one-half months of the remaining fiscal year 2021/2022 is \$234,889, of which \$75,164 are pension costs based on a start date of December 14, 2021. All costs are budgeted in the General Fund.

BACKGROUND:

On August 5, 2021, Public

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Paula Webb
925.655.2044

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:

BACKGROUND: (CONT'D)

Defender Robin Lipetzky informed the County Administrator that she would be retiring effective January 1, 2022. The County contracted CPS HR Consulting to conduct the recruitment to fill the vacancy. In August 2021, the recruitment for a new Public Defender commenced. Ads were placed with appropriate industry publications and websites. Invitations and recruitment brochures were sent via traditional and electronic mail to potential candidates targeted by the executive search firm.

The five -week recruitment garnered three (3) applications for further consideration. With the assistance of CPS HR Consulting, applications were screened, and three (3) semi-finalists were forwarded to the County panel and scheduled for interviews on October 20, 2021. Prior to the interviews, one applicant accepted a job in another county and withdrew from the interview process. The County Interview panel was comprised of Monica Nino, County Administrator, Contra Costa County, the Honorable Rebecca Hardie, Presiding Judge, Contra Costa Superior Court; Kathleen Pozzi, Sonoma County Public Defender (Retired), and Esa Ehmen-Krause, Contra Costa County Chief Probation Officer and were facilitated by Andrew Nelson of CPS HR Consulting. Follow-up candidate interviews were conducted by Contra Costa County Administrator Monica Nino on November 17, 2021, along with thorough reference checks. Following the interviews, Ellen McDonnell was selected by the County Administrator for the position of Public Defender.

Ms. McDonnell holds a Juris Doctor from University of California, Hastings College of the Law, and a Bachelor of Arts degree with a double major in Spanish and Italian from Florida Atlantic University in Boca Raton. She has been a member of the California State Bar since 2001. Ms. McDonnell has served as the Contra Costa County Interim Public Defender since August 2021, with a 20-year history in the Contra Costa County Public Defender's Office, beginning as a Graduate Law Clerk and working through the levels of Public Defender I through V and as Chief Assistant Public Defender for two years prior to her service as interim Public Defender. Ms. McDonnell has not only worked in every division of the Public Defender's office, but she has also appeared in courtrooms throughout the County. She is also an experienced manager and has been responsible for the operations of the Public Defender's Office for the past two years, including a \$36 million-dollar annual budget and a personnel roster of 145 employees. Ms. McDonnell has led efforts to ensure diversity in recruitment and retention practices, has worked to increase equity in departmental policies and enhance training and accountability within the Public Defender's Office; and she has developed strong partnerships with other stakeholders to improve public safety and the criminal justice system outside of the office. Even though Ms. McDonnell has been Interim Public Defender for four months, changes have been made in the area of the number of overloads, and she has been working to resolve concerns with the justice partners. She is dedicated to excellence in all aspects of providing criminal defense to the indigent population of Contra Costa County. As the successful incumbent, Ms. McDonnell is qualified to serve as this County's Public Defender.

CONSEQUENCE OF NEGATIVE ACTION:

The Public Defender position will remain vacant, leaving a vulnerable management position in the Department.

ATTACHMENTS

P300

POSITION ADJUSTMENT REQUEST

NO. 25856

DATE _____

Department No./

Budget Unit No. 0243 Org No. 2900 Agency No. 43Department Public Defender

Action Requested: Add One Public Defender; Cancel One Public Defender; Appointment of Public Defender

Proposed Effective Date: 12/14/2021Classification Questionnaire attached: Yes ☐ No ☒ / Cost is within Department's budget: Yes ☒ No ☐Total One-Time Costs (non-salary) associated with request: \$0.00

Estimated total cost adjustment (salary / benefits / one time):

Total annual cost \$433,641.00Net County Cost \$0.00Total this FY \$234,889.00N.C.C. this FY \$0.00SOURCE OF FUNDING TO OFFSET ADJUSTMENT General Fund

Department must initiate necessary adjustment and submit to CAO.

Use additional sheet for further explanations or comments.

Paula Webb, Executive Assistant II

(for) Department Head

REVIEWED BY CAO AND RELEASED TO HUMAN RESOURCES DEPARTMENT

Monica Nino, County Administrator

Deputy County Administrator

Date

HUMAN RESOURCES DEPARTMENT RECOMMENDATIONS

DATE _____

Amend Resolution 71/17 establishing positions and resolutions allocating classes to the Basic / Exempt salary schedule.

Effective: ☐ Day following Board Action.☒ 12/14/2021 (Date)

(for) Director of Human Resources

Date

COUNTY ADMINISTRATOR RECOMMENDATION:

DATE _____

☒ Approve Recommendation of Director of Human Resources☐ Disapprove Recommendation of Director of Human Resources☐ Other: _____

(for) County Administrator

BOARD OF SUPERVISORS ACTION:

Adjustment is APPROVED ☐ DISAPPROVED ☐Monica Nino, Clerk of the Board of Supervisors
and County Administrator

DATE _____

BY _____

APPROVAL OF THIS ADJUSTMENT CONSTITUTES A PERSONNEL / SALARY RESOLUTION AMENDMENT

POSITION ADJUSTMENT ACTION TO BE COMPLETED BY HUMAN RESOURCES DEPARTMENT FOLLOWING BOARD ACTION

Adjust class(es) / position(s) as follows:

REQUEST FOR PROJECT POSITIONS

Department _____

Date _____

No. _____

1. Project Positions Requested:
2. Explain Specific Duties of Position(s)
3. Name / Purpose of Project and Funding Source (do not use acronyms i.e. SB40 Project or SDSS Funds)
4. Duration of the Project: Start Date _____ End Date _____
Is funding for a specified period of time (i.e. 2 years) or on a year-to-year basis? Please explain.
5. Project Annual Cost
 - a. Salary & Benefits Costs: _____
 - b. Support Costs: _____
(services, supplies, equipment, etc.)
 - c. Less revenue or expenditure: _____
 - d. Net cost to General or other fund: _____
6. Briefly explain the consequences of not filling the project position(s) in terms of:
 - a. potential future costs
 - b. legal implications
 - c. financial implications
 - d. political implications
 - e. organizational implications
7. Briefly describe the alternative approaches to delivering the services which you have considered. Indicate why these alternatives were not chosen.
8. Departments requesting new project positions must submit an updated cost benefit analysis of each project position at the halfway point of the project duration. This report is to be submitted to the Human Resources Department, which will forward the report to the Board of Supervisors. Indicate the date that your cost / benefit analysis will be submitted
9. How will the project position(s) be filled?
 - ☐ a. Competitive examination(s)
 - ☐ b. Existing employment list(s) Which one(s)? _____
 - ☐ c. Direct appointment of:
 - ☐ 1. Merit System employee who will be placed on leave from current job
 - ☐ 2. Non-County employee

Provide a justification if filling position(s) by C1 or C2

USE ADDITIONAL PAPER IF NECESSARY



Contra
Costa
County

To: Board of Supervisors
From: Monica Nino, County Administrator
Date: December 14, 2021

Subject: Update on COVID -19

RECOMMENDATION(S):

ACCEPT update on COVID 19 and PROVIDE direction to staff.

FISCAL IMPACT:

Administrative Reports with no specific fiscal impact.

BACKGROUND:

The Health Services Department has established a website dedicated to COVID-19, including daily updates. The site is located at: <https://www.coronavirus.cchealth.org/>

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☒ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

**VOTE OF
SUPERVISORS**

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Monica Nino, County Administrator and Clerk of the Board of Supervisors

Contact: Monica Nino

By: , Deputy

cc:



**Contra
Costa
County**

To: Board of Supervisors

From: John Kopchik, Director, Conservation & Development Department

Date: December 14, 2021

Subject: Adopt Urgency Ordinance No. 2021-43 Prohibiting Certain Land Use Development in the North Richmond Area (District I)

RECOMMENDATION(S):

1. DETERMINE that adoption of Ordinance No. 2021-43 is exempt from the California Environmental Quality Act (CEQA) under CEQA Guidelines Section 15061(b)(3).
2. ADOPT Ordinance No. 2021-43, an interim urgency ordinance imposing a temporary moratorium on the establishment or expansion of fulfillment centers, parcel hubs, and parcel sorting facilities in the North Richmond area.
3. DIRECT staff to file a CEQA Notice of Exemption with the County Clerk-Recorder.

FISCAL IMPACT:

None.

BACKGROUND:

This urgency interim ordinance is necessary to address impacts from the recent increase in heavy distribution land uses in the North Richmond area. The North Richmond Area is the area located within the boundaries of the

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Francisco Avila, (925)
655-2866

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:

BACKGROUND: (CONT'D)

North Richmond P-1 (Planned Unit) District adopted by the Board of Supervisors on December 12, 1994. The North Richmond P-1 District encompasses the entire North Richmond community.

With the rapid expansion of e-commerce in recent years and need for local fulfillment centers and operations, the North Richmond Area has seen a proliferation of fulfillment centers, parcel hubs, and parcel sorting facilities (collectively and individually, "Heavy Distribution"). As a result, the North Richmond Area faces increased truck traffic and the following related adverse impacts: increased safety risk to smaller vehicles, pedestrians, and bicyclists; increased damage to streets; traffic congestion and reduced levels of service on streets and at intersections; and increased emissions and air quality impacts.

Staff has identified additional concerns that the cumulative impacts caused by the increase in Heavy Distribution in the North Richmond Area have not been sufficiently considered and analyzed given that Heavy Distribution often operates on a 24-hour basis and may cause deteriorating air quality, health, noise, vibration, and other disruptions to peace and quiet that may impact surrounding sensitive uses, such as schools and residences. The North Richmond community has been designated by the California Air Resources Board and the Bay Area Air Quality Management District as one of only 15 communities in California to be part of State Assembly Bill (AB) 617's Community Air Protection Program. Under current County regulations, Heavy Distribution is consistent with the existing General Plan industrial land use designations in the North Richmond Area, and is permitted within the North Richmond P-1 district. DCD staff is considering a zoning text amendment to the North Richmond P-1 district to address the individual and cumulative impacts of Heavy Distribution through appropriate locational criteria and traffic and air quality impact mitigation requirements.

This ordinance is necessary to proceed with an orderly planning process that takes into account consideration of the zoning text amendment for the North Richmond P-1 District. A threat to the public health, safety, and welfare would result if Heavy Distribution type land-use entitlements or building permits are accepted and approved under the existing North Richmond P-1 District. The failure to enact this moratorium may result in significant irreversible impacts to businesses, residents, and other sensitive uses in the North Richmond Area that may not be adequately analyzed or mitigated.

CEQA COMPLIANCE

Adoption of the proposed urgency interim ordinance is exempt from CEQA because it can be seen with certainty that adoption of the ordinance will not have a significant effect on the environment. The proposed ordinance would impose a temporary moratorium on the establishment or expansion of a land use activity that might otherwise affect the environment. See CEQA Guidelines, Section 15061(b)(3).

CONSEQUENCE OF NEGATIVE ACTION:

The failure to adopt this urgency interim ordinance may result in significant irreversible impacts to businesses, residents, and other sensitive uses in the North Richmond Area from new or expanded Heavy Distribution land uses.

ATTACHMENTS

Ordinance No. 2021-43 No. Richmond

North Richmond Area Map Ord. No. 2021-43

ORDINANCE NO. 2021-43

URGENCY INTERIM ORDINANCE PROHIBITING HEAVY DISTRIBUTION
LAND USE DEVELOPMENT IN THE NORTH RICHMOND AREA

The Contra Costa County Board of Supervisors ordains as follows:

SECTION I. FINDINGS AND PURPOSE.

- A. The area of North Richmond is the area located within the boundaries of the North Richmond P-1 (Planned Unit) District adopted by the Board of Supervisors on December 12, 1994 (the “North Richmond Area”). The North Richmond P-1 District encompasses the entire North Richmond community.
- B. The North Richmond Area is designated in the County General Plan primarily for heavy industrial and light industrial land uses, but also includes areas designated for residential and public space land uses. Existing industrial land uses in the North Richmond Area consist of floricultural growing operations, distribution operations, recycling and auto dismantling operations, a resource recovery facility, and a water reclamation facility.
- C. The North Richmond Area also includes an elementary school, single- and multi-family dwellings, parks and recreation, open space, and an urban farm outdoor education center for at-risk youth. Many of these uses are adjacent to or located near the industrial land uses in the North Richmond Area.
- D. Due to the recent and rapid expansion of e-commerce in recent years and need for local fulfillment centers and operations, the North Richmond Area has seen a significant increase in fulfillment centers, parcel hubs, and parcel sorting facilities (collectively and individually, “Heavy Distribution”). A “fulfillment center” is a facility where the primary purpose is storage and distribution of e-commerce products to consumers or end-users, either directly or through a parcel hub. A “parcel hub” is a last mile facility or similar facility where the primary purpose is the processing or redistribution of parcels or products, primarily by moving a shipment from one mode of transport to a vehicle with a rated capacity of less than 10,000 pounds, for delivery directly to consumers or end-users. A “parcel sorting facility” is a facility where the primary purpose is the sorting or redistribution of parcels or products from a fulfillment center to a parcel hub.
- E. With this increase in Heavy Distribution, residents and businesses within the North Richmond Area face increased truck traffic and the following related adverse impacts: increased safety risk to smaller vehicles, pedestrians, and bicyclists; increased damage to streets; traffic congestion and reduced levels of service on streets and at intersections; and increased emissions and air quality impacts.
- F. The Board of Supervisors has additional concerns that the cumulative impacts caused by the increase in Heavy Distribution in the North Richmond Area have not been sufficiently considered and analyzed given that Heavy Distribution often operates on a 24-hour basis and may cause deteriorating air quality, health, noise, vibration, and other disruptions to peace and quiet that may impact surrounding sensitive uses, such as schools and residences. As with

current industrial uses located in the North Richmond Area, new or expanded Heavy Distribution uses may be located adjacent to or near sensitive uses, such as schools and residences.

- G. The North Richmond community has been designated by the California Air Resources Board and the Bay Area Air Quality Management District as one of only 15 communities in California to be part of State Assembly Bill (AB) 617's Community Air Protection Program. The purpose of this program is to reduce emissions exposure in California's communities that are most impacted by air pollution. A community steering committee has been established to guide the development of a Community Emissions Reduction Program to improve air quality in North Richmond, Richmond, and San Pablo. The current proliferation of Heavy Distribution uses in the North Richmond Area without appropriate evaluation is inconsistent with AB617's goal of reducing harmful particulate matter emissions in the State's most heavily impacted communities.
- H. The Board of Supervisors has determined that Heavy Distribution has potentially detrimental impacts upon the North Richmond community that are not addressed by the County's current General Plan and zoning regulations. Under these current regulations, Heavy Distribution is consistent with the existing General Plan industrial land use designations in the North Richmond Area and is permitted within the North Richmond P-1 District. There is a need to study and develop policies to address various individual and cumulative impacts associated with Heavy Distribution. Specifically, there is a need for additional locational criteria and traffic and air quality impact mitigation requirements to protect businesses, residents, and other sensitive uses in the North Richmond Area.
- I. The Department of Conservation and Development is considering a zoning text amendment to the North Richmond P-1 District to address the individual and cumulative impacts of Heavy Distribution.
- J. This ordinance is necessary to proceed with an orderly planning process that takes into account consideration of the zoning text amendment for the North Richmond P-1 District. A threat to the public health, safety, and welfare would result if Heavy Distribution land use entitlements or building permits are accepted and approved under the existing North Richmond P-1 District. If Heavy Distribution land uses are allowed in the North Richmond Area under the existing North Richmond P-1 District, they could conflict with and defeat the purpose of the contemplated zoning text amendment. The failure to enact this moratorium during the stated period may result in significant irreversible impacts to businesses, residents, and other sensitive uses in the North Richmond Area that would not be adequately analyzed or mitigated.

SECTION II. PROHIBITION. A moratorium on certain development in the North Richmond Area is established.

- (a) While this interim ordinance is in effect, no new Heavy Distribution land use shall be established and no existing Heavy Distribution land use shall be expanded within the North Richmond Area, except as otherwise provided in Section III. No applications for a land use entitlement or building permit for Heavy Distribution shall be accepted or processed, and no land use entitlement or building permit for Heavy Distribution shall be approved or issued, for any parcel or portion of a parcel located within the North Richmond Area.

- (b) The moratorium established by this ordinance applies to the North Richmond Area, which is the area located within the boundaries of the North Richmond P-1 District, as shown on Exhibit A, which is attached and incorporated by reference.

SECTION III. EXEMPTIONS. The prohibition set forth in Section II does not apply to any application for a land use entitlement or building permit for Heavy Distribution that has been deemed complete by the Department of Conservation and Development as of the effective date of this ordinance.

SECTION IV. REPORTS. In accordance with subdivision (d) of Government Code section 65858, ten days before the expiration of this ordinance and any extension of it, the Department of Conservation and Development shall file with the Clerk of this Board a written report describing the measures taken to alleviate the conditions that led to the adoption of this urgency interim ordinance.

SECTION V. SEVERABILITY. If any provision or clause of this ordinance or the application thereof to any person or circumstances is held to be unconstitutional or to be otherwise invalid by any court of competent jurisdiction, such invalidity shall not affect other ordinance provisions or clauses or applications thereof that can be implemented without the invalid provision or clause or application, and to this end the provisions and clauses of this ordinance are declared to be severable.

SECTION VI. DECLARATION OF URGENCY. This interim ordinance is hereby declared to be an urgency ordinance for the immediate preservation of the public safety, health, and welfare of the County, and it shall take effect immediately upon its adoption. The facts constituting the urgency of this interim ordinance's adoption are set forth in Section I.

SECTION VII. EFFECTIVE PERIOD. This ordinance becomes effective immediately upon passage by four-fifths vote of the Board and shall continue in effect for a period of 45 days, pursuant to Government Code section 65858. Within 15 days of passage, this ordinance shall be published once with the names of the supervisors voting for and against it in the East Bay Times, a newspaper published in this County.

PASSED ON _____ by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

ATTEST: MONICA NINO

Clerk of the Board of Supervisors
and County Administrator

Board Chair

By:

Deputy

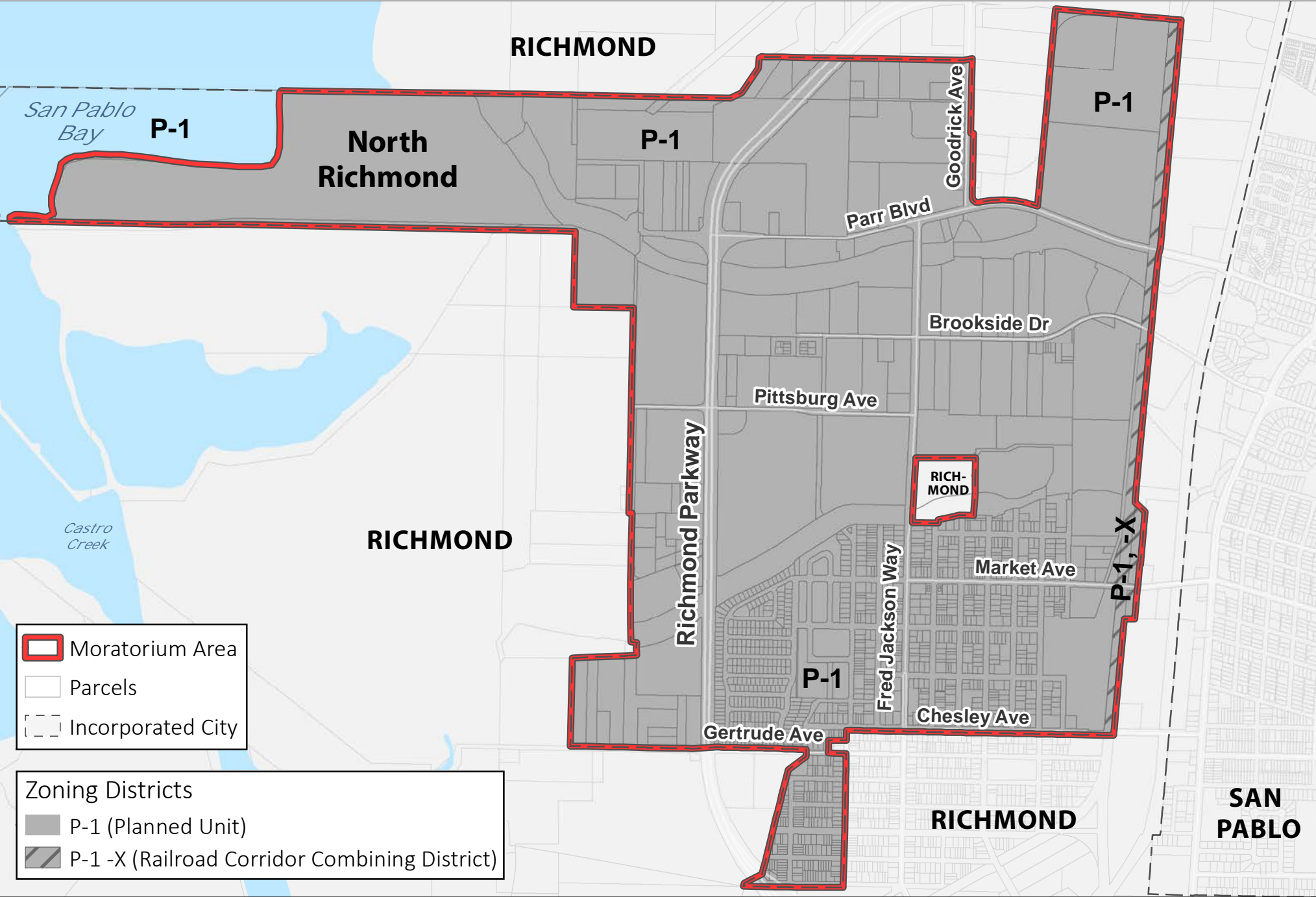
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ORDINANCE NO. 2021-43

Exhibit A Ordinance No. 2021-43, North Richmond Area





**Contra
Costa
County**

To: Board of Supervisors
From: John Kopchik, Director, Conservation & Development Department
Date: December 14, 2021

Subject: Introduce Ordinance No. 2022-02, adopting and amending the 2019 California Energy Code to require certain newly constructed buildings be all-electric

RECOMMENDATION(S):

1. INTRODUCE Ordinance No 2022-02, adopting and amending the 2019 California Energy Code to require that all newly constructed residential buildings, hotels, offices, and retail buildings be constructed as all-electric buildings without natural gas infrastructure; WAIVE reading; and FIX January 18, 2022, at 9:30 a.m. for a public hearing to consider adoption of the ordinance and adoption of findings of local conditions to justify construction standards stricter than those imposed by Health and Safety Code sections 19180 et seq.

2. DIRECT the Clerk of the Board to publish notice of the hearing pursuant to Government Code section 6066.

FISCAL IMPACT:

None.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR ☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Demian Hardman-Saldana,
925-655-2816

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:

BACKGROUND:

On August 3, 2021, the Board of Supervisors directed staff to develop an ordinance amending the County building code to require all newly constructed residential buildings, hotels, offices, and retail buildings to be constructed as all-electric buildings without natural gas infrastructure.

Health and Safety Code sections 17958.5 and 18941.5 authorize a local agency to modify the 2019 California Energy Code and establish more restrictive building standards if the local agency finds that the changes and modifications are reasonably necessary because of local climatic, geological, topographical, or environmental conditions. California Public Resources Code section 25402.1(h)(2) further authorizes a local agency to modify the California Energy Code if the local agency finds that the proposed standards are cost-effective and the California Energy Commission (CEC) determines that the proposed standards will require the diminution of energy consumption levels permitted by the 2019 California Energy Code.

The proposed Ordinance No 2022-02 would amend the 2019 California Energy Code due to local climatic, geographical, topographical, and environmental conditions. The attached findings describe the local conditions that make the more restrictive standards reasonably necessary. The attached findings also include the required findings related to energy savings and cost-effectiveness based on several cost-effectiveness studies prepared as part of the Statewide Reach Codes Program. The referenced cost-effectiveness studies are also attached. The proposed substantive changes to the 2019 California Energy Code are described below:

Modifications to the 2019 California Energy Code

Requires a newly constructed building that is any of the following building types to be an all-electric building:

- Residential (including single-family and multi-family buildings);
- Detached Accessory Dwelling Unit;
- Hotel;
- Office;
- Retail.

An all-electric building is defined to mean a building that has no natural gas or propane plumbing installed within the building, and that uses electricity as the sole source of energy for its space heating (including heating of all indoor and outdoor spaces of the building), water heating (including heating of indoor and outdoor pools and spas), cooking appliances, and clothes drying appliances. An all-electric building may utilize solar thermal pool heating.

The proposed ordinance would exempt development projects from the all-electric building requirement if the development project has obtained an approved vesting tentative map, development agreement, or other vested right pursuant to applicable law, prior to the operative date of the ordinance. The exemption recognizes existing projects that have obtained vested rights based on entitlements issued before the all-electric building requirements become operative.

The proposed ordinance would not prohibit the use of emergency backup power sources, such as generators, that may be fossil-fuel operated.

Outreach Efforts and Public Input

Public outreach related to development of this ordinance occurred through the Board of Supervisors Sustainability Committee. The issue was first discussed at the Sustainability Committee meeting on September 23, 2019, and at subsequent meetings on February 3, 2020, and May 24, 2021. The

Sustainability Committee recommended that the Board of Supervisors authorize staff to develop an ordinance amending the County building code to prohibit the use of natural gas and use electricity as the sole source of power for all newly constructed residential buildings, hotels, offices, and retail buildings. On August 3, 2021, the Board of Supervisors approved the Sustainability Committee recommendation and directed staff to prepare the proposed ordinance.

The public has had the opportunity to provide input at each of these meetings. Most public comments have indicated overall support for a building electrification ordinance. At the direction of the Sustainability Committee, County staff also met with staff from the Building Industry Association (BIA) and East Bay Leadership Council (EBLC) to solicit feedback on the Committee's recommendation to the Board. The main concern raised by the BIA was to ensure that the building industry be given sufficient time to adapt to the building code changes so new projects in the pipeline would not require a redesign. The BIA also previously submitted a letter to the Board, which included, among other things, concerns of grid reliability, refuting whether all-electric homes are truly cost-effective, and a request that there not be localized codes. The BIA letter and the issues raised therein were discussed at the Board meeting on August 3, 2021.

California Energy Commission

Modification to the California Energy Code, and the associated findings, must be submitted to the California Energy Commission (CEC) for review and approval before the modifications take effect. If adopted by the Board, staff will transmit the adopted ordinance and findings to the CEC. Staff is informed that the CEC review and approval process may take approximately 30-60 days.

Ordinance Effective and Operative Dates

If adopted by the Board, the ordinance will be effective upon approval by the California Energy Commission or 30 days after adoption, whichever is later. Staff recommends that the Board adopt the ordinance with an operative date of June 1, 2022, to provide the building industry and other stakeholders additional notice and lead time prior to enforcement of the new all-electric building requirements. That is, staff recommends that a building permit issued before June 1, 2022, for a newly constructed residential building, hotel, office, or retail building would not require the building to be an all-electric building. Additionally, a building permit issued after June 1, 2022 would not require a newly constructed residential building, hotel, office, or retail building to be all-electric if the building is part of a development project that has obtained an approved vesting tentative map, development agreement, or other vested right pursuant to applicable law, prior to June 1, 2022.

Electricity Reliability

Control of the electricity grid, including ensuring reliability, is the responsibility of the State of California. There are multiple State agencies that collaborate to ensure grid reliability. These include the California Independent System Operator (CAISO), the California Energy Commission (CEC), and the California Public Utilities Commission (CPUC). These agencies engage in a rigorous effort to forecast and procure sufficient electricity to meet power demand within the state, and to ensure the utility companies operate the electrical grid responsibly. The following summarizes the activities of various state agencies in this process.

CAISO was created by the California Legislature and is responsible for managing the flow of electricity throughout the State. CAISO has an annual long-term Transmission Planning Process completed every 15 months that uses other tools to ensure the grid has adequate supply, or in rare cases a strategy for working through undersupply situations.

The CEC adopts an Integrated Energy Policy Report (IEPR) every two years that includes an assessment of major energy trends and issues facing California's electricity, natural gas, and transportation fuel

sectors, which includes energy reliability. The IEPR provides policy recommendations on these issues.

The CPUC has a biennial process through the Integrated Resource Plan (IRP) Proceeding that requires load-serving entities (LSEs) such as MCE (the County's Community Choice Aggregator) and investor-owned utilities such as Pacific Gas and Electric (PG&E) to detail the procured and planned resources in their portfolio to ensure that the State has safe, reliable, and cost-effective electricity supply. The CPUC's IRP Proceeding(s) also serve as the umbrella venue for considering comprehensive issues in the portion of the California electricity sector under the purview of the Commission. The IRP proceeding was the successor to multiple long-term procurement planning (LTPP) proceedings, and continues to require investor-owned utilities (IOUs) such as PG&E to submit procurement plans to project their resource needs for their bundled customers, and their action plans for meeting those needs over a ten-year horizon.

The CEC recently released a Midterm Reliability Analysis report in September 2021, which provides an analysis conducted by CEC staff to inform decisions about the future resource procurement to support energy reliability for calendar years 2023 – 2026. The report was prepared for the CPUC to consider as part of their IRP as the CPUC decides whether to adopt their next plan. The report finds that the ordered resource procurement for 2023 through 2026 appears to be sufficient, indicating system reliability. The report also concludes that the reliance on zero-emitting resources does not appear to diminish reliability compared to procuring thermal resources. However, the report acknowledges that the CEC demand forecast is being further enhanced to capture the frequency and dispersion of extreme climate impacts. Additionally, the study acknowledges that it did not include resource retirements beyond those assumed in the CPUC's mid-term reliability decision and that additional retirements would increase the likelihood of system reliability challenges.

Another issue of concern related to grid reliability is the occurrence of Public Safety Power Shutoff (PSPS) events. The State continues to work with utilities to reduce the need for PSPS events. However, such events will likely occur again in the future, subject to weather conditions. Property owners can mitigate their risk of losing power during PSPS events by installing a source of backup power, such as a generator or battery storage.

CONSEQUENCE OF NEGATIVE ACTION:

If the proposed ordinance is not approved, the County would not implement one of the actions specified in its Climate Emergency Resolution adopted by the Board of Supervisors on September 22, 2020.

CHILDREN'S IMPACT STATEMENT:

Not applicable.

ATTACHMENTS

Ordinance No. 2022-02

Findings ISO Energy Reach Code Adoption

Cost Effectiveness Studies

ORDINANCE NO. 2022-02

ADOPTION AND AMENDMENT OF THE 2019 CALIFORNIA ENERGY CODE TO
REQUIRE CERTAIN NEWLY CONSTRUCTED BUILDINGS TO BE ALL-ELECTRIC
BUILDINGS

The Contra Costa County Board of Supervisors ordains as follows (omitting the parenthetical footnotes from the official text of the enacted or amended provisions of the County Ordinance Code):

SECTION I. SUMMARY. This ordinance adopts and amends the 2019 California Energy Code to require all newly constructed residential buildings, hotels, offices, and retail buildings to be constructed as all-electric buildings without natural gas infrastructure. This ordinance is adopted pursuant to Health and Safety Code sections 17922, 17958, 17958.5, 17958.7, and 18941.5, Public Resources Code section 25402.1(h)(2), and Government Code sections 50020 through 50022.10.

SECTION II. Section 74-2.002 (Adoption) of Division 74 (Building Code) of the County Ordinance Code is amended to read:

74-2.002 Adoption.

- (a) The building code of this county is the 2019 California Building Code (California Code of Regulations, Title 24, Part 2, Volumes 1 and 2), the 2019 California Residential Code (California Code of Regulations, Title 24, Part 2.5), the 2019 California Green Building Standards Code (California Code of Regulations, Title 24, Part 11), the 2019 California Existing Building Code (California Code of Regulations, Title 24, Part 10), and the 2019 Energy Code (California Code of Regulations, Title 24, Part 6), as amended by the changes, additions, and deletions set forth in this division and Division 72.
- (b) The 2019 California Building Code, with the changes, additions, and deletions set forth in Chapter 74-4 and Division 72, is adopted by this reference as though fully set forth in this division.
- (c) The 2019 California Residential Code, with the changes, additions, and deletions set forth in Chapter 74-4 and Division 72, is adopted by this reference as though fully set forth in this division.
- (d) The 2019 California Green Building Standards Code, with the changes, additions, and deletions set forth in Chapter 74-4 and Division 72, is adopted by this reference as though fully set forth in this division.

- (e) The 2019 California Existing Building Code, with the changes, additions, and deletions set forth in Chapter 74-4 and Division 72, is adopted by this reference as though fully set forth in this division.
- (f) The 2019 California Energy Code, with the changes, additions, and deletions set forth in Chapter 74-4 and Division 72, is adopted by this reference as though fully set forth in this division.
- (g) At least one copy of this building code is now on file with the building inspection division, and the other requirements of Government Code section 50022.6 have been and shall be complied with.
- (h) As of the effective date of the ordinance from which this division is derived, the provisions of the building code are controlling and enforceable within the county. (Ords. 2022-02 § 2, 2019-31 § 2, 2016-22 § 2, 2013-24 § 2, 2011-03 § 2, 2007-54 §3, 2002-31 § 3, 99-17 § 5, 99-1, 90-100 § 5, 87-55 § 4, 80-14 § 5, 74-30.)

SECTION III. Section 74.4.010 (Amendments to CEnC) is added to Chapter 74-4 (Modifications) of Division 74 (Building Code) of the County Ordinance Code, to read:

74-4.010 Amendments to CEnC. The 2019 California Energy Code ("CEnC") is amended by the changes, additions, and deletions set forth in this chapter and Division 72. Section numbers used below are those of the 2019 California Energy Code.

- (a) Section 100.0(e)(2)(A) of CEnC Subchapter 1 (All Occupancies - General Provisions) is amended to read:

A. All newly constructed buildings.

- i. Sections 110.0 through 110.12 apply to all newly constructed buildings within the scope of Section 100.0(a). In addition, newly constructed buildings shall meet the requirements of Subsection B, C, D, or E, as applicable.
- ii. A newly constructed building that is any of the following building types shall be an all-electric building:
 - a. Residential.
 - b. Detached accessory dwelling unit.
 - c. Hotel.

d. Office.

e. Retail.

Exception to Section 100.0(e)(2)(A)(ii): Development projects that have obtained vested rights before the effective date of this subsection (ii) or June 1, 2022, whichever is later, pursuant to a development agreement in accordance with Government Code section 65866, a vesting tentative map in accordance with Government Code section 66998.1, or other applicable law, are exempt for the requirements of Section 100.0(e)(2)(A)(ii).

(b) Section 100.1(b) (Definitions) of CEnC Subchapter 1 (All Occupancies - General Provisions) is amended by adding the following definition:

ALL-ELECTRIC BUILDING means a building that has no natural gas or propane plumbing installed within the building, and that uses electricity as the sole source of energy for its space heating (including heating of all indoor and outdoor spaces of the building), water heating (including heating of indoor and outdoor pools and spas), cooking appliances, and clothes drying appliances. An all-electric building may utilize solar thermal pool heating.

(Ord. 2022-02 § 3.)

SECTION IV. VALIDITY. The Contra Costa County Board of Supervisors declares that if any section, paragraph, sentence, or word of this ordinance or of the 2019 California Energy Code as adopted and amended herein is declared for any reason to be invalid, it is the intent of the Contra Costa County Board of Supervisors that it would have passed all other portions or provisions of this ordinance independent of the elimination herefrom any portion or provision as may be declared invalid.

SECTION V. EFFECTIVE AND OPERATIVE DATE. This ordinance becomes effective, but not operative, upon approval by the California Energy Commission or 30 days after passage, whichever is later. This ordinance will become operative on the effective date of this ordinance or June 1, 2022, whichever is later. Within 15 days of passage, this ordinance shall be published once in the East Bay Times, a newspaper published in this County.

///
///
///
///
///

PASSED on _____, by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

ATTEST: MONICA NINO,
Clerk of the Board of Supervisors
and County Administrator

Board Chair

By:

Deputy

[SEAL]

KCK:

H:\Client Matters\2021\DCD\Ordinance No. 2022-02 All-Electric Buildings.wpd

ORDINANCE NO. 2022-02

CONTRA COSTA COUNTY
**FINDINGS IN SUPPORT OF CHANGES, ADDITIONS, AND DELETIONS TO
CALIFORNIA ENERGY CODE TO REQUIRE CERTAIN NEWLY
CONSTRUCTED BUILDINGS TO BE ALL-ELECTRIC BUILDINGS**

The California Building Standards Commission has adopted and published the 2019 Building Standards Code, which became effective on January 1, 2020. The 2019 Building Standards Code is composed of the 2019 California Building, Residential, Green Building Standards, Energy, Electrical, Plumbing, Mechanical, and Existing Building Codes. These codes are enforced in Contra Costa County by the Building Inspection Division of the Department of Conservation and Development.

Although these codes apply statewide, Health and Safety Code sections 17958.5 and 18941.5 authorize a local jurisdiction to modify or change these codes to establish more restrictive building standards if the jurisdiction finds that the modifications and changes are reasonably necessary because of local climatic, geological, or topographical conditions. Additionally, Public Resources Code section 25402.1(h)(2) authorizes a local jurisdiction to modify or change the California Energy Code to establish more restrictive building standards if the jurisdiction determines that the standards are cost-effective and the State Energy Resources Conservation and Development Commission finds that the standards will require the diminution of energy consumption levels.

Ordinance No. 2022-02 adopts the 2019 California Energy Code and amends it to address local conditions by requiring that all newly constructed residential buildings, hotels, offices, and retail buildings be constructed as all-electric buildings without natural gas infrastructure.

Pursuant to Health and Safety Code section 17958.7, the Contra Costa County Board of Supervisors finds that the more restrictive standards contained in Ordinance No. 2022-02 are reasonably necessary because of the local climatic, geological, and topographic conditions that are described below.

I. Local Conditions

A. Climatic

The burning of fossil fuels to heat structures and water, for use in cooking and clothes drying appliances, and for other uses is a significant contributor to greenhouse gas emissions and consequently climate change. “Combustion of natural gas and petroleum products for heating and cooking needs emits carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). Emissions from natural gas consumption represent 80 percent of direct fossil fuel CO₂ emissions from the residential and commercial sectors in 2019.”¹ “Scientists attribute the global warming trend observed since the mid-20th century to the human expansion of the ‘greenhouse effect’ warming that results

¹ United States Environmental Protection Agency, Source of Greenhouse Gas Emissions, as of November 18, 2021, <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions#commercial-and-residential>.

when the atmosphere traps heat radiating from Earth toward space.”² Nitrous oxide, carbon dioxide, and methane are gases that contribute to the greenhouse effect.³ The County’s Climate Action Plan (2015) states that the County is likely to experience more extreme heat events, reduced air quality, changes in sea level, less predictable water supply, and increases in storm severity and frequency of flood events. Requiring all-electric construction without gas infrastructure will reduce the amount of greenhouse gas produced in Contra Costa County and will contribute to reducing the overall and local impact of climate change and associated risks.

B. Geological

Contra Costa County is located in Seismic Design Categories D and E, which designates the County at very high risk for earthquakes. Buildings and other structures in these zones can experience major seismic damage. Contra Costa County is near numerous earthquake faults including the San Andreas Fault, and all or portions of the Hayward, Calaveras, Concord, Antioch, Mt. Diablo, and other lesser faults. A 4.1 earthquake with its epicenter in Concord occurred in 1958, and a 5.4 earthquake with its epicenter also in Concord occurred in 1955. The Concord and Antioch faults have a potential for a Richter 6 earthquake and the Hayward and Calaveras faults have the potential for a Richter 7 earthquake. Minor tremblers from seismic activity are not uncommon in the area. A study released in 2015 by the Working Group of California Earthquake Probabilities predicts that for the San Francisco region, the 30-year likelihood of one or more earthquake of 6.7 or larger magnitude is 72%. The purpose of this Working Group is to develop statewide, time-dependent Earthquake Rupture Forecasts for California that use best available science, and are endorsed by the United States Geological Survey, the Southern California Earthquake Center, and the California Geological Survey. Scientists, therefore, believe that an earthquake of a magnitude 6.7 or larger is now slightly more than twice as likely to occur as to not occur in, approximately, the next 30 years. The elimination of natural gas infrastructure in new buildings would reduce the hazards associated with gas leaks during seismic events.

C. Topographic

Highly combustible dry grass, weeds, and brush are common in the hilly and open space areas in the County for 6 to 8 months of each year. Many of these areas are adjacent to developed locations. And many of these areas frequently experience wildland fires, which threaten nearby buildings, particularly those with wood roofs, or sidings. This condition can be found throughout Contra Costa County, especially in those developed and developing areas of the County. Earthquake gas fires due to gas line ruptures can ignite grasslands and stress resources to combat fires. The elimination of natural gas infrastructure in new buildings would reduce fire hazards of buildings constructed near highly combustible dry land areas.

² NASA, Causes of Climate Change, as of November 18, 2021, <https://climate.nasa.gov/causes/>.

³ Id.

II. Necessity of More Restrictive Standards

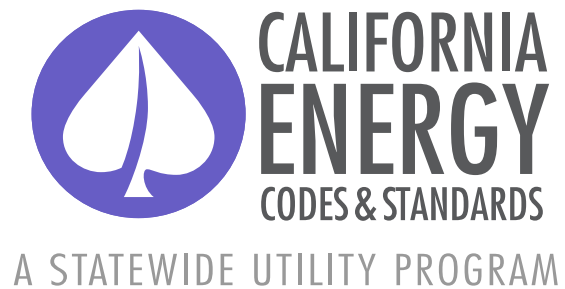
Because of the conditions described above, the Contra Costa County Board of Supervisors finds that there are local climatic, geological, and topographical conditions unique to Contra Costa County that require imposing all-electric building requirements for newly constructed residential buildings, detached accessory dwelling units, hotels, offices, and retail buildings as set forth in Ordinance No. 2022-02.

III. California Energy Code

Pursuant to California Public Resources Code section 25402.1(h)(2), the Contra Costa County Board of Supervisors finds that the modifications made to the California Energy Code in this ordinance are cost-effective for newly constructed residential buildings, including detached accessory dwelling units, and newly constructed hotels, offices and retail buildings. This finding of cost-effectiveness is based on the following cost-effectiveness studies prepared as part of the Statewide Reach Codes Program:

- Cost-effectiveness Study: Low-Rise Residential New Construction
Last modified August 1, 2019
- 2019 Mid-Rise New Construction Reach Code Cost-Effectiveness Study
Last modified June 22, 2020
- 2019 Cost-Effectiveness Study: 2020 Analysis of High-Rise Residential New Construction
Last modified February 22, 2021
- 2020 Reach Code Cost-Effectiveness Analysis: Detached Accessory Dwelling Units
Last modified March 12, 2021
- 2019 Nonresidential New Construction Reach Code Cost Effectiveness Study
Last modified July 25, 2019
- 2020 Reach Code Cost-Effectiveness Analysis Large Office
Last modified October 13, 2021

Contra Costa County is located in climate zones 3 and 12. The cost-effectiveness studies conclude that specific modifications to the 2019 California Energy Code—including all-electric building requirements for newly constructed residential buildings, detached accessory dwelling units, hotels, offices, and retail buildings—are cost-effective for climate zones 3 and 12. The Board of Supervisors also finds, pursuant to California Public Resources Code section 25402.1(h)(2), that the modifications made to the California Energy Code in this ordinance will require diminution of energy consumption levels compared to those permitted by the 2019 California Energy Code. These findings of cost-effectiveness and energy savings will be filed with the California Energy Commission before Ordinance No. 2022-02 takes effect.



Title 24, Parts 6 and 11
Local Energy Efficiency Ordinances

2019 Cost-effectiveness Study: Low-Rise Residential New Construction

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Pacific Gas and Electric Company

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Last Modified: August 01, 2019

LEGAL NOTICE

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Acronyms

2020 PV\$	Present value costs in 2020
ACH50	Air Changes per Hour at 50 pascals pressure differential
ACM	Alternative Calculation Method
AFUE	Annual Fuel Utilization Efficiency
B/C	Lifecycle Benefit-to-Cost Ratio
BEopt	Building Energy Optimization Tool
BSC	Building Standards Commission
CAHP	California Advanced Homes Program
CBECC-Res	Computer program developed by the California Energy Commission for use in demonstrating compliance with the California Residential Building Energy Efficiency Standards
CFI	California Flexible Installation
CFM	Cubic Feet per Minute
CMFNH	California Multifamily New Homes
CO ₂	Carbon Dioxide
CPC	California Plumbing Code
CZ	California Climate Zone
DHW	Domestic Hot Water
DOE	Department of Energy
DWHR	Drain Water Heat Recovery
EDR	Energy Design Rating
EER	Energy Efficiency Ratio
EF	Energy Factor
GHG	Greenhouse Gas
HERS Rater	Home Energy Rating System Rater
HPA	High Performance Attic
HPWH	Heat Pump Water Heater
HSPF	Heating Seasonal Performance Factor
HVAC	Heating, Ventilation, and Air Conditioning
IECC	International Energy Conservation Code
IOU	Investor Owned Utility
kBtu	kilo-British thermal unit
kWh	Kilowatt Hour
LBNL	Lawrence Berkeley National Laboratory

LCC	Lifecycle Cost
LLAHU	Low Leakage Air Handler Unit
VLLDCS	Verified Low Leakage Ducts in Conditioned Space
MF	Multifamily
NAECA	National Appliance Energy Conservation Act
NEEA	Northwest Energy Efficiency Alliance
NEM	Net Energy Metering
NPV	Net Present Value
NREL	National Renewable Energy Laboratory
PG&E	Pacific Gas and Electric Company
PV	Photovoltaic
SCE	Southern California Edison
SDG&E	San Diego Gas and Electric
SEER	Seasonal Energy Efficiency Ratio
SF	Single Family
CASE	Codes and Standards Enhancement
TDV	Time Dependent Valuation
Therm	Unit for quantity of heat that equals 100,000 British thermal units
Title 24	Title 24, Part 6
TOU	Time-Of-Use
UEF	Uniform Energy Factor
ZNE	Zero-net Energy

1 Introduction

The California Building Energy Efficiency Standards Title 24, Part 6 (Title 24) (Energy Commission, 2018b) is maintained and updated every three years by two state agencies, the California Energy Commission (Energy Commission) and the Building Standards Commission (BSC). In addition to enforcing the code, local jurisdictions have the authority to adopt local energy efficiency ordinances, or reach codes, that exceed the minimum standards defined by Title 24 (as established by Public Resources Code Section 25402.1(h)2 and Section 10-106 of the Building Energy Efficiency Standards). Local jurisdictions must demonstrate that the requirements of the proposed ordinance are cost-effective and do not result in buildings consuming more energy than is permitted by Title 24. In addition, the jurisdiction must obtain approval from the Energy Commission and file the ordinance with the BSC for the ordinance to be legally enforceable.

This report documents cost-effective combinations of measures that exceed the minimum state requirements, the 2019 Building Energy Efficiency Standards, effective January 1, 2020, for new single family and low-rise (one-to three-story) multifamily residential construction. The analysis includes evaluation of both mixed fuel and all-electric homes, documenting that the performance requirements can be met by either type of building design. Compliance package options and cost-effectiveness analysis in all sixteen California climate zones (CZs) are presented (see Appendix A – California Climate Zone Map for a graphical depiction of Climate Zone locations). All proposed package options include a combination of efficiency measures and on-site renewable energy.

2 Methodology and Assumptions

This analysis uses two different metrics to assess cost-effectiveness. Both methodologies require estimating and quantifying the incremental costs and energy savings associated with energy efficiency measures. The main difference between the methodologies is the manner in which they value energy and thus the cost savings of reduced or avoided energy use.

- **Utility Bill Impacts (On-Bill):** Customer-based Lifecycle Cost (LCC) approach that values energy based upon estimated site energy usage and customer on-bill savings using electricity and natural gas utility rate schedules over a 30-year duration accounting for discount rate and energy cost inflation.
- **Time Dependent Valuation (TDV):** Energy Commission LCC methodology, which is intended to capture the “societal value or cost” of energy use including long-term projected costs such as the cost of providing energy during peak periods of demand and other societal costs such as projected costs for carbon emissions, as well as grid transmission and distribution impacts. This metric values energy use differently depending on the fuel source (gas, electricity, and propane), time of day, and season. Electricity used (or saved) during peak periods has a much higher value than electricity used (or saved) during off-peak periods (Horie et al., 2014). This is the methodology used by the Energy Commission in evaluating cost-effectiveness for efficiency measures in Title 24, Part 6.

2.1 Building Prototypes

The Energy Commission defines building prototypes which it uses to evaluate the cost-effectiveness of proposed changes to Title 24 requirements. At the time that this report was written, there are two single family prototypes and one low-rise multifamily prototype. All three are used in this analysis in development of the above-code packages. Table 1 describes the basic characteristics of each prototype. Additional details on the prototypes can be found in the Alternative Calculation Method (ACM) Approval Manual (Energy Commission, 2018a). The prototypes have equal geometry on all walls, windows and roof to be orientation neutral.



Table 1: Prototype Characteristics

Characteristic	Single Family One-Story	Single Family Two-Story	Multifamily
Conditioned Floor Area	2,100 ft ²	2,700 ft ²	6,960 ft ² : (4) 780 ft ² & (4) 960 ft ² units
Num. of Stories	1	2	2
Num. of Bedrooms	3	3	(4) 1-bed & (4) 2-bed units
Window-to-Floor Area Ratio	20%	20%	15%

Source: 2019 Alternative Calculation Method Approval Manual (California Energy Commission, 2018a).

The Energy Commission's protocol for single family prototypes is to weight the simulated energy impacts by a factor that represents the distribution of single-story and two-story homes being built statewide, assuming 45 percent single-story and 55 percent two-story. Simulation results in this study are characterized according to this ratio, which is approximately equivalent to a 2,430-square foot (ft²) house.¹

The methodology used in the analyses for each of the prototypical building types begins with a design that precisely meets the minimum 2019 prescriptive requirements (zero compliance margin). Table 150.1-A in the 2019 Standards (Energy Commission, 2018b) lists the prescriptive measures that determine the baseline design in each climate zone. Other features are consistent with the Standard Design in the ACM Reference Manual (Energy Commission, 2019), and are designed to meet, but not exceed, the minimum requirements. Each prototype building has the following features:

- Slab-on-grade foundation.
- Vented attic.
- High performance attic in climate zones where prescriptively required (CZ 4, 8-16) with insulation installed at the ceiling and below the roof deck per Option B. (Refer to Table 150.1-A in the 2019 Standards.)
- Ductwork located in the attic for single family and within conditioned space for multifamily.

Both mixed fuel and all-electric prototypes are evaluated in this study. While in past code cycles an all-electric home was compared to a home with gas for certain end-uses, the 2019 code includes separate prescriptive and performance paths for mixed-fuel and all-electric homes. The fuel specific characteristics of the mixed fuel and all-electric prototypes are defined according to the 2019 ACM Reference Manual and described in Table 2.²

¹ 2,430 ft² = (45% x 2,100 ft²) + (55% x 2,700 ft²)

² Standards Section 150.1(c)8.A.iv.a specifies that compact hot water distribution design and a drain water heat recovery system or extra PV capacity are required when a heat pump water heater is installed prescriptively. The efficiency of the distribution and the drain water heat recovery systems as well as the location of the water heater applied in this analysis are based on the Standard Design assumptions in CBECC-Res which result in a zero-compliance margin for the 2019 basecase model.



Table 2: Characteristics of the Mixed Fuel vs All-Electric Prototype

Characteristic	Mixed Fuel	All-Electric
Space Heating/Cooling¹	Gas furnace 80 AFUE Split A/C 14 SEER, 11.7 EER	Split heat pump 8.2 HSPF, 14 SEER, 11.7 EER
Water Heater^{1,2, 3, 4}	Gas tankless UEF = 0.81	50gal HPWH UEF = 2.0 SF: located in the garage MF CZ 2,4,6-16: located in living space MF CZ 1,3,5: located in exterior closet
Hot Water Distribution	Code minimum. All hot water lines insulated	Basic compact distribution credit, (CZ 6-8,15) Expanded compact distribution credit, compactness factor = 0.6 (CZ 1-5,9-14,16)
Drain Water Heat Recovery Efficiency	None	CZ 1: unequal flow to shower = 42% CZ 16: equal flow to shower & water heater = 65% None in other CZs
Cooking	Gas	Electric
Clothes Drying	Gas	Electric

¹Equipment efficiencies are equal to minimum federal appliance efficiency standards.

²The multifamily prototype is evaluated with individual water heaters. HPWHs located in the living space do not have ducting for either inlet or exhaust air; CBECC-Res does not have the capability to model ducted HPWHs.

³UEF = uniform energy factor. HPWH = heat pump water heater. SF = single family. MF = multifamily.

⁴CBECC-Res applies a 50gal water heater when specifying a storage water heater. Hot water draws differ between the prototypes based on number of bedrooms.

2.2 Measure Analysis

The California Building Energy Code Compliance simulation tool, CBECC-RES 2019.1.0, was used to evaluate energy impacts using the 2019 Title 24 prescriptive standards as the benchmark, and the 2019 TDV values. TDV is the energy metric used by the Energy Commission since the 2005 Title 24 energy code to evaluate compliance with the Title 24 standards.

Using the 2019 baseline as the starting point, prospective energy efficiency measures were identified and modeled in each of the prototypes to determine the projected energy (Therm and kWh) and compliance impacts. A large set of parametric runs were conducted to evaluate various options and develop packages of measures that exceed minimum code performance. The analysis utilizes a parametric tool based on Micropas³ to automate and manage the generation of CBECC-Res input files. This allows for quick evaluation of various efficiency measures across multiple climate zones and prototypes and improves quality control. The batch process functionality of CBECC-Res is utilized to simulate large groups of input files at once. Annual utility costs were calculated using hourly data output from CBECC-Res and electricity and natural gas tariffs for each of the investor owned utilities (IOUs).

³ Developed by Ken Nittler of Enercomp, Inc.



The Reach Codes Team selected packages and measures based on cost-effectiveness as well as decades of experience with residential architects, builders, and engineers along with general knowledge of the relative acceptance of many measures.

2.2.1 Federal Preemption

The Department of Energy (DOE) sets minimum efficiency standards for equipment and appliances that are federally regulated under the National Appliance Energy Conservation Act (NAECA), including heating, cooling, and water heating equipment. Since state and local governments are prohibited from adopting policies that mandate higher minimum efficiencies than the federal standards require, the focus of this study is to identify and evaluate cost-effective packages that do not include high efficiency equipment. While this study is limited by federal preemption, in practice builders may use any package of compliant measures to achieve the performance goals, including high efficiency appliances. Often, these measures are the simplest and most affordable measures to increase energy performance.

2.2.2 Energy Design Rating

The 2019 Title 24 code introduces California's Energy Design Rating (EDR) as the primary metric to demonstrate compliance with the energy code. EDR is still based on TDV but it uses a building that is compliant with the 2006 International Energy Conservation Code (IECC) as the reference building. The reference building has an EDR score of 100 while a zero-net energy (ZNE) home has an EDR score of zero (Energy Commission, 2018d). See Figure 1 for a graphical representation of this. While the Reference Building is used to determine the rating, the Proposed Design is still compared to the Standard Design based on the prescriptive baseline assumptions to determine compliance.

The EDR is calculated by CBECC-Res and has two components:

1. An "Efficiency EDR" which represents the building's energy use without solar generation.⁴
2. A "Total EDR" that represents the final energy use of the building based on the combined impact of efficiency measures, PV generation and demand flexibility.

For a building to comply, two criteria are required:

- (1) the proposed Efficiency EDR must be equal to or less than the Efficiency EDR of the Standard Design, and
- (2) the proposed Total EDR must be equal to or less than the Total EDR of the Standard Design.

Single family prototypes used in this analysis that are minimally compliant with the 2019 Title 24 code achieve a Total EDR between 20 and 35 in most climates.

This concept, consistent with California's "loading order" which prioritizes energy efficiency ahead of renewable generation, requires projects meet a minimum Efficiency EDR before PV is credited but allows for PV to be traded off with additional efficiency when meeting the Total EDR. A project may improve on building efficiency beyond the minimum required and subsequently reduce the PV generation capacity required to achieve the required Total EDR but may not increase the size of the PV system and trade this off with a reduction of efficiency measures. Figure 1 graphically summarizes how both Efficiency EDR and PV / demand flexibility EDR are used to calculate the Total EDR used in the 2019 code and in this analysis.

⁴ While there is no compliance credit for solar PV as there is under the 2016 Standards, the credit for installing electric storage battery systems that meet minimum qualifications can be applied to the Efficiency EDR.

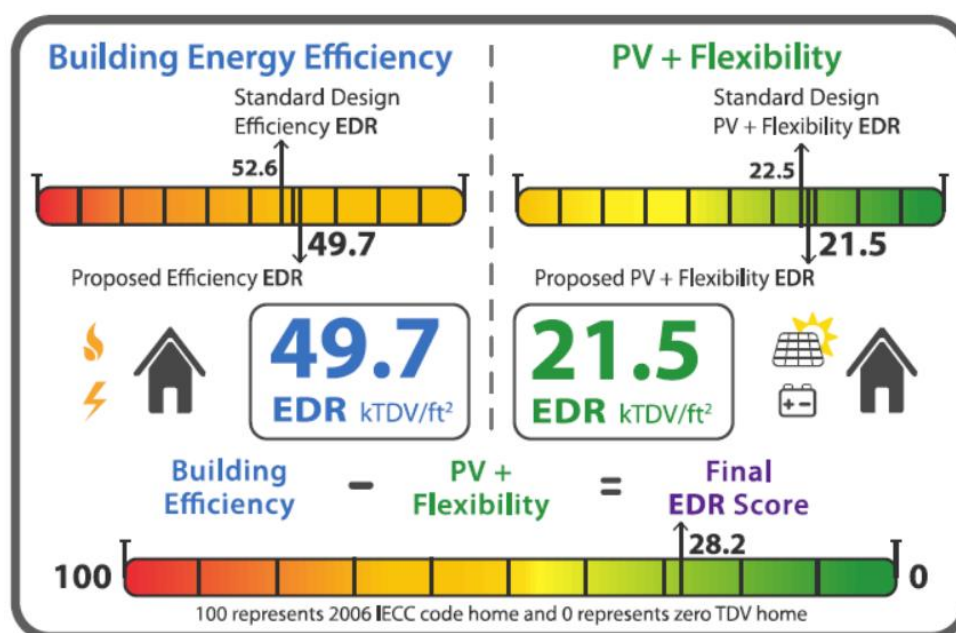


Figure 1: Graphical description of EDR scores (courtesy of Energy Code Ace⁵)

Results from this analysis are presented as EDR Margin, a reduction in the EDR score relative to the Standard Design. EDR Margin is a better metric to use than absolute EDR in the context of a reach code because absolute values vary, based on the home design and characteristics such as size and orientation. This approach aligns with how compliance is determined for the 2019 Title 24 code, as well as utility incentive programs, such as the California Advanced Homes Program (CAHP) & California Multifamily New Homes (CMFNH), which require minimum performance criteria based on an EDR Margin for low-rise residential projects. The EDR Margin is calculated according to Equation 1 for the two efficiency packages and Equation 2 for the Efficiency & PV and Efficiency & PV/Battery packages (see Section 2.3).

Equation 1

$$EDR\ Margin_{efficiency} = Standard\ Design\ \textit{Efficiency}\ EDR - Proposed\ Design\ \textit{Efficiency}\ EDR$$

Equation 2

$$EDR\ Margin_{efficiency\ \&\ PV} = Standard\ Design\ \textit{Total}\ EDR - Proposed\ Design\ \textit{Total}\ EDR$$

2.2.3 Energy Efficiency Measures

Following are descriptions of each of the efficiency measures evaluated under this analysis. Because not all of the measures described below were found to be cost-effective and cost-effectiveness varied by climate zone, not all measures are included in all packages and some of the measures listed are not included in any final package. For a list of measures included in each efficiency package by climate zone, see Appendix D – Single Family Measure Summary and Appendix F – Multifamily Measure Summary.

Reduced Infiltration (ACH50): Reduce infiltration in single family homes from the default infiltration assumption of five (5) air changes per hour at 50 Pascals (ACH50)⁶ by 40 to 60 percent to either 3 ACH50 or 2 ACH50. HERS

⁵ <https://energycodeace.com/>

⁶ Whole house leakage tested at a pressure difference of 50 Pascals between indoors and outdoors.



rater field verification and diagnostic testing of building air leakage according to the procedures outlined in the 2019 Reference Appendices RA3.8 (Energy Commission, 2018c). This measure was not applied to multifamily homes because CBECC-Res does not allow reduced infiltration credit for multifamily buildings.

Improved Fenestration: Reduce window U-factor to 0.24. The prescriptive U-factor is 0.30 in all climates. In climate zones 1, 3, 5, and 16 where heating loads dominate, an increase in solar heat gain coefficient (SHGC) from the default assumption of 0.35 to 0.50 was evaluated in addition to the reduction in U-factor.

Cool Roof: Install a roofing product that's rated by the Cool Roof Rating Council to have an aged solar reflectance (ASR) equal to or greater than 0.25. Steep-sloped roofs were assumed in all cases. Title 24 specifies a prescriptive ASR of 0.20 for Climate Zones 10 through 15 and assumes 0.10 in other climate zones.

Exterior Wall Insulation: Decrease wall U-factor in 2x6 walls to 0.043 from the prescriptive requirement of 0.048 by increasing exterior insulation from one-inch R-5 to 1-1/2 inch R-7.5. This was evaluated for single family buildings only in all climate zones except 6 and 7 where the prescriptive requirement is higher (U-factor of 0.065) and improving beyond the prescriptive value has little impact.

High Performance Attics (HPA): HPA with R-38 ceiling insulation and R-30 insulation under the roof deck. In climates where HPA is already required prescriptively this measure requires an incremental increase in roof insulation from R-19 or R-13 to R-30. In climates where HPA is not currently required (Climate Zones 1 through 3, and 5 through 7), this measure adds roof insulation to an uninsulated roof as well as increasing ceiling insulation from R-30 to R-38 in Climate Zones 3, 5, 6 and 7.

Slab Insulation: Install R-10 perimeter slab insulation at a depth of 16-inches. For climate zone 16, where slab insulation is required, prescriptively this measure increases that insulation from R-7 to R-10.

Duct Location (Ducts in Conditioned Space): Move the ductwork and equipment from the attic to inside the conditioned space in one of the three following ways.

1. Locate ductwork in conditioned space. The air handler may remain in the attic provided that 12 linear feet or less of duct is located outside the conditioned space including the air handler and plenum. Meet the requirements of 2019 Reference Appendices RA3.1.4.1.2. (Energy Commission, 2018c)
2. All ductwork and equipment located entirely in conditioned space meeting the requirements of 2019 Reference Appendices RA3.1.4.1.3. (Energy Commission, 2018c)
3. All ductwork and equipment located entirely in conditioned space with ducts tested to have less than or equal to 25 cfm leakage to outside. Meet the requirements of Verified Low Leakage Ducts in Conditioned Space (VLLDCS) in the 2019 Reference Appendices RA3.1.4.3.8. (Energy Commission, 2018c)

Option 1 and 2 above apply to single family only since the basecase for multifamily assumes ducts are within conditioned space. Option 3 applies to both single family and multifamily cases.

Reduced Distribution System (Duct) Leakage: Reduce duct leakage from 5% to 2% and install a low leakage air handler unit (LLAHU). This is only applicable to single family homes since the basecase for multifamily assumes ducts are within conditioned space and additional duct leakage credit is not available.

Low Pressure Drop Ducts: Upgrade the duct distribution system to reduce external static pressure and meet a maximum fan efficacy of 0.35 Watts per cfm for gas furnaces and 0.45 Watts per cfm for heat pumps operating at full speed. This may involve upsizing ductwork, reducing the total effective length of ducts, and/or selecting low pressure drop components such as filters. Fan watt draw must be verified by a HERS rater according to the procedures outlined in the 2019 Reference Appendices RA3.3 (Energy Commission, 2018c). New federal regulations that went into effect July 3, 2019 require higher fan efficiency for gas furnaces than for heat pumps and air handlers, which is why the recommended specification is different for mixed fuel and all-electric homes.



HERS Verification of Hot Water Pipe Insulation: The California Plumbing Code (CPC) requires pipe insulation on all hot water lines. This measure provides credit for HERS rater verification of pipe insulation requirements according to the procedures outlined in the 2019 Reference Appendices RA3.6.3. (Energy Commission, 2018c)

Compact Hot Water Distribution: Two credits for compact hot water distribution were evaluated.

1. **Basic Credit:** Design the hot water distribution system to meet minimum requirements for the basic compact hot water distribution credit according to the procedures outlined in the 2019 Reference Appendices RA4.4.6 (Energy Commission, 2018c). In many single family homes this may require moving the water heater from an exterior to an interior garage wall. Multifamily homes with individual water heaters are expected to easily meet this credit with little or no alteration to plumbing design. CBECC-Res software assumes a 30% reduction in distribution losses for the basic credit.
2. **Expanded Credit:** Design the hot water distribution system to meet minimum requirements for the expanded compact hot water distribution credit according to the procedures outlined in the 2019 Reference Appendices RA3.6.5 (Energy Commission, 2018c). In addition to requiring HERS verification that the minimum requirements for the basic compact distribution credit are met, this credit also imposes limitations on pipe location, maximum pipe diameter, and recirculation system controls allowed.

Drain Water Heat Recovery (DWHR): For multifamily buildings add DWHR that serves the showers in an unequal flow configuration (pre-heated water is piped directly to the shower) with 50% efficiency. This upgrade assumes all apartments are served by a DWHR with one unit serving each apartment individually. For a slab-on-grade building this requires a horizontal unit for the first-floor apartments.

Federally Preempted Measures:

The following additional measures were evaluated. Because these measures require upgrading appliances that are federally regulated to high efficiency models, they cannot be used to show cost-effectiveness in a local ordinance. The measures and packages are presented here to show that there are several options for builders to meet the performance targets. Heating and cooling capacities are autosized by CBECC-Res in all cases.

High Efficiency Furnace: For the mixed-fuel prototypes, upgrade natural gas furnace to one of two condensing furnace options with an efficiency of 92% or 96% AFUE.

High Efficiency Air Conditioner: For the mixed-fuel prototypes, upgrade the air conditioner to either single-stage SEER 16 / EER 13 or two-stage SEER 18 / EER 14 equipment.

High Efficiency Heat Pump: For the all-electric prototypes, upgrade the heat pump to either single-stage SEER 16 / EER 13 / HSPF 9 or two-stage SEER 18 / EER 14 / HSPF 10 equipment.

High Efficiency Tankless Water Heater: For the mixed-fuel prototype, upgrade tankless water heater to a condensing unit with a rated Uniform Energy Factor (UEF) of 0.96.

High Efficiency Heat Pump Water Heater (HPWH): For the all-electric prototypes, upgrade the federal minimum heat pump water heater to a HPWH that meets the Northwest Energy Efficiency Alliance (NEEA)⁷ Tier 3 rating. The evaluated NEEA water heater is an 80gal unit and is applied to all three building prototypes. Using the same

⁷ Based on operational challenges experienced in the past, NEEA established rating test criteria to ensure newly installed HPWHs perform adequately, especially in colder climates. The NEEA rating requires an Energy Factor equal to the ENERGY STAR performance level and includes requirements regarding noise and prioritizing heat pump use over supplemental electric resistance heating.



water heater provides consistency in performance across all the equipment upgrade cases, even though hot water draws differ across the prototypes.

2.3 Package Development

Three to four packages were evaluated for each prototype and climate zone, as described below.

- 1) **Efficiency – Non-Preempted**: This package uses only efficiency measures that don't trigger federal preemption issues including envelope, and water heating and duct distribution efficiency measures.
- 2) **Efficiency – Equipment, Preempted**: This package shows an alternative design that applies HVAC and water heating equipment that are more efficient than federal standards. The Reach Code Team considers this more reflective of how builders meet above code requirements in practice.
- 3) **Efficiency & PV**: Using the Efficiency – Non-Preempted Package as a starting point⁸, PV capacity is added to offset most of the estimated electricity use. This only applies to the all-electric case, since for the mixed fuel cases, 100% of the projected electricity use is already being offset as required by 2019 Title 24, Part 6.
- 4) **Efficiency & PV/Battery**: Using the Efficiency & PV Package as a starting point, PV capacity is added as well as a battery system.

2.3.1 Solar Photovoltaics (PV)

Installation of on-site PV is required in the 2019 residential code. The PV sizing methodology in each package was developed to offset annual building electricity use and avoid oversizing which would violate net energy metering (NEM) rules.⁹ In all cases, PV is evaluated in CBECC-Res according to the California Flexible Installation (CFI) assumptions.

The Reach Code Team used two options within the CBECC-Res software for sizing the PV system, described below. Analysis was conducted to determine the most appropriate sizing method for each package which is described in the results.

- Standard Design PV – the same PV capacity as is required for the Standard Design case¹⁰
- Specify PV System Scaling – a PV system sized to offset a specified percentage of the estimated electricity use of the Proposed Design case

2.3.2 Energy Storage (Batteries)

A battery system was evaluated in CBECC-Res with control type set to “Time of Use” and with default efficiencies of 95% for both charging and discharging. The “Time of Use” option assumes batteries are charged anytime PV generation is greater than the house load but controls when the battery storage system discharges. During the summer months (July – September) the battery begins to discharge at the beginning of the peak period at a maximum rate until fully discharged. During discharge the battery first serves the house load but will

⁸ In cases where there was no cost-effective Efficiency – Non-Preempted Package, the most cost-effective efficiency measures for that climate zone were also included in the Efficiency & PV Package in order to provide a combination of both efficiency and PV beyond code minimum.

⁹ NEM rules apply to the IOU territories only.

¹⁰ The Standard Design PV system is sized to offset the electricity use of the building loads which are typically electric in a mixed fuel home, which includes all loads except space heating, water heating, clothes drying, and cooking.



discharge to the electric grid if there is excess energy available. During other months the battery discharges whenever the PV system does not cover the entire house load and does not discharge to the electric grid. This control option is considered to be most reflective of the current products on the market. This control option requires an input for the “First Hour of the Summer Peak” and the Statewide CASE Team applied the default hour in CBECC-Res which differs by climate zone (either a 6pm or 7pm start). The Self Utilization Credit was taken when the battery system was modeled.

2.4 Incremental Costs

Table 4 below summarizes the incremental cost assumptions for measures evaluated in this study. Incremental costs represent the equipment, installation, replacement, and maintenance costs of the proposed measures relative to the base case.¹¹ Replacement costs are applied to HVAC and DHW equipment, PV inverters, and battery systems over the 30-year evaluation period. There is no assumed maintenance on the envelope, HVAC, or DHW measures since there should not be any additional maintenance cost for a more efficient version of the same system type as the baseline. Costs were estimated to reflect costs to the building owner. When costs were obtained from a source that didn’t already include builder overhead and profit, a markup of ten percent was added. All costs are provided as present value in 2020 (2020 PV\$). Costs due to variations in furnace, air conditioner, and heat pump capacity by climate zone were not accounted for in the analysis.

Equipment lifetimes applied in this analysis for the water heating and space conditioning measures are summarized in Table 3.

Table 3: Lifetime of Water Heating & Space Conditioning Equipment Measures

Measure	Lifetime
Gas Furnace	20
Air Conditioner	20
Heat Pump	15
Gas Tankless Water Heater	20
Heat Pump Water Heater	15

Source: City of Palo Alto 2019 Title 24 Energy Reach Code Cost-effectiveness Analysis Draft (TRC, 2018) which is based on the Database of Energy Efficiency Resources (DEER).¹²

¹¹ Interest costs due to financing are not included in the incremental costs presented in the Table 4 but are accounted for in the lifetime cost analysis. All first costs are assumed to be financed in a mortgage, see Section 2.5 for details.

¹² <http://www.deeresources.com>



Table 4: Incremental Cost Assumptions

Measure	Performance Level	Incremental Cost (2020 PV\$)		Source & Notes
		Single Family	Multifamily (Per Dwelling Unit)	
Non-Preempted Measures				
Reduced Infiltration	3.0 vs 5.0 ACH50	\$391	n/a	NREL’s BEopt cost database (\$0.115/ft² for 3 ACH50 & \$0.207/ft² for 2 ACH50) + \$100 HERS rater verification.
	2.0 vs 5.0 ACH50	\$613	n/a	
Window U-factor	0.24 vs 0.30	\$2,261	\$607	\$4.23/ft² window area based on analysis conducted for the 2019 and 2022 Title 24 cycles (Statewide CASE Team, 2018).
Window SHGC	0.50 vs 0.35	\$0	\$0	Data from CASE Report along with direct feedback from Statewide CASE Team that higher SHGC does not necessarily have any incremental cost (Statewide CASE Team, 2017d). Applies to CZ 1,3,5,16.
Cool Roof - Aged Solar Reflectance	0.25 vs 0.20	\$237	\$58	Costs based on 2016 Cost-effectiveness Study for Cool Roofs reach code analysis for 0.28 solar reflectance product. (Statewide Reach Codes Team, 2017b).
	0.20 vs 0.10	\$0	\$0	
Exterior Wall Insulation	R-7.5 vs R-5	\$818	n/a	Based on increasing exterior insulation from 1” R-5 to 1.5” R-7.5 in a 2x6 wall (Statewide CASE Team, 2017c). Applies to single family only in all climates except CZ 6, 7.
Under-Deck Roof Insulation (HPA)	R-13 vs R-0	\$1,338	\$334	Costs for R-13 (\$0.64/ft²), R-19 (\$0.78/ft²) and R-30 (\$1.61/ft²) based on data presented in the 2019 HPA CASE Report (Statewide CASE Team, 2017b) along with data collected directly from builders during the 2019 CASE process. The R-30 costs include additional labor costs for cabling. Costs for R-38 from NREL’s BEopt cost database.
	R-19 vs R-13	\$282	\$70	
	R-30 vs R-19	\$1,831	\$457	
	R-38 vs R-30	\$585	\$146	
Attic Floor Insulation	R-38 vs R-30	\$584	\$146	NREL’s BEopt cost database: \$0.34/ft² ceiling area
Slab Edge Insulation	R-10 vs R-0	\$553	\$121	\$4/linear foot of slab perimeter based on internet research. Assumes 16in depth.
	R-10 vs R-7	\$157	\$21	\$1.58/linear foot of slab perimeter based on NREL’s BEopt cost database. This applies to CZ 16 only where R-7 slab edge insulation is required prescriptively. Assumes 16in depth.
Duct Location	<12 feet in attic	\$358	n/a	Costs based on a 2015 report on the Evaluation of Ducts in Conditioned Space for New California Homes (Davis Energy Group, 2015). HERS verification cost of \$100 for the Verified Low Leakage Ducts in Conditioned Space credit.
	Ducts in Conditioned Space	\$658	n/a	
	Verified Low Leakage Ducts in Conditioned Space	\$768	\$110	



Table 4: Incremental Cost Assumptions

Measure	Performance Level	Incremental Cost (2020 PV\$)		Source & Notes
		Single Family	Multifamily (Per Dwelling Unit)	
Distribution System Leakage	2% vs 5%	\$96	n/a	1-hour labor. Labor rate of \$96 per hour is from 2019 RSMeans for sheet metal workers and includes an average City Cost Index for labor for California cities & 10% for overhead and profit. Applies to single family only since ducts are assumed to be in conditioned space for multifamily
	Low Leakage Air Handler	\$0	n/a	Negligible cost based on review of available products. There are more than 6,000 Energy Commission certified units and the list includes many furnace and heat pump air handler product lines from the major manufacturers, including minimum efficiency, low cost product lines.
Low Pressure Drop Ducts (Fan W/cfm)	0.35 vs 0.45	\$96	\$48	Costs assume one-hour labor for single family and half-hour per multifamily apartment. Labor rate of \$96 per hour is from 2019 RSMeans for sheet metal workers and includes an average City Cost Index for labor for California cities.
	0.45 vs 0.58	\$96	\$48	
Hot Water Pipe Insulation	HERS verified	\$110	\$83	Cost for HERS verification only, based on feedback from HERS raters. \$100 per single family home and \$75 per multifamily unit before markup.
Compact Hot Water Distribution	Basic credit	\$150	\$0	For single family add 20-feet venting at \$12/ft to locate water heater on interior garage wall, less 20-feet savings for less PEX and pipe insulation at \$4.88/ft. Costs from online retailers. Many multifamily buildings are expected to meet this credit without any changes to distribution design.
	Expanded credit	n/a	\$83	Cost for HERS verification only. \$75 per multifamily unit before markup. This was only evaluated for multifamily buildings.
Drain Water Heat Recovery	50% efficiency	n/a	\$690	Cost from the 2019 DWHR CASE Report assuming a 2-inch DWHR unit. The CASE Report multifamily costs were based on one unit serving 4 dwelling units with a central water heater. Since individual water heaters serve each dwelling unit in this analysis, the Reach Code Team used single family costs from the CASE Report. Costs in the CASE Report were based on a 46.1% efficient unit, a DWHR device that meets the 50% efficiency assumed in this analysis may cost a little more. (Statewide CASE Team, 2017a).
Federally Pre-empted Measures				
Furnace AFUE	92% vs 80%	\$139	\$139	Equipment costs from online retailers for 40-kBtu/h unit. Cost saving for 6-feet of venting at \$26/foot due to lower cost venting requirements for condensing (PVC) vs non-condensing (stainless) furnaces. Replacement at year 20 assumes a 50% reduction in first cost. Value at year 30 based on remaining useful life is included.
	96% vs 80%	\$244	\$244	
Air Conditioner SEER/EER	16/13 vs 14/11.7	\$111	\$111	Costs from online retailers for 2-ton unit. Replacement at year 20 assumes a 50% reduction in first cost. Value at year 30 based on remaining useful life is included.
	18/14 vs 14/11.7	\$1,148	\$1,148	



Table 4: Incremental Cost Assumptions

Measure	Performance Level	Incremental Cost (2020 PV\$)		Source & Notes
		Single Family	Multifamily (Per Dwelling Unit)	
Heat Pump SEER/EER /HSPF	16/13/9 vs 14/11.7/8.2	\$411	\$411	Costs from online retailers for 2-ton unit. Replacement at year 15 assumes a 50% reduction in first cost.
	18/14/10 vs 14/11.7/8.2	\$1,511	\$1,511	
Tankless Water Heater Energy Factor	0.96 vs 0.81	\$203	\$203	Equipment costs from online retailers for 40-kBtu/h unit. Cost saving for 6-feet of venting at \$26/foot due to lower cost venting requirements for condensing (PVC) vs non-condensing (stainless) furnaces. Replacement at year 15 assumes a 50% reduction in first cost.
HPWH	NEEA Tier 3 vs 2.0 EF	\$294	\$294	Equipment costs from online retailers. Replacement at year 15 assumes a 50% reduction in first cost.
PV + Battery				
PV System	System size varies	\$3.72/W-DC	\$3.17/W-DC	First costs are from LBNL's Tracking the Sun 2018 costs (Barbose et al., 2018) and represent costs for the first half of 2018 of \$3.50/W-DC for residential system and \$2.90/W-DC for non-residential system ≤500 kW-DC. These costs were reduced by 16% for the solar investment tax credit, which is the average credit over years 2020-2022. Inverter replacement cost of \$0.14/W-DC present value includes replacements at year 11 at \$0.15/W-DC (nominal) and at year 21 at \$0.12/W-DC (nominal) per the 2019 PV CASE Report (California Energy Commission, 2017). System maintenance costs of \$0.31/W-DC present value assume \$0.02/W-DC (nominal) annually per the 2019 PV CASE Report (California Energy Commission, 2017). 10% overhead and profit added to all costs
Battery	System size varies by building type	\$656/kWh	\$656/kWh	\$633/kWh first cost based on the PV Plus Battery Study report (Statewide Reach Codes Team, 2018) as the average cost of the three systems that were analyzed. This cost was reduced by 16% for the solar investment tax credit, which is the average credit over years 2020-2022. Replacement cost at year 15 of \$100/kWh based on target price reductions (Penn, 2018).



2.5 Cost-effectiveness

Cost-effectiveness was evaluated for all sixteen climate zones and is presented based on both TDV energy, using the Energy Commission's LCC methodology, and an On-Bill approach using residential customer utility rates. Both methodologies require estimating and quantifying the value of the energy impact associated with energy efficiency measures over the life of the measures (30 years) as compared to the prescriptive Title 24 requirements.

Results are presented as a lifecycle benefit-to-cost (B/C) ratio, a net present value (NPV) metric which represents the cost-effectiveness of a measure over a 30-year lifetime taking into account discounting of future savings and costs and financing of incremental first costs. A value of one indicates the NPV of the savings over the life of the measure is equivalent to the NPV of the lifetime incremental cost of that measure. A value greater than one represents a positive return on investment. The B/C ratio is calculated according to Equation 3.

Equation 3

$$\text{Benefit-to-Cost Ratio} = \frac{\text{NPV of lifetime benefit}}{\text{NPV of lifetime cost}}$$

In most cases the benefit is represented by annual utility savings or TDV savings and the cost by incremental first cost and replacement costs. However, in some cases a measure may have incremental cost savings but with increased energy related costs. In this case, the benefit is the lower first cost and the cost is the increase in utility bills. The lifetime costs or benefits are calculated according to Equation 4.

Equation 4

$$\text{NPV of lifetime cost/benefit} = \sum_{t=1}^n \text{Annual cost/benefit}_t * (1 + r)^t$$

Where:

- n = analysis term
- r = discount rate

The following summarizes the assumptions applied in this analysis to both methodologies.

- Analysis term of 30-years
- Real discount rate of 3 percent
- Inflation rate of 2 percent
- First incremental costs are financed into a 30-year mortgage
- Mortgage interest rate of 4.5 percent
- Average tax rate of 20 percent (to account for tax savings due to loan interest deductions)

2.5.1 On-Bill Customer Lifecycle Cost

Residential utility rates were used to calculate utility costs for all cases and determine On-Bill customer cost-effectiveness for the proposed packages. The Reach Codes Team obtained the recommended utility rates from each IOU based on the assumption that the reach codes go into effect January of 2020. Annual utility costs were calculated using hourly electricity and gas output from CBECC-Res and applying the utility tariffs summarized in Table 5. Appendix B – Utility Tariff Details includes the utility rate schedules used for this study. The applicable residential time-of-use (TOU) rate was applied to all cases.¹³ Annual electricity production in excess of annual electricity consumption is credited to the utility account at the applicable wholesale rate based on the approved

¹³ Under NEM rulings by the CPUC (D-16-01-144, 1/28/16), all new PV customers shall be in an approved TOU rate structure. <https://www.cpuc.ca.gov/General.aspx?id=3800>



NEM2 tariffs for that utility. Minimum daily use billing and mandatory non-bypassable charges have been applied. Future change to the NEM tariffs are likely; however, there is a lot of uncertainty about what those changes will be and if they will become effective during the 2019 code cycle (2020-2022).

The net surplus compensation rates for each utility are as follows:¹⁴

- PG&E: \$0.0287 / kWh
- SCE: \$0.0301 / kWh
- SDG&E: \$0.0355 / kWh

Utility rates were applied to each climate zone based on the predominant IOU serving the population of each zone according to Two SCE tariff options were evaluated: TOU-D-4-9 and TOU-D-PRIME. The TOU-D-PRIME rate is only available to customers with heat pumps for either space or water heating, a battery storage system, or an electric vehicle and therefore was only evaluated for the all-electric cases and the Efficiency & PV/Battery packages. The rate which resulted in the lowest annual cost to the customer was used for this analysis, which was TOU-D-4-9 in all cases with the exception of the single family all-electric cases in Climate Zone 14.

Table 5. Climate Zones 10 and 14 are evaluated with both SCE/SoCalGas and SDG&E tariffs since each utility has customers within these climate zones. Climate Zone 5 is evaluated under both PG&E and SoCalGas natural gas rates.

Two SCE tariff options were evaluated: TOU-D-4-9 and TOU-D-PRIME. The TOU-D-PRIME rate is only available to customers with heat pumps for either space or water heating, a battery storage system, or an electric vehicle and therefore was only evaluated for the all-electric cases and the Efficiency & PV/Battery packages. The rate which resulted in the lowest annual cost to the customer was used for this analysis, which was TOU-D-4-9 in all cases with the exception of the single family all-electric cases in Climate Zone 14.

Table 5: IOU Utility Tariffs Applied Based on Climate Zone

Climate Zones	Electric / Gas Utility	Electricity (Time-of-use)	Natural Gas
1-5, 11-13, 16	PG&E	E-TOU, Option B	G1
5	PG&E / SoCalGas	E-TOU, Option B	GR
6, 8-10, 14, 15	SCE / SoCal Gas	TOU-D-4-9 or TOU-D-PRIME	GR
7, 10, 14	SDG&E	TOU-DR1	GR

Source: Utility websites, See Appendix B – Utility Tariff Details for details on the tariffs applied.

Utility rates are assumed to escalate over time, using assumptions from research conducted by Energy and Environmental Economics (E3) in the 2019 study Residential Building Electrification in California study (Energy & Environmental Economics, 2019). Escalation of natural gas rates between 2019 and 2022 is based on the currently filed General Rate Cases (GRCs) for PG&E, SoCalGas and SDG&E. From 2023 through 2025, gas rates are assumed to escalate at 4% per year above inflation, which reflects historical rate increases between 2013 and 2018. Escalation of electricity rates from 2019 through 2025 is assumed to be 2% per year above inflation, based on electric utility estimates. After 2025, escalation rates for both natural gas and electric rates are assumed to drop to a more conservative 1% escalation per year above inflation for long-term rate trajectories beginning in 2026 through 2050. See Appendix B – Utility Tariff Details for additional details.

¹⁴ Net surplus compensation rates based on 1-year average February 2018 – January 2019.



2.5.2 *TDV Lifecycle Cost*

Cost-effectiveness was also assessed using the Energy Commission's TDV LCC methodology. TDV is a normalized monetary format developed and used by the Energy Commission for comparing electricity and natural gas savings, and it considers the cost of electricity and natural gas consumed during different times of the day and year. The 2019 TDV values are based on long term discounted costs of 30 years for all residential measures. The CBECC-Res simulation software outputs are in terms of TDV kBTUs. The present value of the energy cost savings in dollars is calculated by multiplying the TDV kBTU savings by a net present value (NPV) factor, also developed by the Energy Commission. The NPV factor is \$0.173/TDV kBTU for residential buildings.

Like the customer B/C ratio, a TDV B/C ratio value of one indicates the savings over the life of the measure are equivalent to the incremental cost of that measure. A value greater than one represents a positive return on investment. The ratio is calculated according to Equation 5.

Equation 5

$$TDV \text{ Benefit} - to - Cost \text{ Ratio} = \frac{TDV \text{ energy savings} * NPV \text{ factor}}{NPV \text{ of lifetime incremental cost}}$$

2.6 *Electrification Evaluation*

In addition to evaluating upgrades to mixed fuel and all-electric buildings independently that do not result in fuel switching, the Reach Code Team also analyzed the impact on construction costs, utility costs, and TDV when a builder specifies and installs electric appliances instead of the gas appliances typically found in a mixed fuel building. This analysis compared the code compliant mixed fuel prototype, which uses gas for space heating, water heating, cooking, and clothes drying, with the code compliant all-electric prototype. It also compared the all-electric Efficiency & PV Package with the code compliance mixed fuel prototype. In these cases, the relative costs between natural gas and electric appliances, differences between in-house electricity and gas infrastructure and the associated infrastructure costs for providing gas to the building were also included.

A variety of sources were reviewed when determining incremental costs. The sources are listed below.

- SMUD All-Electric Homes Electrification Case Study (EPRI, 2016)
- City of Palo Alto 2019 Title 24 Energy Reach Code Cost-effectiveness Analysis (TRC, 2018)
- Building Electrification Market Assessment (E3, 2019)
- Decarbonization of Heating Energy Use in California Buildings (Hopkins et al., 2018)
- Analysis of the Role of Gas for a Low-Carbon California Future (Navigant, 2008)
- Rulemaking No. 15-03-010 An Order Instituting Rulemaking to Identify Disadvantaged Communities in the San Joaquin Valley and Analyze Economically Feasible Options to Increase Access to Affordable Energy in Those Disadvantaged Communities (California Public Utilities Commission, 2016)
- 2010-2012 WO017 Ex Ante Measure Cost Study: Final Report (Itron, 2014)
- Natural gas infrastructure costs provided by utility staff through the Reach Code subprogram
- Costs obtained from builders, contractors and developers

Incremental costs are presented in Table 6. Values in parentheses represent a lower cost or cost reduction in the electric option relative to mixed fuel. The costs from the available sources varied widely, making it difficult to develop narrow cost estimates for each component. For certain components data is provided with a low to high range as well as what were determined to be typical costs and ultimately applied in this analysis. Two sets of typical costs are presented, one which is applied in the On-Bill cost effectiveness methodology and another applied in the TDV methodology. Details of these differences are explained in the discussion of site gas infrastructure costs in the following pages.



Table 6: Incremental Costs – All-Electric Code Compliant Home Compared to a Mixed Fuel Code Compliant Home

Measure	Incremental Cost (2020 PV\$) Single Family ¹				Incremental Cost (2020 PV\$) Multifamily ¹ (Per Dwelling Unit)			
	Low	High	Typical (On-Bill)	Typical (TDV)	Low	High	Typical (On-Bill)	Typical (TDV)
Heat Pump vs Gas Furnace/Split AC	(\$2,770)	\$620	(\$221)		Same as Single Family			
Heat Pump Water Heater vs Gas Tankless	(\$1,120)	\$1,120	\$0					
Electric vs Gas Clothes Dryer ²	(\$428)	\$820	\$0					
Electric vs Gas Cooking ²	\$0	\$1,800	\$0					
Electric Service Upgrade	\$200	\$800	\$600		\$150	\$600	\$600	
In-House Gas Infrastructure	(\$1,670)	(\$550)	(\$800)		(\$600)	(\$150)	(\$600)	
Site Gas Infrastructure	(\$25,000)	(\$900)	(\$5,750)	(\$11,836)	(\$16,250)	(\$310)	(\$3,140)	(\$6,463)
Total First Cost	(\$30,788)	\$3,710	(\$6,171)	(\$12,257)	(\$20,918)	\$4,500	(\$3,361)	(\$6,684)
Present Value of Equipment Replacement Cost			\$1,266				\$1,266	
Lifetime Cost Including Replacement & Financing of First Cost			(\$5,349)	(\$11,872)			(\$2,337)	(\$5,899)

¹Low and high costs represent the potential range of costs and typical represents the costs used in this analysis and determined to be most representative of the conditions described in this report. Two sets of typical costs are presented, one which is applied in the On-Bill cost effectiveness methodology and another applied in the TDV methodology.

²Typical costs assume electric resistance technology. The high range represents higher end induction cooktops and heat pump clothes dryers. Lower cost induction cooktops are available.

Typical incremental costs for switching from a mixed fuel design to an all-electric design are based on the following assumptions:

Appliances: The Reach Code Team determined that the typical first installed cost for electric appliances is very similar to that for natural gas appliances. This was based on information provided by HVAC contractors, plumbers and builders as well as a review of other studies. After review of various sources, the Reach Code Team concluded that the cost difference between gas and electric resistance options for clothes dryers and stoves is negligible and that the lifetimes of the two technologies are also similar.

HVAC: Typical HVAC incremental costs were based on the City of Palo Alto 2019 Title 24 Energy Reach Code Cost-effectiveness Analysis (TRC, 2018) which assumes approximately \$200 first cost savings for the heat pump relative to the gas furnace and air conditioner. Table 6 also includes the present value of the incremental replacement costs for the heat pump based on a 15-year lifetime and a 20-year lifetime for the gas furnace in the mixed fuel home.

DHW: Typical costs for the water heating system were based on equivalent installed first costs for the HPWH and tankless gas water heater. This accounts for slightly higher equipment cost but lower installation labor due to the elimination of the gas flue. Incremental replacement costs for the HPWH are based on a 15-year lifetime and a 20-year lifetime for the tankless water heater.

For multifamily, less data was available and therefore a range of low and high costs is not provided. The typical first cost for multifamily similarly is expected to be close to the same for the mixed fuel and all-electric designs. However, there are additional considerations with multifamily such as greater complexity for venting of natural gas appliances as well as for locating the HPWH within the conditioned space (all climates except Climate Zones 1, 3, and 5, see Table 2) that may impact the total costs.

Electric service upgrade: The study assumes an incremental cost to run 220V service to each appliance of \$200 per appliance for single family homes and \$150 per appliance per multifamily apartment based on cost estimates from builders and contractors. The Reach Code Team reviewed production builder utility plans for



mixed-fuel homes and consulted with contractors to estimate which electricity and/or natural gas services are usually provided to the dryer and oven. Typical practice varied, with some builders providing both gas and electric service to both appliances, others providing both services to only one of the appliances, and some only providing gas. For this study, the Reach Code Team determined that for single family homes the typical cost is best qualified by the practice of providing 220V service and gas to either the dryer and the oven and only gas service to the other. For multifamily buildings it's assumed that only gas is provided to the dryer and oven in the mixed fuel home.

It is assumed that no upgrades to the electrical panel are required and that a 200 Amp panel is typically installed for both mixed fuel and all-electric new construction homes. There are no incremental electrical site infrastructure requirements.

In-house gas infrastructure (from meter to appliances): Installation cost to run a gas line from the meter to the appliance location is \$200 per appliance for single family and \$150 per appliance per multifamily apartment based on cost estimates from builders and contractors. The cost estimate includes providing gas to the water heater, furnace, dryer and cooktop.

Site gas infrastructure: The cost-effective analysis components with the highest degree of variability are the costs for on-site gas infrastructure. These costs can be project dependent and may be significantly impacted by such factors as utility territory, site characteristics, distance to the nearest gas main and main location, joint trenching, whether work is conducted by the utility or a private contractor, and number of dwelling units per development. All gas utilities participating in this study were solicited for cost information. The typical infrastructure costs for single family homes presented in Table 6 are based on cost data provided by PG&E and reflect those for a new subdivision in an undeveloped area requiring the installation of natural gas infrastructure, including a main line. Infrastructure costs for infill development can also be highly variable and may be higher than in an undeveloped area. The additional costs associated with disruption of existing roads, sidewalks, and other structures can be significant. Total typical costs in Table 6 assume \$10,000 for extension of a gas main, \$1,686 for a service lateral, and \$150 for the meter.

Utility Gas Main Extensions rules¹⁵ specify that the developer has the option to only pay 50% of the total cost for a main extension after subtraction of allowances for installation of gas appliances. This 50% refund and the appliance allowance deductions are accounted for in the site gas infrastructure costs under the On-Bill cost-effectiveness methodology. The net costs to the utility after partial reimbursement from the developer are included in utility ratebase and recovered via rates to all customers. The total cost of \$5,750 presented in Table 6 reflects a 50% refund on the \$10,000 extension and appliance deductions of \$1,086 for a furnace, water heater, cooktop, and dryer. Under the On-Bill methodology this analysis assumes this developer option will remain available through 2022 and that the cost savings are passed along to the customer.

The 50% refund and appliance deductions were not applied to the site gas infrastructure costs under the TDV cost-effectiveness methodology based on input received from the Energy Commission and agreement from the Reach Code technical advisory team that the approach is appropriate. TDV cost savings impacts extend beyond the customer and account for societal impacts of energy use. Accounting for the full cost of the infrastructure upgrades was determined to be justified when evaluating under the TDV methodology.

¹⁵ PG&E Rule 15: https://www.pge.com/tariffs/tm2/pdf/GAS_RULES_15.pdf

SoCalGas Rule 20: <https://www.socalgas.com/regulatory/tariffs/tm2/pdf/20.pdf>

SDG&E Rule 15: http://regarchive.sdge.com/tm2/pdf/GAS_GAS-RULES_GRULE15.pdf



Less information was available for the costs associated with gas infrastructure for low-rise multifamily development. The typical cost in Table 6 for the On-Bill methodology is based on TRC's City of Palo Alto 2019 Title 24 Energy Reach Code Cost-effectiveness Analysis (TRC, 2018). These costs, provided by the City of Palo Alto, are approximately \$25,100 for an 8-unit new construction building and reflect connection to an existing main for infill development. Specific costs include plan review, connection charges, meter and manifold, plumbing distribution, and street cut fees. While these costs are specifically based on infill development and from one municipal utility, the estimates are less than those provided by PG&E reflecting the average cost differences charged to the developer between single family and multifamily in an undeveloped area (after accounting for deductions per the Gas Main Extensions rule). To convert costs charged to the developer to account for the full infrastructure upgrade cost (costs applied in the TDV methodology analysis), a factor of 2.06¹⁶ was calculated based on the single family analysis. This same factor was applied to the multifamily cost of \$3,140 to arrive at \$6,463 (see Table 6).

2.7 Greenhouse Gas Emissions

Equivalent CO₂ emission savings were calculated based on outputs from the CBECC-Res simulation software. Electricity emissions vary by region and by hour of the year. CBECC-Res applies two distinct hourly profiles, one for Climate Zones 1 through 5 and 11 through 13 and another for Climate Zones 6 through 10 and 14 through 16. For natural gas a fixed factor of 0.005307 metric tons/therm is used. To compare the mixed fuel and all-electric cases side-by-side, greenhouse gas (GHG) emissions are presented as CO₂-equivalent emissions per square foot of conditioned floor area.

3 Results

The primary objective of the evaluation is to identify cost-effective, non-preempted performance targets for both single family and low-rise multifamily prototypes, under both mixed fuel and all-electric cases, to support the design of local ordinances requiring new low-rise residential buildings to exceed the minimum state requirements. The packages presented are representative examples of designs and measures that can be used to meet the requirements. In practice, a builder can use any combination of non-preempted or preempted compliant measures to meet the requirements.

This analysis covered all sixteen climate zones and evaluated two efficiency packages, including a non-preempted package and a preempted package that includes upgrades to federally regulated equipment, an Efficiency & PV Package for the all-electric scenario only, and an Efficiency & PV/Battery Package. For the efficiency-only packages, measures were refined to ensure that the non-preempted package was cost-effective based on one of the two metrics applied in this study, TDV or On-Bill. The preempted equipment package, which the Reach Code Team considers to be a package of upgrades most reflective of what builders commonly apply to exceed code requirements, was designed to be cost-effective based on the On-Bill cost-effectiveness approach.

Results are presented as EDR Margin instead of compliance margin. EDR is the metric used to determine code compliance in the 2019 cycle. Target EDR Margin is based on taking the calculated EDR Margin for the case and rounding down to the next half of a whole number. Target EDR Margin for the Efficiency Package are defined based on the lower of the EDR Margin of the non-preempted package and the equipment, preempted package. For example, if for a particular case the cost-effective non-preempted package has an EDR Margin of 3 and the preempted package an EDR Margin of 4, the Target EDR Margin is set at 3.

¹⁶ This factor includes the elimination of the 50% refund for the main extension and adding back in the appliance allowance deductions.



For a package to qualify, a minimum EDR Margin of 0.5 was required. This is to say that a package that only achieved an EDR Margin of 0.4, for example, was not considered. An EDR Margin less than 0.5 generally corresponds to a compliance margin lower than 5% and was considered too small to ensure repeatable results. In certain cases, the Reach Code Team did not identify a cost-effective package that achieved the minimum EDR Margin of 0.5.

Although some of the efficiency measures evaluated were not cost-effective and were eliminated, the following measures are included in at least one package:

- Reduced infiltration
- Improved fenestration
- Improved cool roofs
- High performance attics
- Slab insulation
- Reduced duct leakage
- Verified low leakage ducts in conditioned space
- Low pressure-drop distribution system
- Compact hot water distribution system, basic and expanded
- High efficiency furnace, air conditioner & heat pump (*preempted*)
- High efficiency tankless water heater & heat pump water heater (*preempted*)

3.1 PV and Battery System Sizing

The approach to determining the size of the PV and battery systems varied based on each package and the source fuel. Table 7 describes the PV and battery sizing approaches applied to each of the four packages. For the **Efficiency Non-preempted and Efficiency – Equipment, Preempted packages** a different method was applied to each the two fuel scenarios. In all **mixed fuel cases**, the PV was sized to offset 100% of the estimated electrical load and any electricity savings from efficiency measures were traded off with a smaller PV system. Not downsizing the PV system after adding efficiency measures runs the risk of producing more electricity than is consumed, reducing cost-effectiveness and violating NEM rules. While the impact of this in most cases is minor, analysis confirmed that cost-effectiveness improved when reducing the system size to offset 100% of the electricity usage as opposed to keeping the PV system the same size as the Standard Design.

In the **all-electric Efficiency cases**, the PV system size was left to match the Standard Design (Std Design PV), and the inclusion of energy efficiency measures was not traded off with a reduced capacity PV system. Because the PV system is sized to meet the electricity load of a mixed fuel home, it is cost-effective to keep the PV system the same size and offset a greater percentage of the electrical load.

For the **Efficiency & PV case on the all-electric home**, the Reach Code Team evaluated PV system sizing to offset 100%, 90% and 80% of the total calculated electricity use. Of these three, sizing to 90% proved to be the most cost-effective based on customer utility bills. This is a result of the impact of the annual minimum bill which is around \$120 across all the utilities. The “sweet spot” is a PV system that reduces electricity bills just enough to match the annual minimum bill; increasing the PV size beyond this adds first cost but does not result in utility bill savings.



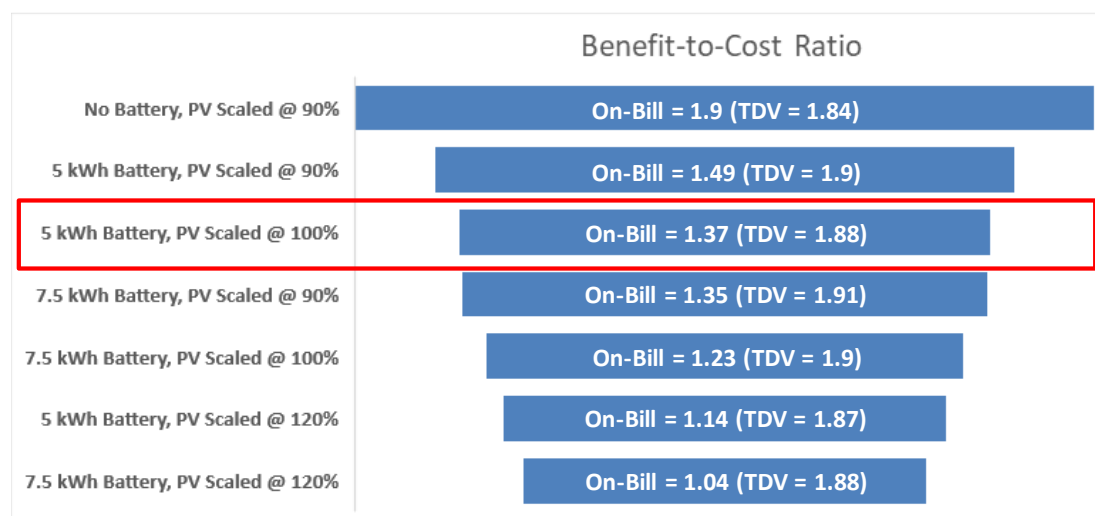
Table 7: PV & Battery Sizing Details by Package Type

Package	Mixed Fuel	All-Electric
Efficiency (Envelope & Equipment)	PV Scaled @ 100% electricity	Std Design PV
Efficiency & PV	n/a	PV Scaled @ 90%
Efficiency & PV/Battery	PV Scaled @ 100% electricity 5kWh / SF home 2.75kWh/ MF apt	PV Scaled @ 100% 5kWh / SF home 2.75kWh/ MF apt

A sensitivity analysis was conducted to determine the appropriate battery and PV capacity for the Efficiency & PV/Battery Packages using the 1-story 2,100 square foot prototype in Climate Zone 12. Results are shown in Figure 2. The current version of CBECC-Res requires a minimum battery size of 5 kWh to qualify for the self-utilization credit. CBECC-Res allows for PV oversizing up to 160% of the building's estimated electricity load when battery storage systems are installed; however, the Reach Code Team considered this high, potentially problematic from a grid perspective, and likely not acceptable to the utilities or customers. The Reach Code Team compared cost-effectiveness of 5kWh and 7.5kWh battery systems as well as of PV systems sized to offset 90%, 100%, or 120% of the estimated electrical load.

Results show that from an on-bill perspective a smaller battery size is more cost-effective. The sensitivity analysis also showed that increasing the PV capacity from 90% to 120% of the electricity use reduced cost-effectiveness. From the TDV perspective there was little difference in results across all the scenarios, with the larger battery size being marginally more cost-effective. Based on these results, the Reach Code Team applied to the Efficiency & PV/Battery Package a 5kWh battery system for single family homes with PV sized to offset 100% of the electricity load. Even though PV scaled to 90% was the most cost-effective, sizing was increased to 100% to evaluate greater generation beyond the Efficiency & PV Package and to achieve zero net electricity. These results also show that in isolation, the inclusion of a battery system reduces cost-effectiveness compared to the same size PV system without batteries.

For multifamily buildings the battery capacity was scaled to reflect the average ratio of battery size to PV system capacity (kWh/kW) for the single family Efficiency & PV Package. This resulted in a 22kWh battery for the multifamily building, or 2.75kWh per apartment.

**Figure 2: B/C ratio comparison for PV and battery sizing**

3.2 Single Family Results

Table 8 through Table 10 contain cost effectiveness findings for the single family packages. Table 8 summarizes the package costs for all of the mixed fuel and all-electric efficiency, PV and battery packages. The mixed fuel results are evaluated and presented relative to a mixed fuel code compliant basecase while the all-electric results are relative to an all-electric code compliant basecase.

Table 9 and Table 10 present the B/C ratios for all the single family packages according to both the On-Bill and TDV methodologies for the mixed fuel and the all-electric cases, respectively. Results are cost-effective based on TDV for all cases except for Climate Zone 7 where no cost-effective combination of non-preempted efficiency measures was found that met the minimum 0.5 EDR Margin threshold. Cases where the B/C ratio is indicated as “>1” refer to instances where there are incremental cost savings in addition to annual utility bill savings. In these cases, there is no cost associated with the upgrade and benefits are realized immediately.

Figure 3 presents a comparison of Total EDRs for single family buildings and Figure 4 presents the EDR Margin results. Each graph compares the mixed fuel and all-electric cases as well as the various packages. The EDR Margin for the **Efficiency Package** for most climates is between 1.0 and 5.5 for mixed fuel cases and slightly higher, between 1.5 and 6.5, for the all-electric design. No cost-effective **mixed fuel or all-electric non-preempted Efficiency package** was found Climate Zone 7.

For the **mixed fuel case, the Efficiency & PV/Battery** Package increased the EDR Margin to values between 7.0 and 10.5. Because of the limitations on oversizing PV systems to offset natural gas use it is not feasible to achieve higher EDR Margins by increasing PV system capacity.

For the **all-electric case, the Efficiency & PV** Package resulted in EDR Margins of 11.0 to 19.0 for most climates; adding a battery system increased the EDR Margin by an additional 7 to 13 points. Climate zones 1 and 16, which have high heating loads, have much higher EDR Margins for the Efficiency & PV package (26.5-31.0). The Standard Design PV, which is what is applied in the all-electric Efficiency Package, is not sized to offset any of the heating load. When the PV system is sized to offset 90% of the total electricity use, the increase is substantial as a result. In contrast, in Climate Zone 15 the Standard Design PV system is already sized to cover the cooling electricity load, which represents 40% of whole building electricity use. Therefore, increasing the PV size to offset 90% of the electric load in this climate only results in adding approximately 120 Watts of PV capacity and subsequently a negligible impact on the EDR.

Additional results details can be found in Appendix C – Single Family Detailed Results with summaries of measures included in each of the packages in Appendix D – Single Family Measure Summary. A summary of results by climate zone is presented in Appendix G – Results by Climate Zone.



Table 8: Single Family Package Lifetime Incremental Costs

Climate Zone	Mixed Fuel			All-Electric			
	Non-Preempted	Equipment - Preempted	Efficiency & PV/Battery	Non-Preempted	Equipment - Preempted	Efficiency & PV	Efficiency & PV/Battery
CZ01	+\$1,355	+\$1,280	+\$5,311	+\$7,642	+\$2,108	+\$18,192	+\$24,770
CZ02	+\$1,504	+\$724	+\$5,393	+\$3,943	+\$2,108	+\$12,106	+\$18,132
CZ03	+\$1,552	+\$1,448	+\$5,438	+\$1,519	+\$2,108	+\$8,517	+\$14,380
CZ04	+\$1,556	+\$758	+\$5,434	+\$1,519	+\$2,108	+\$8,786	+\$14,664
CZ05	+\$1,571	+\$772	+\$5,433	+\$1,519	+\$2,108	+\$8,307	+\$14,047
CZ06	+\$1,003	+\$581	+\$4,889	+\$926	+\$846	+\$6,341	+\$12,036
CZ07	n/a	+\$606	+\$4,028	n/a	+\$846	+\$4,436	+\$9,936
CZ08	+\$581	+\$586	+\$4,466	+\$926	+\$412	+\$5,373	+\$11,016
CZ09	+\$912	+\$574	+\$4,785	+\$1,180	+\$846	+\$5,778	+\$11,454
CZ10	+\$1,648	+\$593	+\$5,522	+\$1,773	+\$949	+\$6,405	+\$12,129
CZ11	+\$3,143	+\$1,222	+\$7,026	+\$3,735	+\$2,108	+\$10,827	+\$17,077
CZ12	+\$1,679	+\$654	+\$5,568	+\$3,735	+\$2,108	+\$11,520	+\$17,586
CZ13	+\$3,060	+\$611	+\$6,954	+\$4,154	+\$2,108	+\$10,532	+\$16,806
CZ14	+\$1,662	+\$799	+\$5,526	+\$4,154	+\$2,108	+\$10,459	+\$16,394
CZ15	+\$2,179	-\$936	+\$6,043	+\$4,612	+\$2,108	+\$5,085	+\$11,382
CZ16	+\$3,542	+\$2,441	+\$7,399	+\$5,731	+\$2,108	+\$16,582	+\$22,838



Table 9: Single Family Package Cost-Effectiveness Results for the Mixed Fuel Case ^{1,2}

CZ	Utility	Efficiency							Efficiency & PV/Battery			
		Non-Preempted			Equipment - Preempted			Target				Target
		Efficiency	On-Bill	TDV	Efficiency	On-Bill	TDV	Efficiency	Total	On-Bill	TDV	Total
		EDR	B/C	B/C	EDR	B/C	B/C	EDR	EDR	B/C	B/C	EDR
		Margin	Ratio	Ratio	Margin	Ratio	Ratio	Margin	Margin	Ratio	Ratio	Margin
01	PG&E	5.3	3.4	2.8	6.9	4.9	4.1	5.0	10.6	0.9	1.6	10.5
02	PG&E	3.3	1.6	1.7	3.3	3.8	3.6	3.0	10.1	0.5	1.6	10.0
03	PG&E	3.0	1.3	1.3	4.1	1.9	2.0	2.5	10.0	0.4	1.4	10.0
04	PG&E	2.5	0.9	1.2	2.7	2.4	2.7	2.5	10.1	0.3	1.5	10.0
05	PG&E	2.7	1.1	1.2	2.6	2.3	2.5	2.5	9.4	0.4	1.3	9.0
05	PG&E/SoCalGas	2.7	0.9	1.2	2.6	2.0	2.5	2.5	9.4	0.3	1.3	9.0
06	SCE/SoCalGas	2.0	0.7	1.2	2.0	1.6	2.0	1.5	9.8	0.8	1.3	9.5
07	SDG&E	0.0	-	-	1.5	1.5	1.4	0.0	9.2	0.1	1.3	9.0
08	SCE/SoCalGas	1.3	0.6	1.4	1.6	1.3	1.8	1.0	8.4	0.9	1.3	8.0
09	SCE/SoCalGas	2.6	0.7	2.0	2.9	1.8	3.7	2.5	8.8	1.0	1.5	8.5
10	SCE/SoCalGas	3.2	0.6	1.3	3.2	2.0	3.8	3.0	9.6	1.0	1.5	9.5
10	SDG&E	3.2	0.8	1.3	3.2	2.6	3.8	3.0	9.6	0.6	1.5	9.5
11	PG&E	4.3	0.8	1.2	5.1	2.5	3.7	4.0	9.2	0.4	1.5	9.0
12	PG&E	3.5	1.2	1.8	3.4	3.3	4.6	3.0	9.6	0.4	1.7	9.5
13	PG&E	4.6	0.8	1.3	5.8	5.3	8.4	4.5	9.7	0.4	1.6	9.5
14	SCE/SoCalGas	5.0	1.6	2.5	5.8	4.0	6.1	4.5	9.0	1.3	1.7	9.0
14	SDG&E	5.0	1.9	2.5	5.8	4.9	6.1	4.5	9.0	1.2	1.7	9.0
15	SCE/SoCalGas	4.8	1.0	1.6	5.0	>1	>1	4.5	7.1	1.1	1.5	7.0
16	PG&E	5.4	1.6	1.5	6.2	2.2	2.2	5.0	10.5	0.9	1.4	10.5

¹">1" indicates cases where there are both first cost savings and annual utility bill savings.

²Information about the measures included for each climate zone are described in Appendix D – Single Family Measure Summary.



Table 10: Single Family Package Cost-Effectiveness Results for the All-Electric Case^{1,2}

CZ	Utility	Efficiency							Efficiency & PV				Efficiency & PV/Battery			
		Non-Preempted			Equipment - Preempted			Target				Target				Target
		Efficiency EDR Margin	On-Bill B/C Ratio	TDV B/C Ratio	Efficiency EDR Margin	On-Bill B/C Ratio	TDV B/C Ratio	Efficiency EDR Margin	Total EDR Margin	On-Bill B/C Ratio	TDV B/C Ratio	Total EDR Margin	Total EDR Margin	On-Bill B/C Ratio	TDV B/C Ratio	Total EDR Margin
01	PG&E	15.2	1.8	1.7	6.9	2.9	2.7	6.5	31.4	1.8	1.5	31.0	41.2	1.4	1.4	41.0
02	PG&E	4.9	1.2	1.1	5.1	2.3	2.1	4.5	19.4	1.8	1.4	19.0	30.1	1.4	1.4	30.0
03	PG&E	4.7	2.6	2.4	4.4	1.8	1.6	4.0	18.5	2.2	1.7	18.0	29.3	1.5	1.6	29.0
04	PG&E	3.4	1.9	1.8	3.9	1.5	1.5	3.0	17.2	2.1	1.6	17.0	28.6	1.5	1.6	28.5
05	PG&E	4.4	2.6	2.3	4.4	1.9	1.7	4.0	18.2	2.3	1.8	18.0	28.7	1.6	1.6	28.5
05	PG&E/SoCalGas	4.4	2.6	2.3	4.4	1.9	1.7	4.0	18.2	2.3	1.8	18.0	28.7	1.6	1.6	28.5
06	SCE/SoCalGas	2.0	1.3	1.4	2.9	2.2	2.3	2.0	14.3	1.2	1.5	14.0	26.1	1.2	1.4	26.0
07	SDG&E	0.0	-	-	2.2	1.6	1.7	0.0	11.3	1.9	1.5	11.0	24.2	1.3	1.5	24.0
08	SCE/SoCalGas	1.6	0.6	1.2	1.8	2.8	3.0	1.5	10.9	1.0	1.5	10.5	21.6	1.1	1.4	21.5
09	SCE/SoCalGas	2.8	0.8	2.0	3.3	2.1	3.2	2.5	11.5	1.1	1.6	11.5	21.3	1.1	1.5	21.0
10	SCE/SoCalGas	3.1	0.9	1.5	3.4	2.3	3.2	3.0	11.1	1.1	1.5	11.0	21.2	1.1	1.5	21.0
10	SDG&E	3.1	1.1	1.5	3.4	2.6	3.2	3.0	11.1	1.7	1.5	11.0	21.2	1.4	1.5	21.0
11	PG&E	4.6	1.2	1.5	5.9	3.0	3.3	4.5	14.2	1.8	1.6	14.0	23.2	1.5	1.6	23.0
12	PG&E	3.8	0.8	1.1	5.1	2.0	2.5	3.5	15.7	1.7	1.4	15.5	25.4	1.3	1.5	25.0
13	PG&E	5.1	1.1	1.4	6.0	2.9	3.3	5.0	13.4	1.7	1.5	13.0	22.5	1.4	1.5	22.0
14	SCE/SoCalGas	5.6	1.0	1.5	6.0	2.3	3.1	5.5	15.5	1.2	1.6	15.5	23.9	1.4	1.6	23.5
14	SDG&E	5.6	1.3	1.5	6.0	2.9	3.1	5.5	15.5	1.8	1.6	15.5	23.9	1.7	1.6	23.5
15	SCE/SoCalGas	5.6	1.1	1.6	7.3	3.3	4.5	5.5	6.2	1.1	1.6	6.0	13.5	1.2	1.5	13.0
16	PG&E	9.7	1.7	1.7	4.9	2.4	2.3	4.5	27.0	2.1	1.6	26.5	35.4	1.7	1.5	35.0

¹">1" indicates cases where there are both first cost savings and annual utility bill savings.

²Information about the measures included for each climate zone are described in Appendix D – Single Family Measure Summary



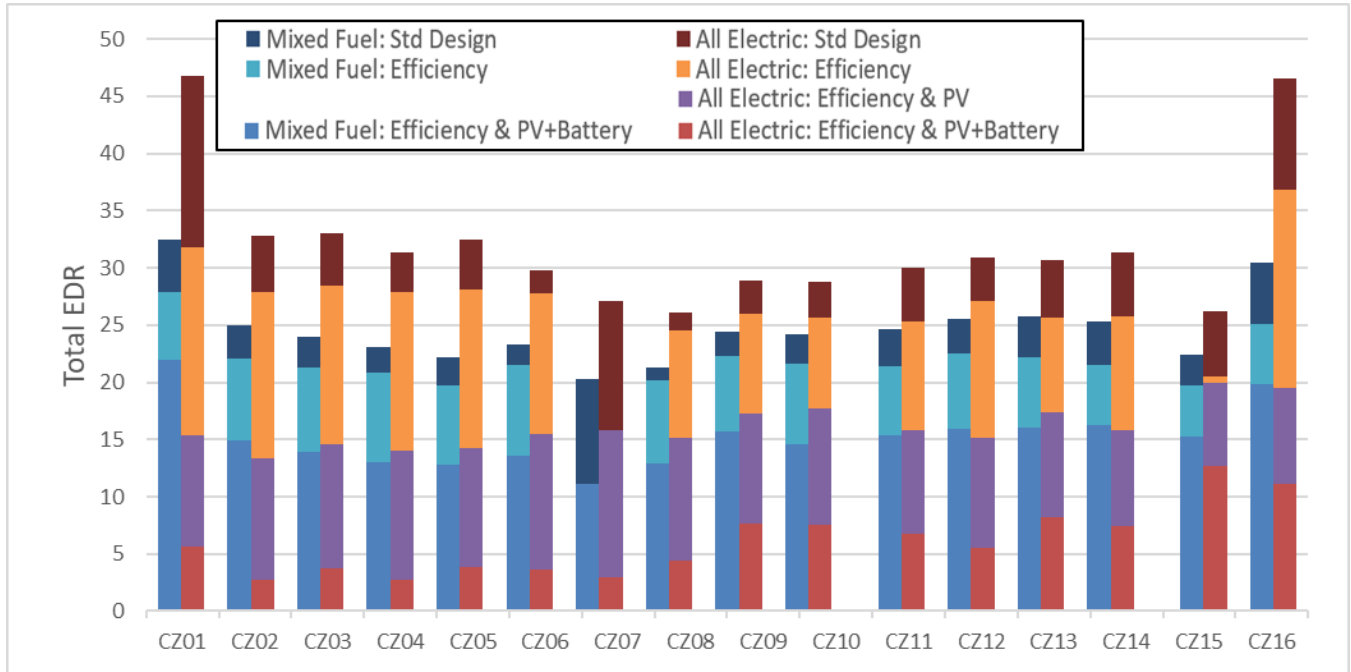


Figure 3: Single family Total EDR comparison

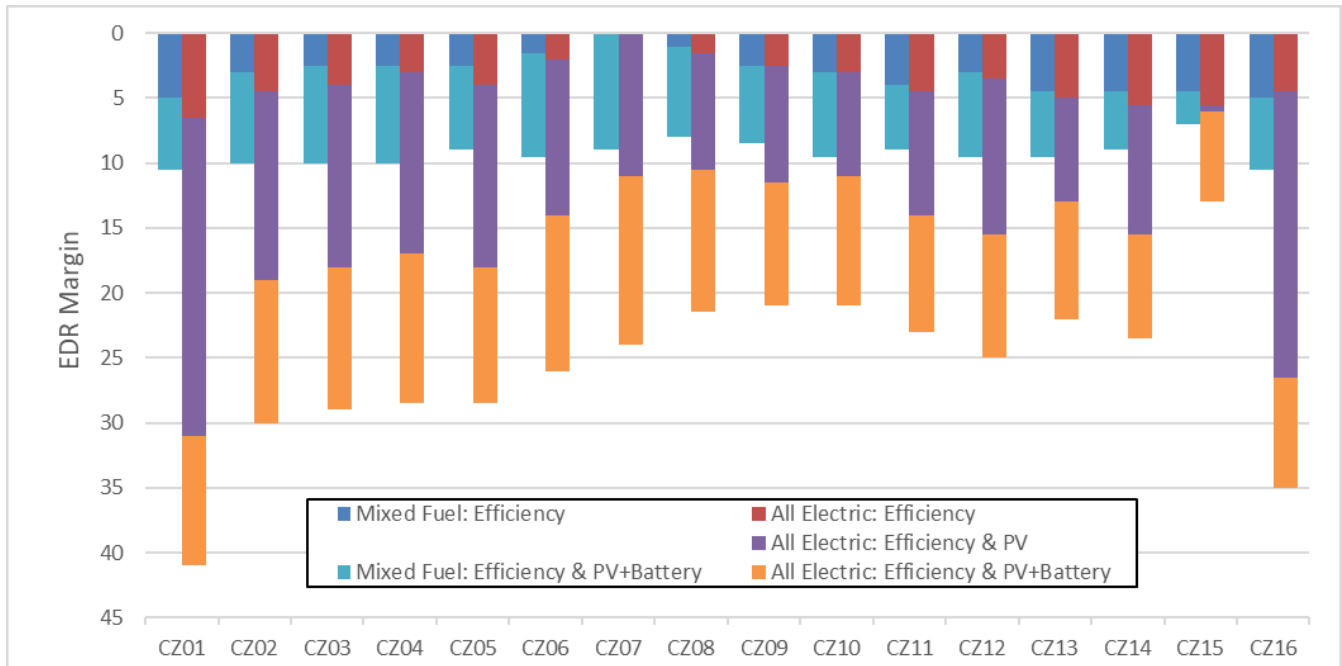


Figure 4: Single family EDR Margin comparison (based on Efficiency EDR Margin for the Efficiency packages and the Total EDR Margin for the Efficiency & PV and Efficiency & PV/Battery packages)

3.2.1 GHG Emission Reductions

Figure 5 compares annual GHG emissions for both mixed fuel and all-electric single family 2019 code compliant cases with Efficiency, Efficiency & PV and Efficiency & PV/Battery packages. GHG emissions vary by climate but are consistently higher in mixed fuel cases than all-electric. Standard Design mixed fuel emissions range from 1.3 (CZ 7) to 3.3 (CZ 16) lbs CO₂e/square foot of floor area, where all-electric Standard Design emissions range from 0.7 to 1.7 lbs CO₂e/ ft². Adding efficiency, PV and batteries to the mixed fuel code compliant prototype reduces GHG emissions by 20% on average to between 1.0 and 1.8 lbs CO₂e/ft², with the exception of Climate Zones 1 and 16. Adding efficiency, PV and batteries to the all-electric code compliant prototype reduces annual GHG emissions by 65% on average to 0.8 lbs CO₂e/ft² or less. None of the cases completely eliminate GHG emissions. Because of the time value of emissions calculation for electricity in CBECC-Res, there is always some amount of GHG impacts with using electricity from the grid.

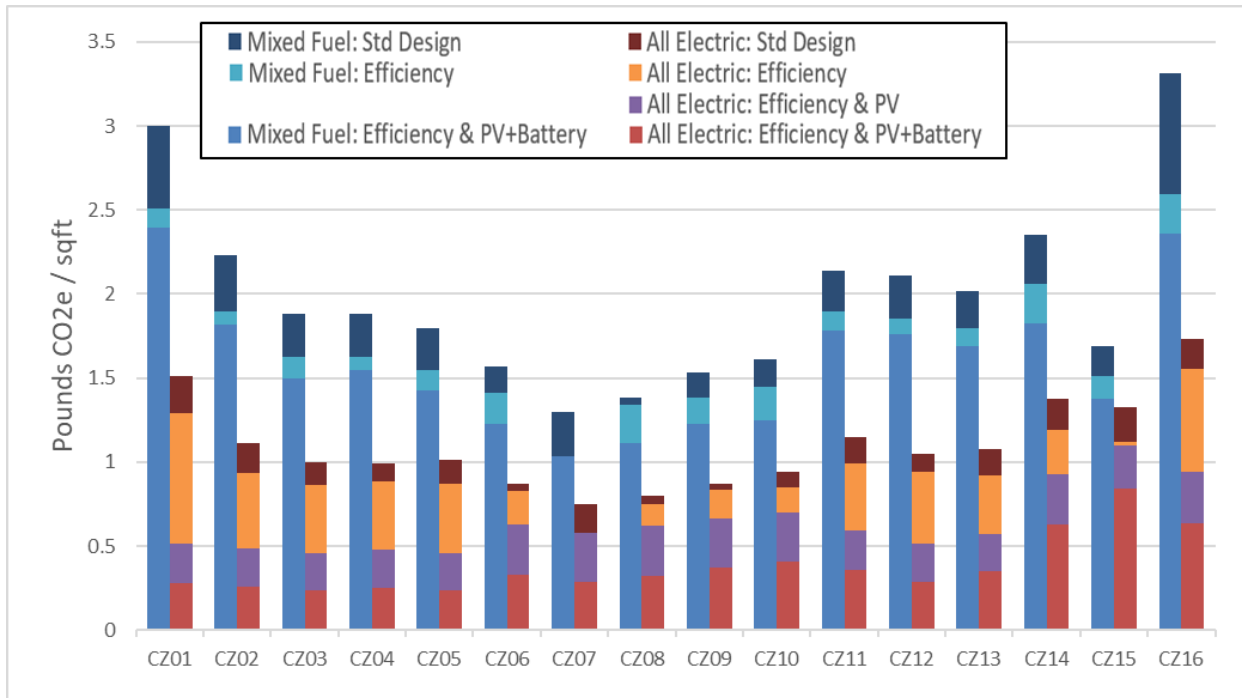


Figure 5: Single family greenhouse gas emissions comparison

3.3 Multifamily Results

Table 11 through Table 13 contain cost effectiveness findings for the multifamily packages. Table 11 summarizes the package costs for all the mixed fuel and all-electric efficiency, PV and battery packages.

Table 12 and Table 13 present the B/C ratios for all the packages according to both the On-Bill and TDV methodologies for the mixed fuel and the all-electric cases, respectively. All the packages are cost-effective based on TDV except Climate Zone 3 for the all-electric cases where no cost-effective combination of non-preempted efficiency measures was found that met the minimum 0.5 EDR Margin threshold. Cases where the B/C ratio is indicated as ">1" refer to instances where there are incremental cost savings in addition to annual utility bill savings. In these cases, there is no cost associated with this upgrade and benefits are realized immediately.

It is generally more challenging to achieve equivalent savings targets cost-effectively for the multifamily cases than for the single family cases. With less exterior surface area per floor area the impact of envelope measures



is diminished in multifamily buildings. Ducts are already assumed to be within conditioned space and therefore only one of the duct measures found to be cost-effective in single family homes can be applied.

Figure 6 presents a comparison of Total EDRs for the multifamily cases and Figure 7 presents the EDR Margin results. Each graph compares the mixed fuel and all-electric cases as well as the various packages. Cost-effective efficiency packages were found for all **mixed fuel cases**. The Target EDR Margins for the **mixed fuel Efficiency Package** are 0.5 for Climate Zones 3, 5 and 7, between 1.0 and 2.5 for Climate Zones 1, 2, 4, 6, 8 through 12 and 16, and between 3.0 and 4.0 in Climate Zones 13 through 15. For the **all-electric case, no cost-effective non-preempted efficiency packages** were found in Climate Zone 3. The Target EDR Margins are between 0.5 and 2.5 for Climate Zones 2, 4 through 10 and 12, and between 3.0 and 4.0 in Climate Zones 1, 11, and 13 through 16.

For the **mixed fuel case, the Efficiency & PV/Battery Package** results in an EDR Margin of between 8.5 and 11.5 across all climate zones. Most of these packages were not found to be cost-effective based on utility bill savings alone, but they all are cost-effective based on TDV energy savings. For the **all-electric case, the Efficiency & PV Package** resulted in EDR Margins of 10.5 to 17.5 for most climates; adding a battery system increased the EDR Margin by an additional 10 to 15 points. Climate zones 1 and 16, which have high heating loads, have much higher EDR Margins for the **Efficiency & PV package** (19.5-22.5). The Standard Design PV, which is what is applied in the **Efficiency Package**, is not sized to offset any of the heating load. When the PV system is sized to offset 90% of the total electricity use, the increase is substantial as a result. In Climate Zone 15 the Standard Design PV system is already sized to cover the cooling electricity load, which represents 30% of whole building electricity use. Therefore, increasing the PV size to offset 90% of the electric load in this climate only results in adding approximately 240 Watts of PV capacity per apartment and subsequently a much smaller impact on the EDR than in other climate zones. Because of the limitations on oversizing PV systems to offset natural gas use it is not feasible to achieve comparable EDR Margins for the mixed fuel case as in the all-electric case.

Additional results details can be found in Appendix E – Multifamily Detailed Results with summaries of measures included in each of the packages in Appendix F – Multifamily Measure Summary. A summary of results by climate zone is presented in Appendix G – Results by Climate Zone.



Table 11: Multifamily Package Incremental Costs per Dwelling Unit

Climate Zone	Mixed Fuel			All-Electric			
	Non-Preempted	Equipment - Preempted	Efficiency & PV/Battery	Non-Preempted	Equipment - Preempted	Efficiency & PV	Efficiency & PV/Battery
CZ01	+\$960	+\$507	+\$3,094	+\$949	+\$795	+\$5,538	+\$8,919
CZ02	+\$309	+\$497	+\$2,413	+\$361	+\$795	+\$3,711	+\$6,833
CZ03	+\$175	+\$403	+\$2,279	n/a	+\$795	+\$3,272	+\$6,344
CZ04	+\$329	+\$351	+\$2,429	+\$361	+\$795	+\$3,158	+\$6,201
CZ05	+\$180	+\$358	+\$2,273	+\$247	+\$795	+\$3,293	+\$6,314
CZ06	+\$190	+\$213	+\$2,294	+\$231	+\$361	+\$2,580	+\$5,590
CZ07	+\$90	+\$366	+\$2,188	+\$202	+\$361	+\$2,261	+\$5,203
CZ08	+\$250	+\$213	+\$2,353	+\$231	+\$361	+\$2,240	+\$5,249
CZ09	+\$136	+\$274	+\$2,234	+\$231	+\$361	+\$2,232	+\$5,236
CZ10	+\$278	+\$250	+\$2,376	+\$361	+\$361	+\$2,371	+\$5,395
CZ11	+\$850	+\$317	+\$2,950	+\$1,011	+\$795	+\$3,601	+\$6,759
CZ12	+\$291	+\$434	+\$2,394	+\$1,011	+\$795	+\$3,835	+\$6,943
CZ13	+\$831	+\$290	+\$2,936	+\$1,011	+\$795	+\$3,462	+\$6,650
CZ14	+\$874	+\$347	+\$2,957	+\$1,011	+\$795	+\$3,356	+\$6,380
CZ15	+\$510	-\$157	+\$2,604	+\$1,011	+\$1,954	+\$1,826	+\$5,020
CZ16	+\$937	+\$453	+\$3,028	+\$843	+\$795	+\$4,423	+\$7,533



Table 12: Multifamily Package Cost-Effectiveness Results for the Mixed Fuel Case^{1,2}

CZ	Utility	Efficiency							Efficiency & PV/Battery			
		Non-Preempted			Equipment - Preempted			Target				Target
		Efficiency	On-Bill	TDV	Efficiency	On-Bill	TDV	Efficiency	Total	On-Bill	TDV	Total
		EDR	B/C	B/C	EDR	B/C	B/C	EDR	EDR	B/C	B/C	EDR
		Margin	Ratio	Ratio	Margin	Ratio	Ratio	Margin	Margin	Ratio	Ratio	Margin
01	PG&E	3.4	1.1	1.2	2.3	1.3	1.4	2.0	11.5	0.4	1.2	11.5
02	PG&E	1.8	1.0	1.7	2.3	1.1	1.5	1.5	10.9	0.2	1.6	10.5
03	PG&E	0.6	1.0	1.1	1.6	1.1	1.2	0.5	10.3	0.1	1.4	10.0
04	PG&E	1.3	0.8	1.2	1.9	1.1	1.7	1.0	11.2	0.2	1.6	11.0
05	PG&E	0.5	1.0	1.0	1.5	1.2	1.3	0.5	9.9	0.2	1.4	9.5
05	PG&E/SoCalGas	0.5	0.8	1.0	1.5	1.1	1.3	0.5	9.9	0.1	1.4	9.5
06	SCE/SoCalGas	1.3	0.6	1.5	1.3	1.4	1.7	1.0	10.7	0.6	1.4	10.5
07	SDG&E	0.9	0.7	2.2	2.0	1.1	1.4	0.5	11.0	0.0	1.4	11.0
08	SCE/SoCalGas	1.5	0.7	1.4	1.1	1.4	1.7	1.0	9.9	0.7	1.3	9.5
09	SCE/SoCalGas	1.8	1.5	3.3	2.8	1.7	2.9	1.5	9.7	0.9	1.5	9.5
10	SCE/SoCalGas	1.7	0.8	1.7	2.9	2.0	3.3	1.5	10.4	1.0	1.6	10.0
10	SDG&E	1.7	1.1	1.7	2.9	2.6	3.3	1.5	10.4	0.2	1.6	10.0
11	PG&E	2.9	0.7	1.2	3.2	1.8	3.3	2.5	10.5	0.4	1.6	10.5
12	PG&E	1.9	1.1	2.2	2.8	1.2	2.2	1.5	10.3	0.3	1.7	10.0
13	PG&E	3.1	0.6	1.3	3.4	2.0	3.8	3.0	10.7	0.4	1.6	10.5
14	SCE/SoCalGas	3.1	0.7	1.2	3.3	2.0	3.0	3.0	9.6	1.1	1.4	9.5
14	SDG&E	3.1	0.9	1.2	3.3	2.5	3.0	3.0	9.6	0.5	1.4	9.5
15	SCE/SoCalGas	4.2	1.4	2.3	4.4	>1	>1	4.0	8.8	1.3	1.7	8.5
16	PG&E	2.4	1.1	1.2	2.9	1.8	2.1	2.0	9.9	0.5	1.3	9.5

¹">1" indicates cases where there are both first cost savings and annual utility bill savings.

²Information about the measures included for each climate zone are described in Appendix F – Multifamily Measure Summary.



Table 13: Multifamily Package Cost-effectiveness Results for the All-Electric Case^{1,2}

CZ	Utility	Efficiency							Efficiency & PV				Efficiency & PV/Battery			
		Non-Preempted			Equipment - Preempted			Target Efficiency EDR Margin				Target Total EDR Margin				Target Total EDR Margin
		Efficiency EDR Margin	On-Bill B/C Ratio	TDV B/C Ratio	Efficiency EDR Margin	On-Bill B/C Ratio	TDV B/C Ratio		Total EDR Margin	On-Bill B/C Ratio	TDV B/C Ratio		Total EDR Margin	On-Bill B/C Ratio	TDV B/C Ratio	
01	PG&E	3.6	1.6	1.4	3.3	2.4	2.3	3.0	22.5	2.0	1.5	22.5	34.5	1.3	1.4	34.5
02	PG&E	1.9	1.7	2.1	3.2	1.6	1.6	1.5	17.5	2.4	1.8	17.5	30.9	1.4	1.7	30.5
03	PG&E	0.0	-	-	2.7	1.7	1.6	0.0	16.1	2.4	1.7	16.0	29.5	1.3	1.6	29.5
04	PG&E	1.4	1.4	1.5	2.2	1.2	1.1	1.0	15.0	2.4	1.8	15.0	28.9	1.3	1.8	28.5
05	PG&E	0.6	1.1	0.9	3.6	2.1	2.0	0.5	17.1	2.5	1.8	17.0	30.3	1.4	1.7	30.0
05	PG&E/SoCalGas	0.6	1.1	0.9	3.6	2.1	2.0	0.5	17.1	2.5	1.8	17.0	30.3	1.4	1.7	30.0
06	SCE/SoCalGas	1.0	0.7	1.3	2.2	1.6	1.9	1.0	13.8	1.2	1.7	13.5	27.5	1.2	1.6	27.5
07	SDG&E	0.6	0.6	1.0	1.9	1.6	1.7	0.5	12.8	2.1	1.8	12.5	27.1	1.2	1.6	27.0
08	SCE/SoCalGas	1.2	0.9	1.7	1.9	1.6	1.8	1.0	11.6	1.3	1.8	11.5	24.2	1.2	1.6	24.0
09	SCE/SoCalGas	1.6	1.3	2.7	1.5	1.6	1.6	1.5	11.3	1.3	1.9	11.0	23.3	1.3	1.7	23.0
10	SCE/SoCalGas	1.8	1.2	2.0	1.8	1.7	2.0	1.5	10.8	1.3	1.8	10.5	23.3	1.3	1.7	23.0
10	SDG&E	1.8	1.5	2.0	1.8	2.0	2.0	1.5	10.8	2.1	1.8	10.5	23.3	1.4	1.7	23.0
11	PG&E	3.5	1.4	1.6	3.9	2.0	2.3	3.5	13.4	2.2	1.8	13.0	25.3	1.4	1.8	25.0
12	PG&E	2.6	0.9	1.1	2.9	1.6	1.6	2.5	14.4	2.1	1.6	14.0	26.6	1.3	1.7	26.5
13	PG&E	3.3	1.3	1.6	3.8	2.0	2.3	3.0	12.2	2.1	1.7	12.0	23.9	1.4	1.7	23.5
14	SCE/SoCalGas	3.7	1.2	1.6	3.8	1.6	2.2	3.5	14.0	1.4	1.9	14.0	24.8	1.4	1.8	24.5
14	SDG&E	3.7	1.5	1.6	3.8	2.0	2.2	3.5	14.0	2.2	1.9	14.0	24.8	1.7	1.8	24.5
15	SCE/SoCalGas	4.4	1.5	2.3	6.4	1.2	1.7	4.0	7.1	1.4	2.1	7.0	16.9	1.3	1.8	16.5
16	PG&E	4.1	2.1	2.1	3.2	1.6	1.7	3.0	19.6	2.6	1.9	19.5	29.9	1.6	1.7	29.5

¹">1" indicates cases where there are both first cost savings and annual utility bill savings.

²Information about the measures included for each climate zone are described in Appendix F – Multifamily Measure Summary.



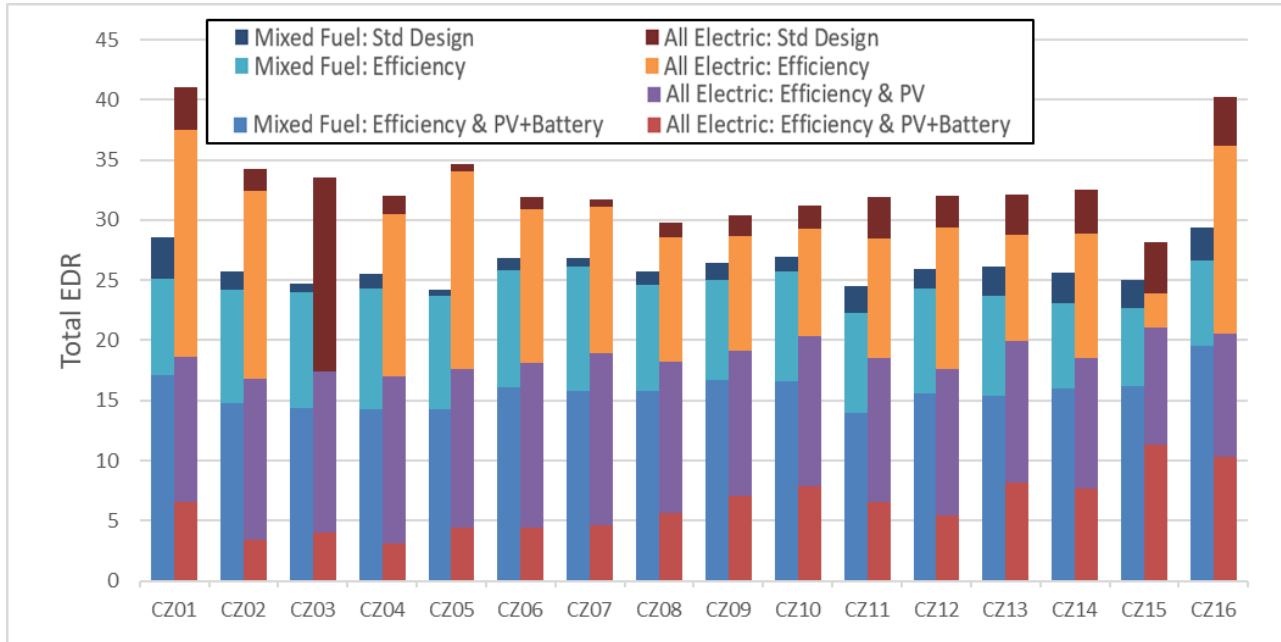


Figure 6: Multifamily Total EDR comparison

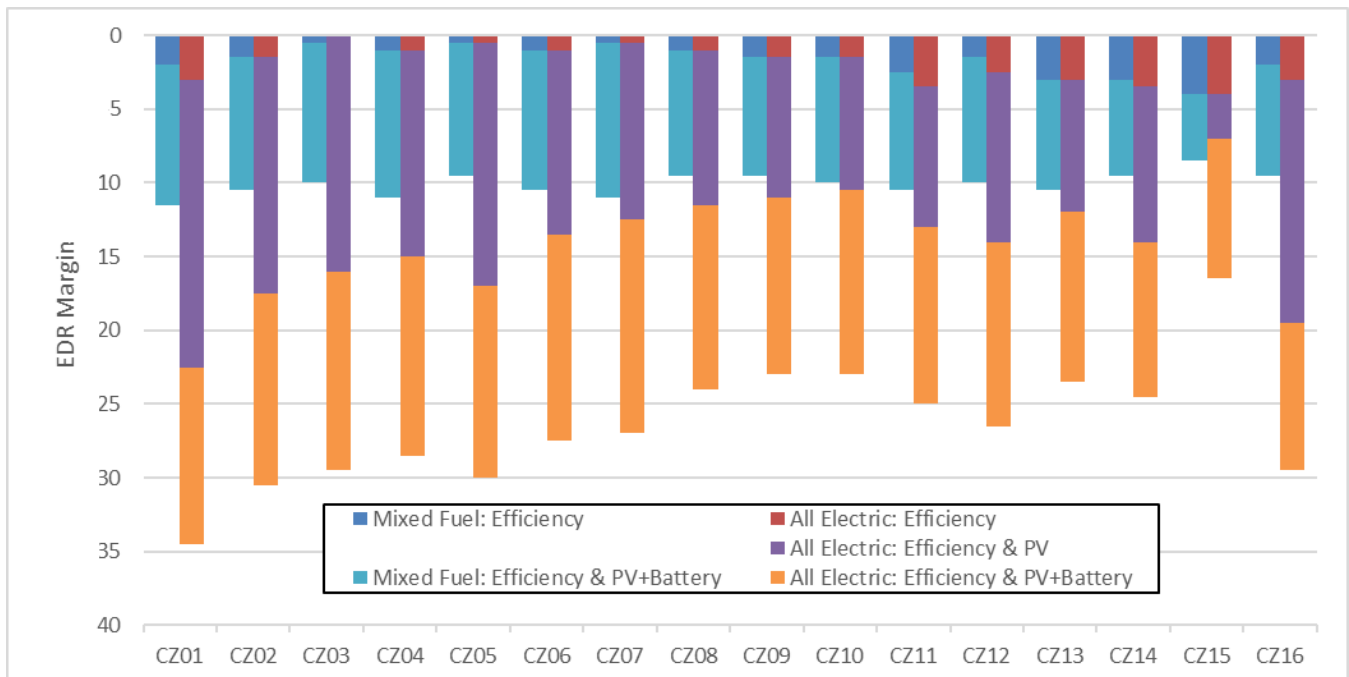


Figure 7: Multifamily EDR Margin comparison (based on Efficiency EDR Margin for the Efficiency packages and the Total EDR Margin for the Efficiency & PV and Efficiency & PV/Battery packages)

3.3.1 GHG Emission Reductions

Figure 8 compares annual GHG emissions for both mixed fuel and all-electric multifamily 2019 code compliant cases with Efficiency, Efficiency & PV and Efficiency & PV/Battery packages. GHG emissions vary by climate but are consistently higher in mixed fuel cases than all-electric. Standard design mixed fuel emissions range from 2.0 to 3.0 lbs CO₂e/square foot of floor area, where all-electric standard design emissions range from 1.2 to 1.7 lbs CO₂e/ ft². Adding PV, batteries and efficiency to the mixed fuel code compliant prototype reduces annual GHG emissions by 17% on average to between 1.7 and 2.2 lbs CO₂e/ft², except Climate Zone 16. Adding PV, batteries and efficiency to the all-electric code compliant prototype reduces annual GHG emissions by 64% on average to 0.6 lbs CO₂e/ft² or less with the exception of Climate Zones 14, 15 and 16. As in the single family case, none of the cases completely eliminate GHG emissions because of the time value of emissions calculation for electricity in CBECC-Res.

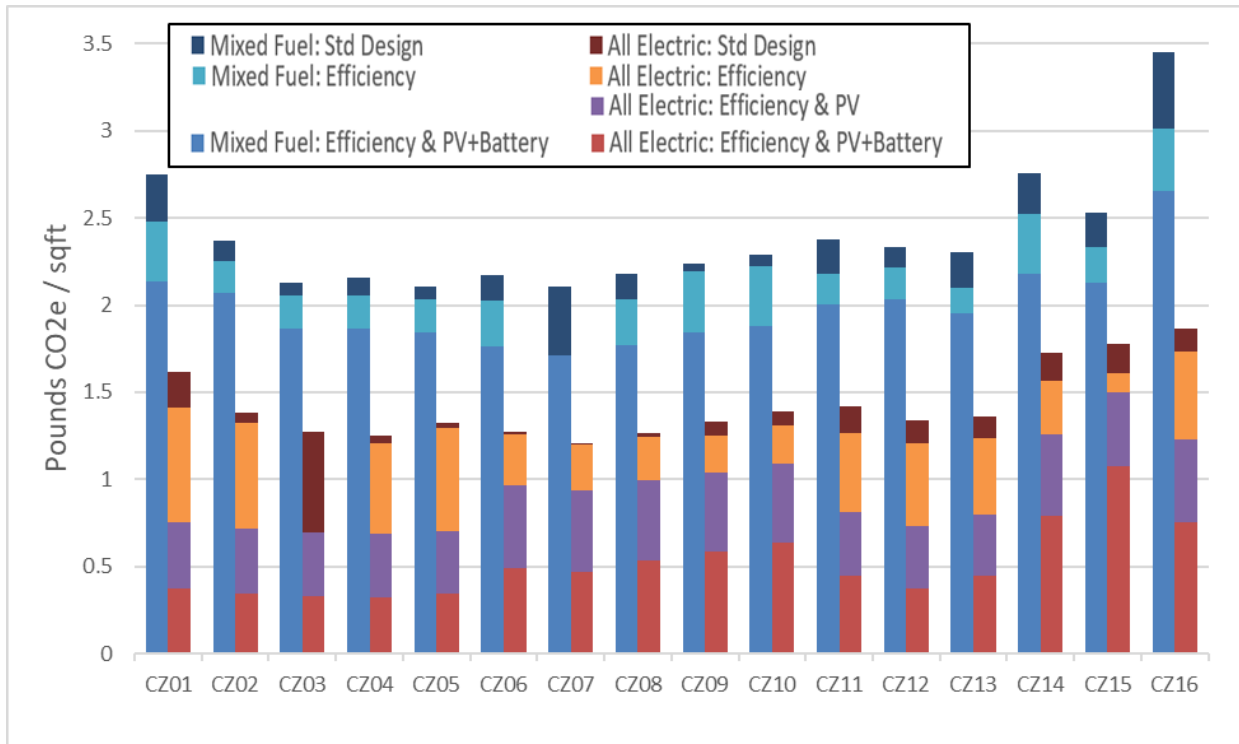


Figure 8: Multifamily greenhouse gas emissions comparison

3.4 Electrification Results

Cost-effectiveness results comparing mixed fuel and all-electric cases are summarized below. The tables show average annual utility bill impacts and lifetime utility bill impacts, which account for fuel escalation for electricity and natural gas (see Section 2.5), lifetime equipment cost savings, and both On-Bill and TDV cost-effectiveness (B/C ratio). Positive utility bill values indicate lower utility costs for the all-electric home relative to the mixed fuel case while negative values in red and parenthesis indicate higher utility costs for the all-electric case. Lifetime equipment cost savings include savings due to eliminating natural gas infrastructure and replacement costs for appliances based on equipment life. Positive values for the lifetime equipment cost savings indicate lower installed costs for the all-electric and negative values indicate higher costs. B/C ratios 1.0 or greater indicate positive cost-effectiveness. Cases where the B/C ratio is indicated as ">1" refer to instances where there was incremental cost savings in addition to annual utility bill savings. In these cases, there is no cost associated with this upgrade and benefits are realized immediately.



Three scenarios were evaluated:

1. **2019 Code Compliant:** Compares a 2019 code compliant all-electric home with a 2019 code compliant mixed fuel home.
2. **Efficiency & PV Package:** Compares an all-electric home with efficiency and PV sized to 90% of the annual electricity use to a 2019 code compliant mixed fuel home. The first cost savings in the code compliant all-electric house is invested in above code efficiency and PV reflective of the Efficiency & PV packages described above.
3. **Neutral Cost Package:** Compares an all-electric home with PV beyond code minimum with a 2019 code compliant mixed fuel home. The PV system for the all-electric case is sized to result in a zero lifetime incremental cost relative to a mixed fuel home.

3.4.1 **Single Family**

Table 14, Table 15, Figure 9, Figure 10, and Figure 11 present results of cost-effectiveness analysis for electrification of single family buildings, according to both the On-Bill and TDV methodologies. Based on typical cost assumptions arrived at for this analysis, the lifetime equipment costs for the single family code compliant all-electric option are approximately \$5,350 less than the mixed fuel code compliant option. Cost savings are entirely due to the elimination of gas infrastructure, which was assumed to be a savings of \$5,750. When evaluating cost-effectiveness based on TDV, the Utility Gas Main Extensions rules 50% refund and appliance allowance deduction are not applied and therefore the cost savings are twice as much.

Under the Efficiency & PV Package and the On-Bill analysis, the incremental cost of the efficiency and PV is typically more than the cost savings seen in the code compliant case, which results in a net cost increase in most climate zones for the all-electric case. In climates with small heating loads (7 and 15) there continues to be an incremental cost savings for the all-electric home. With the TDV analysis, there is still an incremental cost savings in all climates except 1 and 16 for single family.

Utility impacts differ by climate zone and utility, but utility costs for the code compliant all-electric option are typically higher than for the compliant mixed fuel design. There are utility cost savings across all climates zones and building types for the all-electric Efficiency & PV Package, resulting in a more cost-effective option.

The all-electric code compliant option is cost-effective based on the On-Bill approach for single family homes in Climate Zones 6 through 9, 10 (SCE/SoCalGas territory only), and 15. The code compliant option is cost-effective based on the TDV methodology in all climate zones except 1 and 16. If the same costs used for the On-Bill approach are also used for the TDV approach (incorporating the Utility Gas Main Extensions rules 50% refund and appliance allowance deduction), the all-electric code compliant option is cost-effective in Climate Zones 6 through 10. The Efficiency & PV all-electric option is cost-effective in all climate zones based on both the On-Bill and TDV methodologies. In many cases it is cost-effective immediately with lower equipment and utility costs.

The last set of results in Table 14 shows the neutral cost case where the cost savings for the all-electric code compliant home is invested in a larger PV system, resulting in a lifetime incremental cost of zero based on the On-Bill approach. This package results in utility cost savings in all cases except Climate Zones 1, 14 (SCE/SoCalGas territory only), and 16. For these three cases the Reach Code Team evaluated how much additional PV would be required to result in a cost-effective package. These results are presented in Table 15 and show that an additional 1.6kW in Climate Zone 1 results in a B/C ratio of 1.1. For Climate Zone 14 and 16 adding 0.25kW and 1.2kW, respectively, results in a B/C ratio of 1.2. Neutral cost cases are cost-effective based on the TDV methodology in all climate zones except 16.

3.4.2 **Multifamily**

Multifamily results are found in Table 16, Table 17, Figure 12, Figure 13, and Figure 14. Lifetime costs for the multifamily code compliant all-electric option are approximately \$2,300 less than the mixed fuel code compliant option, entirely due to the elimination of gas infrastructure. When evaluating cost-effectiveness based on TDV,



the Utility Gas Main Extensions rules 50% refund and appliance allowance deduction are not applied and therefore the cost savings are approximately 2.5 times higher.

With the Efficiency & PV Package and the On-Bill analysis, due to the added cost of the efficiency and PV there is a net cost increase for the all-electric case in all climate zones for except 7, 8, 9, and 15. With the TDV analysis, there is still an incremental cost savings in all climates. Like the single family results, utility costs are typically higher for the code compliant all-electric option but lower than the code compliant mixed fuel option with the Efficiency & PV Package.

The all-electric code compliant option is cost-effective based on the On-Bill approach for multifamily in Climate Zones 6 through 9, 10 and 14 (SCE/SoCalGas territory only), and 15. Based on the TDV methodology, the code compliant option for multifamily is cost-effective for all climate zones. If the same costs used for the On-Bill approach are also used for the TDV approach (incorporating the Utility Gas Main Extensions rules 50% refund and appliance allowance deduction), the all-electric code compliant option is cost-effective in Climate Zones 8 and 9. Like the single family cases, the Efficiency & PV all-electric option is cost-effective in all climate zones based on both the On-Bill and TDV methodologies.

The last set of results in Table 16 show the neutral cost case where the cost savings for the all-electric code compliant home is invested in a larger PV system, resulting in a lifetime incremental cost of zero based on the On-Bill approach. This package results in utility cost savings in all cases except Climate Zone 1. For this case the Reach Code Team evaluated how much additional PV would be required to result in a cost-effective package. These results are presented in Table 17 and show that an additional 0.3kW per apartment results in a B/C ratio of 1.1. Neutral cost cases are cost-effective based on the TDV methodology in all climate zones except 16.

Table 14: Single Family Electrification Results

		On-Bill Cost-effectiveness ¹						TDV Cost-effectiveness		
		Average Annual Utility Bill Savings			Lifetime NPV			Lifetime NPV		
			Natural Gas	Net Utility Savings	Utility Bill Savings	Equipment Cost Savings	On-Bill B/C Ratio ²	TDV Cost Savings	Equipment Cost Savings	TDV B/C Ratio
CZ	Utility	Electricity	Gas	Savings	Savings	Savings	Ratio ²	Savings	Savings	Ratio
	2019 Code Compliant Home									
01	PG&E	-\$(\$1,194)	+\$712	-\$(\$482)	-\$(\$14,464)	+\$5,349	0.4	-\$(\$13,081)	+\$11,872	0.9
02	PG&E	-\$(\$825)	+\$486	-\$(\$340)	-\$(\$10,194)	+\$5,349	0.5	-\$(\$7,456)	+\$11,872	1.6
03	PG&E	-\$(\$717)	+\$391	-\$(\$326)	-\$(\$9,779)	+\$5,349	0.5	-\$(\$7,766)	+\$11,872	1.5
04	PG&E	-\$(\$710)	+\$387	-\$(\$322)	-\$(\$9,671)	+\$5,349	0.6	-\$(\$7,447)	+\$11,872	1.6
05	PG&E	-\$(\$738)	+\$367	-\$(\$371)	-\$(\$11,128)	+\$5,349	0.5	-\$(\$8,969)	+\$11,872	1.3
05	PG&E/SoCalGas	-\$(\$738)	+\$370	-\$(\$368)	-\$(\$11,034)	+\$5,349	0.5	-\$(\$8,969)	+\$11,872	1.3
06	SCE/SoCalGas	-\$(\$439)	+\$289	-\$(\$149)	-\$(\$4,476)	+\$5,349	1.2	-\$(\$4,826)	+\$11,872	2.5
07	SDG&E	-\$(\$414)	+\$243	-\$(\$171)	-\$(\$5,134)	+\$5,349	1.0	-\$(\$4,678)	+\$11,872	2.5
08	SCE/SoCalGas	-\$(\$347)	+\$249	-\$(\$97)	-\$(\$2,921)	+\$5,349	1.8	-\$(\$3,971)	+\$11,872	3.0
09	SCE/SoCalGas	-\$(\$377)	+\$271	-\$(\$107)	-\$(\$3,199)	+\$5,349	1.7	-\$(\$4,089)	+\$11,872	2.9
10	SCE/SoCalGas	-\$(\$403)	+\$280	-\$(\$123)	-\$(\$3,684)	+\$5,349	1.5	-\$(\$4,458)	+\$11,872	2.7
10	SDG&E	-\$(\$496)	+\$297	-\$(\$198)	-\$(\$5,950)	+\$5,349	0.9	-\$(\$4,458)	+\$11,872	2.7
11	PG&E	-\$(\$810)	+\$447	-\$(\$364)	-\$(\$10,917)	+\$5,349	0.5	-\$(\$7,024)	+\$11,872	1.7
12	PG&E	-\$(\$740)	+\$456	-\$(\$284)	-\$(\$8,533)	+\$5,349	0.6	-\$(\$6,281)	+\$11,872	1.9
13	PG&E	-\$(\$742)	+\$413	-\$(\$329)	-\$(\$9,870)	+\$5,349	0.5	-\$(\$6,480)	+\$11,872	1.8
14	SCE/SoCalGas	-\$(\$661)	+\$413	-\$(\$248)	-\$(\$7,454)	+\$5,349	0.7	-\$(\$7,126)	+\$11,872	1.7
14	SDG&E	-\$(\$765)	+\$469	-\$(\$296)	-\$(\$8,868)	+\$5,349	0.6	-\$(\$7,126)	+\$11,872	1.7
15	SCE/SoCalGas	-\$(\$297)	+\$194	-\$(\$103)	-\$(\$3,090)	+\$5,349	1.7	-\$(\$5,364)	+\$11,872	2.2
16	PG&E	-\$(\$1,287)	+\$712	-\$(\$575)	-\$(\$17,250)	+\$5,349	0.3	-\$(\$17,391)	+\$11,872	0.7



		On-Bill Cost-effectiveness ¹						TDV Cost-effectiveness		
		Average Annual Utility Bill Savings			Lifetime NPV			Lifetime NPV		
		Electricity	Natural Gas	Net Utility Savings	Utility Bill Savings	Equipment Cost Savings	On-Bill B/C Ratio ²	TDV Cost Savings	Equipment Cost Savings	TDV B/C Ratio
CZ	Utility									
	Efficiency & PV Package									
01	PG&E	-\$(\$99)	+\$712	+\$613	+\$18,398	-\$(\$12,844)	1.4	+\$13,364	-\$(\$6,321)	2.1
02	PG&E	-\$(\$89)	+\$486	+\$397	+\$11,910	-\$(\$6,758)	1.8	+\$9,307	-\$(\$234)	39.7
03	PG&E	-\$(\$87)	+\$391	+\$304	+\$9,119	-\$(\$3,169)	2.9	+\$6,516	+\$3,355	>1
04	PG&E	-\$(\$85)	+\$387	+\$302	+\$9,074	-\$(\$3,438)	2.6	+\$6,804	+\$3,086	>1
05	PG&E	-\$(\$98)	+\$367	+\$268	+\$8,054	-\$(\$2,959)	2.7	+\$5,625	+\$3,564	>1
05	PG&E/SoCalGas	-\$(\$98)	+\$370	+\$272	+\$8,148	-\$(\$2,959)	2.8	+\$5,625	+\$3,564	>1
06	SCE/SoCalGas	-\$(\$188)	+\$289	+\$102	+\$3,049	-\$(\$992)	3.1	+\$4,585	+\$5,531	>1
07	SDG&E	-\$(\$137)	+\$243	+\$106	+\$3,174	+\$912	>1	+\$2,176	+\$7,436	>1
08	SCE/SoCalGas	-\$(\$160)	+\$249	+\$89	+\$2,664	-\$(\$25)	107.9	+\$3,965	+\$6,499	>1
09	SCE/SoCalGas	-\$(\$169)	+\$271	+\$102	+\$3,067	-\$(\$429)	7.1	+\$5,368	+\$6,094	>1
10	SCE/SoCalGas	-\$(\$173)	+\$280	+\$107	+\$3,216	-\$(\$1,057)	3.0	+\$5,165	+\$5,466	>1
10	SDG&E	-\$(\$137)	+\$297	+\$160	+\$4,805	-\$(\$1,057)	4.5	+\$5,165	+\$5,466	>1
11	PG&E	-\$(\$147)	+\$447	+\$300	+\$8,988	-\$(\$5,478)	1.6	+\$9,776	+\$1,045	>1
12	PG&E	-\$(\$92)	+\$456	+\$364	+\$10,918	-\$(\$6,172)	1.8	+\$9,913	+\$352	>1
13	PG&E	-\$(\$144)	+\$413	+\$269	+\$8,077	-\$(\$5,184)	1.6	+\$8,960	+\$1,339	>1
14	SCE/SoCalGas	-\$(\$241)	+\$413	+\$172	+\$5,164	-\$(\$5,111)	1.0	+\$9,850	+\$1,412	>1
14	SDG&E	-\$(\$139)	+\$469	+\$330	+\$9,910	-\$(\$5,111)	1.9	+\$9,850	+\$1,412	>1
15	SCE/SoCalGas	-\$(\$107)	+\$194	+\$87	+\$2,603	+\$264	>1	+\$2,598	+\$6,787	>1
16	PG&E	-\$(\$130)	+\$712	+\$582	+\$17,457	-\$(\$11,234)	1.6	+\$9,536	-\$(\$4,710)	2.0
	Neutral Cost Package									
01	PG&E	-\$(\$869)	+\$712	-\$(\$157)	-\$(\$4,704)	+\$0	0	-\$(\$6,033)	+\$6,549	1.1
02	PG&E	-\$(\$445)	+\$486	+\$40	+\$1,213	+\$0	>1	+\$868	+\$6,505	>1
03	PG&E	-\$(\$335)	+\$391	+\$56	+\$1,671	+\$0	>1	+\$483	+\$6,520	>1
04	PG&E	-\$(\$321)	+\$387	+\$66	+\$1,984	+\$0	>1	+\$1,062	+\$6,521	>1
05	PG&E	-\$(\$335)	+\$367	+\$31	+\$938	+\$0	>1	-\$(\$163)	+\$6,519	40.1
05	PG&E/SoCalGas	-\$(\$335)	+\$370	+\$34	+\$1,031	+\$0	>1	-\$(\$163)	+\$6,519	40.1
06	SCE/SoCalGas	-\$(\$227)	+\$289	+\$63	+\$1,886	+\$0	>1	+\$3,258	+\$6,499	>1
07	SDG&E	-\$(\$72)	+\$243	+\$171	+\$5,132	+\$0	>1	+\$3,741	+\$6,519	>1
08	SCE/SoCalGas	-\$(\$144)	+\$249	+\$105	+\$3,162	+\$0	>1	+\$4,252	+\$6,515	>1
09	SCE/SoCalGas	-\$(\$170)	+\$271	+\$100	+\$3,014	+\$0	>1	+\$4,271	+\$6,513	>1
10	SCE/SoCalGas	-\$(\$199)	+\$280	+\$81	+\$2,440	+\$0	>1	+\$3,629	+\$6,494	>1
10	SDG&E	-\$(\$155)	+\$297	+\$143	+\$4,287	+\$0	>1	+\$3,629	+\$6,494	>1
11	PG&E	-\$(\$426)	+\$447	+\$21	+\$630	+\$0	>1	+\$1,623	+\$6,504	>1
12	PG&E	-\$(\$362)	+\$456	+\$94	+\$2,828	+\$0	>1	+\$2,196	+\$6,525	>1
13	PG&E	-\$(\$370)	+\$413	+\$43	+\$1,280	+\$0	>1	+\$1,677	+\$6,509	>1
14	SCE/SoCalGas	-\$(\$416)	+\$413	-\$(\$4)	-\$(\$107)	+\$0	0	+\$2,198	+\$6,520	>1
14	SDG&E	-\$(\$391)	+\$469	+\$79	+\$2,356	+\$0	>1	+\$2,198	+\$6,520	>1
15	SCE/SoCalGas	-\$(\$98)	+\$194	+\$97	+\$2,900	+\$0	>1	+\$2,456	+\$6,483	>1
16	PG&E	-\$(\$878)	+\$712	-\$(\$166)	-\$(\$4,969)	+\$0	0	-\$(\$8,805)	+\$6,529	0.7

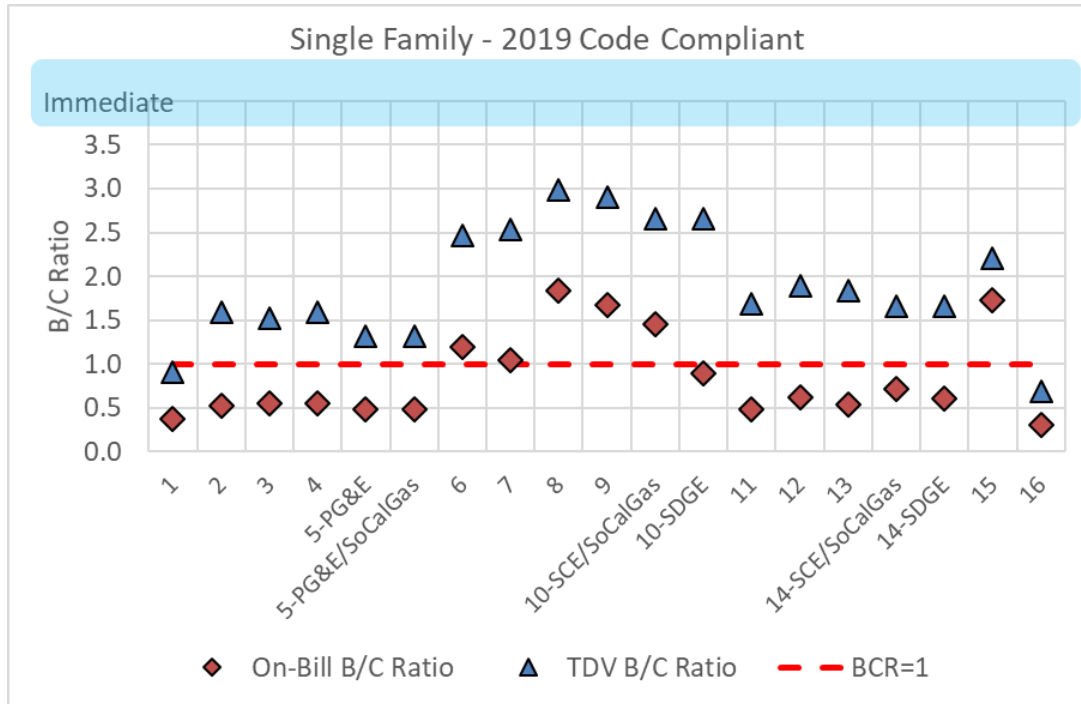
¹Red values in parentheses indicate an increase in utility bill costs or an incremental first cost for the all-electric home.

²">1" indicates cases where there are both first cost savings and annual utility bill savings.



Table 15: Comparison of Single Family On-Bill Cost Effectiveness Results with Additional PV

CZ	Utility	Neutral Cost				Min. Cost Effectiveness			
		PV Capacity (kW)	Utility Bill Savings	Equipment Cost Savings	On-Bill B/C Ratio	PV Capacity (kW)	Utility Bill Savings	Equipment Cost Savings	On-Bill B/C Ratio
01	PG&E	4.7	-\$4,704	+\$0	0	6.3	+\$6,898	-\$6,372	1.1
14	SCE/SoCalGas	4.5	-\$107	+\$0	0	4.8	+\$1,238	-\$1,000	1.2
16	PG&E	4.1	-\$4,969	+\$0	0	5.3	+\$5,883	-\$4,753	1.2

**Figure 9: B/C ratio results for a single family all-electric code compliant home versus a mixed fuel code compliant home**

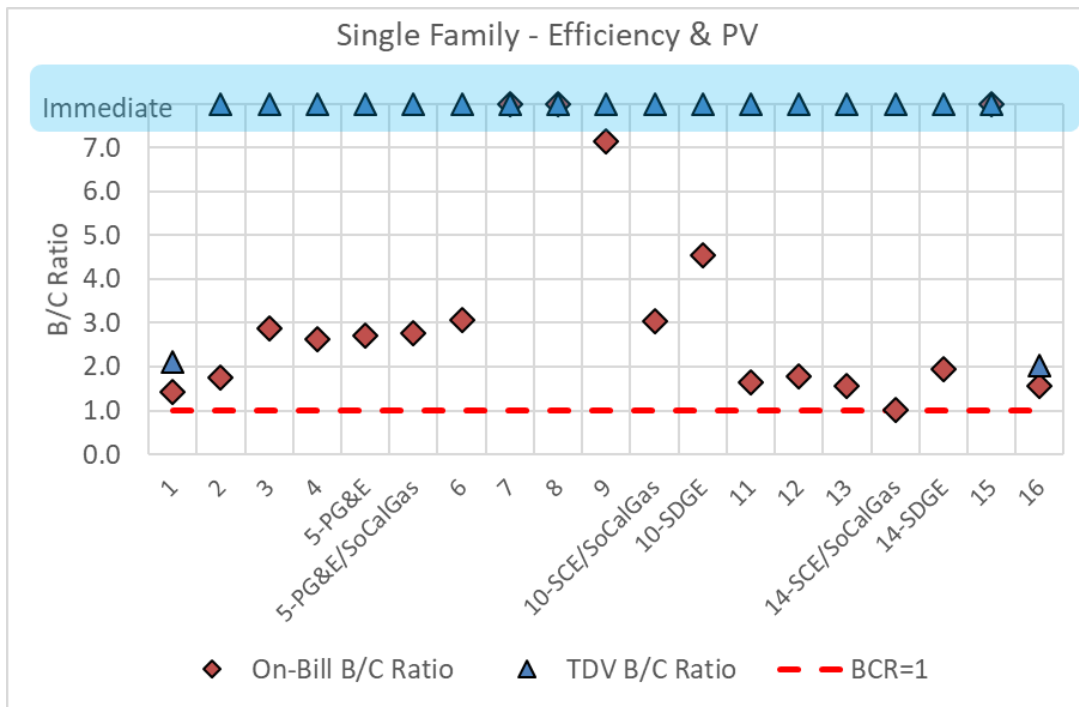


Figure 10: B/C ratio results for the single family Efficiency & PV all-electric home versus a mixed fuel code compliant home

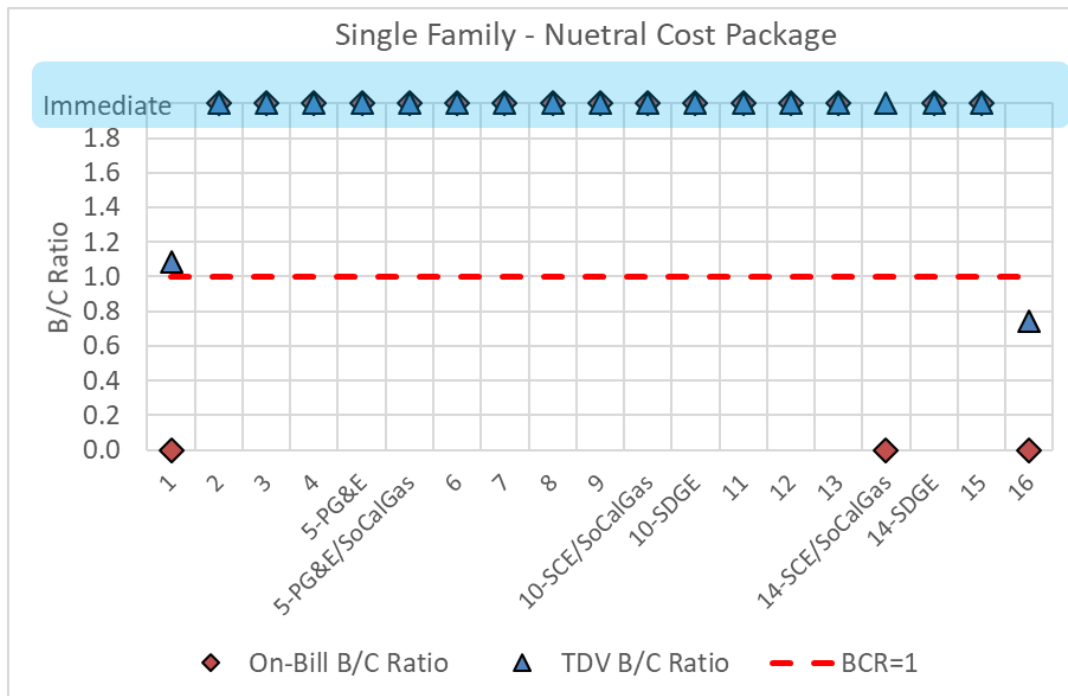


Figure 11: B/C ratio results for the single family neutral cost package all-electric home versus a mixed fuel code compliant home



Table 16: Multifamily Electrification Results (Per Dwelling Unit)

		On-Bill Cost-effectiveness ¹						TDV Cost-effectiveness		
		Average Annual Utility Bill Savings			Lifetime NPV			Lifetime NPV		
				Net		Equipment	On-Bill		Equipment	TDV
			Natural	Utility	Utility	Cost	B/C		Cost	B/C
CZ	Utility	Electricity	Gas	Savings	Savings	Savings	Ratio ²	TDV Cost Savings	Savings	Ratio
	2019 Code Compliant Home									
01	PG&E	-\$(\$396)	+\$193	-\$(\$203)	-\$(\$6,079)	+\$2,337	0.4	-\$(\$5,838)	+\$5,899	1.0
02	PG&E	-\$(\$310)	+\$162	-\$(\$148)	-\$(\$4,450)	+\$2,337	0.5	-\$(\$4,144)	+\$5,899	1.4
03	PG&E	-\$(\$277)	+\$142	-\$(\$135)	-\$(\$4,041)	+\$2,337	0.6	-\$(\$4,035)	+\$5,899	1.5
04	PG&E	-\$(\$264)	+\$144	-\$(\$120)	-\$(\$3,595)	+\$2,337	0.6	-\$(\$3,329)	+\$5,899	1.8
05	PG&E	-\$(\$297)	+\$140	-\$(\$157)	-\$(\$4,703)	+\$2,337	0.5	-\$(\$4,604)	+\$5,899	1.3
05	PG&E/SoCalGas	-\$(\$297)	+\$178	-\$(\$119)	-\$(\$3,573)	+\$2,337	0.7	-\$(\$4,604)	+\$5,899	1.3
06	SCE/SoCalGas	-\$(\$191)	+\$161	-\$(\$30)	-\$(\$902)	+\$2,337	2.6	-\$(\$2,477)	+\$5,899	2.4
07	SDG&E	-\$(\$206)	+\$136	-\$(\$70)	-\$(\$2,094)	+\$2,337	1.1	-\$(\$2,390)	+\$5,899	2.5
08	SCE/SoCalGas	-\$(\$169)	+\$157	-\$(\$12)	-\$(\$349)	+\$2,337	6.7	-\$(\$2,211)	+\$5,899	2.7
09	SCE/SoCalGas	-\$(\$177)	+\$159	-\$(\$18)	-\$(\$533)	+\$2,337	4.4	-\$(\$2,315)	+\$5,899	2.5
10	SCE/SoCalGas	-\$(\$183)	+\$159	-\$(\$23)	-\$(\$697)	+\$2,337	3.4	-\$(\$2,495)	+\$5,899	2.4
10	SDG&E	-\$(\$245)	+\$139	-\$(\$106)	-\$(\$3,192)	+\$2,337	0.7	-\$(\$2,495)	+\$5,899	2.4
11	PG&E	-\$(\$291)	+\$153	-\$(\$138)	-\$(\$4,149)	+\$2,337	0.6	-\$(\$4,420)	+\$5,899	1.3
12	PG&E	-\$(\$277)	+\$155	-\$(\$122)	-\$(\$3,665)	+\$2,337	0.6	-\$(\$3,557)	+\$5,899	1.7
13	PG&E	-\$(\$270)	+\$146	-\$(\$124)	-\$(\$3,707)	+\$2,337	0.6	-\$(\$3,821)	+\$5,899	1.5
14	SCE/SoCalGas	-\$(\$255)	+\$187	-\$(\$69)	-\$(\$2,062)	+\$2,337	1.1	-\$(\$3,976)	+\$5,899	1.5
14	SDG&E	-\$(\$328)	+\$175	-\$(\$154)	-\$(\$4,607)	+\$2,337	0.5	-\$(\$3,976)	+\$5,899	1.5
15	SCE/SoCalGas	-\$(\$154)	+\$142	-\$(\$12)	-\$(\$367)	+\$2,337	6.4	-\$(\$2,509)	+\$5,899	2.4
16	PG&E	-\$(\$404)	+\$224	-\$(\$180)	-\$(\$5,411)	+\$2,337	0.4	-\$(\$5,719)	+\$5,899	1.0
	Efficiency & PV Package									
01	PG&E	-\$(\$19)	+\$193	+\$174	+\$5,230	-\$(\$3,202)	1.6	+\$2,467	+\$361	>1
02	PG&E	-\$(\$10)	+\$162	+\$152	+\$4,549	-\$(\$1,375)	3.3	+\$2,605	+\$2,187	>1
03	PG&E	-\$(\$12)	+\$142	+\$130	+\$3,910	-\$(\$936)	4.2	+\$1,632	+\$2,626	>1
04	PG&E	-\$(\$8)	+\$144	+\$136	+\$4,080	-\$(\$822)	5.0	+\$2,381	+\$2,740	>1
05	PG&E	-\$(\$19)	+\$140	+\$121	+\$3,635	-\$(\$956)	3.8	+\$1,403	+\$2,606	>1
05	PG&E/SoCalGas	-\$(\$19)	+\$178	+\$159	+\$4,765	-\$(\$956)	5.0	+\$1,403	+\$2,606	>1
06	SCE/SoCalGas	-\$(\$84)	+\$161	+\$77	+\$2,309	-\$(\$243)	9.5	+\$1,940	+\$3,319	>1
07	SDG&E	-\$(\$49)	+\$136	+\$87	+\$2,611	+\$75	>1	+\$1,583	+\$3,638	>1
08	SCE/SoCalGas	-\$(\$74)	+\$157	+\$83	+\$2,480	+\$96	>1	+\$1,772	+\$3,658	>1
09	SCE/SoCalGas	-\$(\$76)	+\$159	+\$82	+\$2,469	+\$104	>1	+\$1,939	+\$3,667	>1
10	SCE/SoCalGas	-\$(\$79)	+\$159	+\$80	+\$2,411	-\$(\$34)	70.9	+\$1,737	+\$3,528	>1
10	SDG&E	-\$(\$77)	+\$139	+\$61	+\$1,842	-\$(\$34)	54.2	+\$1,737	+\$3,528	>1
11	PG&E	-\$(\$25)	+\$153	+\$128	+\$3,834	-\$(\$1,264)	3.0	+\$2,080	+\$2,298	>1
12	PG&E	-\$(\$11)	+\$155	+\$144	+\$4,316	-\$(\$1,498)	2.9	+\$2,759	+\$2,064	>1
13	PG&E	-\$(\$26)	+\$146	+\$121	+\$3,625	-\$(\$1,125)	3.2	+\$2,083	+\$2,437	>1
14	SCE/SoCalGas	-\$(\$99)	+\$187	+\$87	+\$2,616	-\$(\$1,019)	2.6	+\$2,422	+\$2,543	>1
14	SDG&E	-\$(\$86)	+\$175	+\$88	+\$2,647	-\$(\$1,019)	2.6	+\$2,422	+\$2,543	>1
15	SCE/SoCalGas	-\$(\$67)	+\$142	+\$75	+\$2,247	+\$511	>1	+\$1,276	+\$4,073	>1
16	PG&E	-\$(\$24)	+\$224	+\$200	+\$5,992	-\$(\$2,087)	2.9	+\$2,629	+\$1,476	>1



		On-Bill Cost-effectiveness ¹						TDV Cost-effectiveness		
		Average Annual Utility Bill Savings			Lifetime NPV			Lifetime NPV		
			Natural Gas	Net Utility Savings	Utility Bill Savings	Equipment Cost Savings	On-Bill B/C	TDV Cost Savings	Equipment Cost Savings	TDV B/C
CZ	Utility	Electricity	Gas	Savings	Savings	Savings	Ratio ²	Savings	Savings	Ratio
	Neutral Cost Package									
01	PG&E	-\$228	+\$193	-\$35)	-\$1,057)	+\$0	0	-\$2,267)	+\$3,564	1.6
02	PG&E	-\$115)	+\$162	+\$47	+\$1,399	+\$0	>1	+\$59	+\$3,563	>1
03	PG&E	-\$81)	+\$142	+\$61	+\$1,843	+\$0	>1	+\$138	+\$3,562	>1
04	PG&E	-\$64)	+\$144	+\$80	+\$2,402	+\$0	>1	+\$983	+\$3,563	>1
05	PG&E	-\$90)	+\$140	+\$50	+\$1,490	+\$0	>1	-\$152)	+\$3,564	23.4
05	PG&E/SoCalGas	-\$90)	+\$178	+\$87	+\$2,620	+\$0	>1	-\$152)	+\$3,564	23.4
06	SCE/SoCalGas	-\$90)	+\$161	+\$71	+\$2,144	+\$0	>1	+\$1,612	+\$3,562	>1
07	SDG&E	-\$32)	+\$136	+\$105	+\$3,135	+\$0	>1	+\$1,886	+\$3,560	>1
08	SCE/SoCalGas	-\$67)	+\$157	+\$90	+\$2,705	+\$0	>1	+\$1,955	+\$3,564	>1
09	SCE/SoCalGas	-\$71)	+\$159	+\$87	+\$2,623	+\$0	>1	+\$1,924	+\$3,561	>1
10	SCE/SoCalGas	-\$78)	+\$159	+\$81	+\$2,431	+\$0	>1	+\$1,588	+\$3,561	>1
10	SDG&E	-\$71)	+\$139	+\$68	+\$2,033	+\$0	>1	+\$1,588	+\$3,561	>1
11	PG&E	-\$93)	+\$153	+\$59	+\$1,783	+\$0	>1	-\$48)	+\$3,562	74.0
12	PG&E	-\$82)	+\$155	+\$73	+\$2,184	+\$0	>1	+\$739	+\$3,564	>1
13	PG&E	-\$79)	+\$146	+\$68	+\$2,034	+\$0	>1	+\$310	+\$3,560	>1
14	SCE/SoCalGas	-\$141)	+\$187	+\$45	+\$1,359	+\$0	>1	+\$747	+\$3,562	>1
14	SDG&E	-\$137)	+\$175	+\$38	+\$1,131	+\$0	>1	+\$747	+\$3,562	>1
15	SCE/SoCalGas	-\$50)	+\$142	+\$92	+\$2,771	+\$0	>1	+\$1,738	+\$3,560	>1
16	PG&E	-\$194)	+\$224	+\$30	+\$900	+\$0	>1	-\$1,382)	+\$3,564	2.6

¹Red values in parentheses indicate an increase in utility bill costs or an incremental first cost for the all-electric home.

²">1" indicates cases where there are both first cost savings and annual utility bill savings.

Table 17: Comparison of Multifamily On-Bill Cost Effectiveness Results with Additional PV (Per Dwelling Unit)

CZ	Utility	Neutral Cost				Min. Cost Effectiveness			
		PV Capacity (kW)	Utility Bill Savings	Equipment Cost Savings	On-Bill B/C Ratio	PV Capacity (kW)	Utility Bill Savings	Equipment Cost Savings	On-Bill B/C Ratio
01	PG&E	2.7	-(\$1,057)	+\$0	0	3.0	+\$1,198	-(\$1,052)	1.1



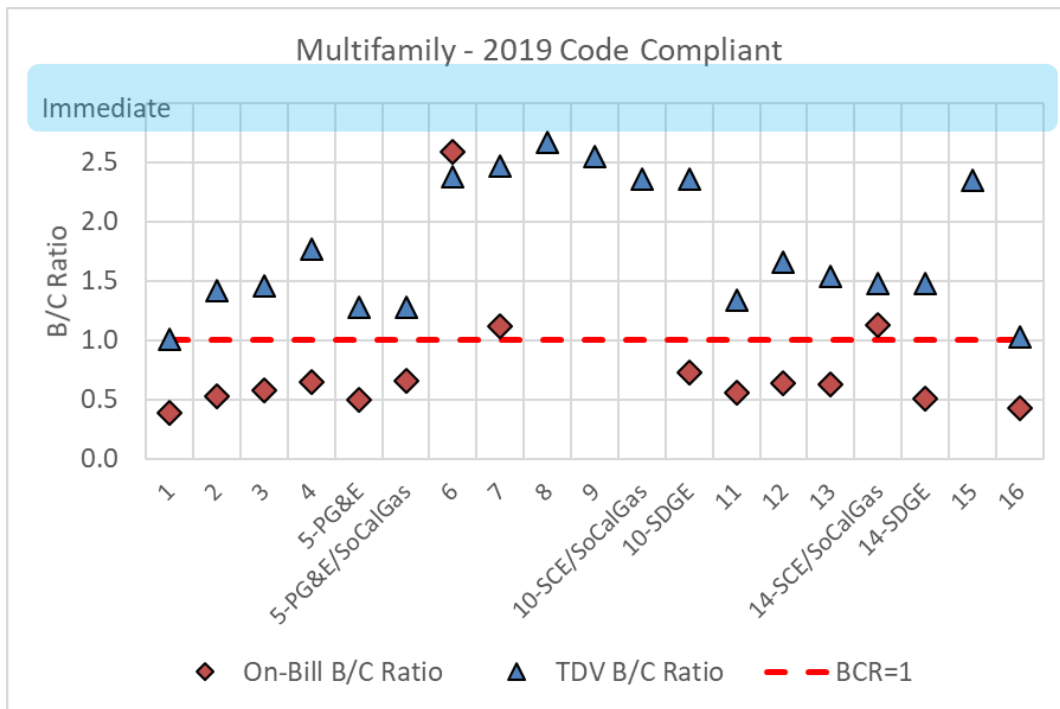


Figure 12: B/C ratio results for a multifamily all-electric code compliant home versus a mixed fuel code compliant home

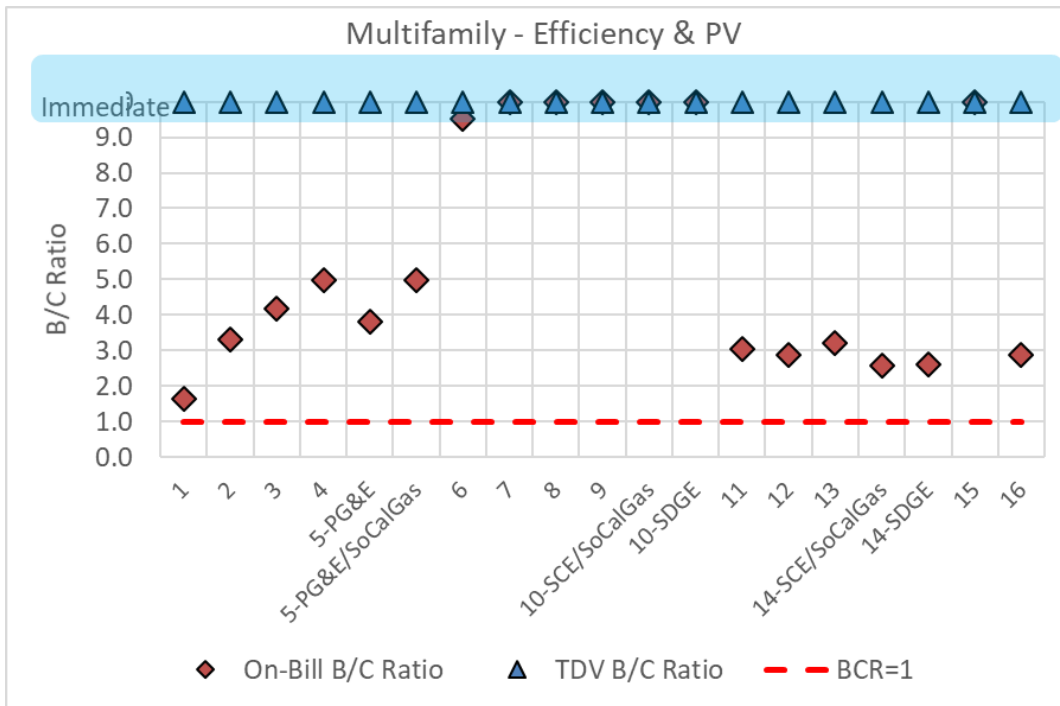


Figure 13: B/C ratio results for the multifamily Efficiency & PV all-electric home versus a mixed fuel code compliant home



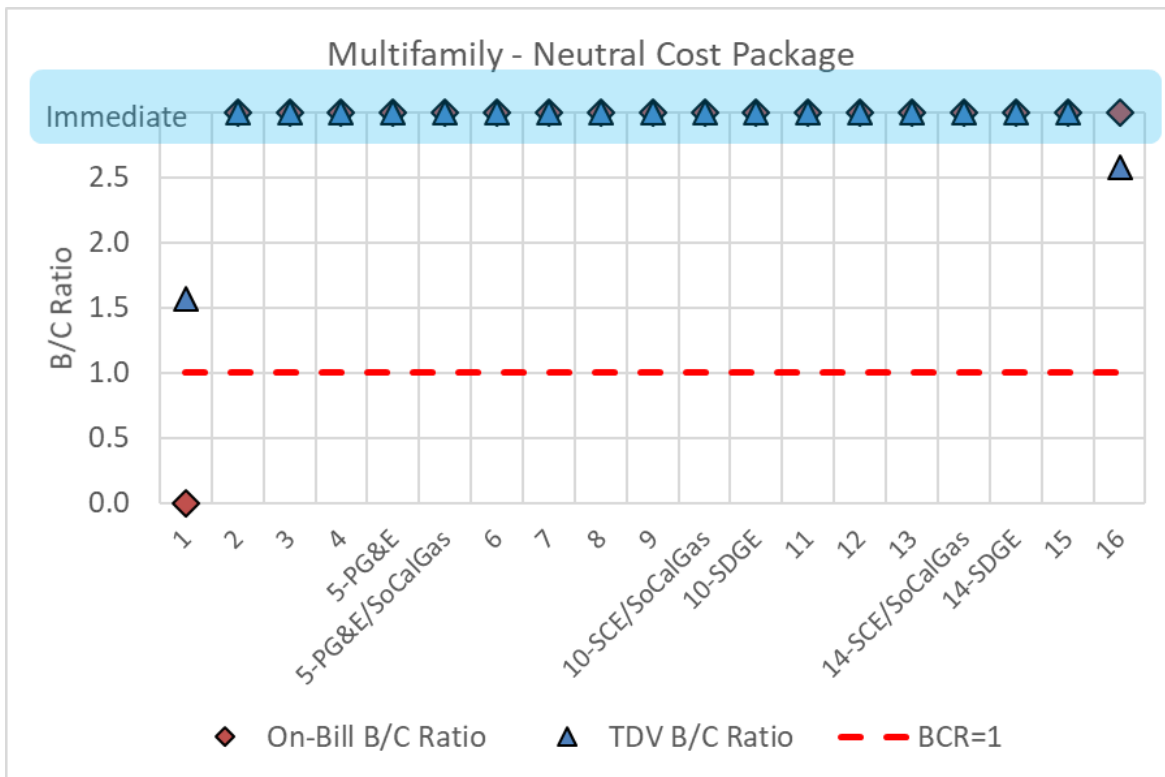


Figure 14: B/C ratio results for the multifamily neutral cost package all-electric home versus a mixed fuel code compliant home

4 Conclusions & Summary

This report evaluated the feasibility and cost-effectiveness of “above code” performance specifications through the application of efficiency measures, PV, and electric battery storage in all 16 California climate zones. The analysis found cost-effective packages across the state for both single family and low-rise multifamily buildings. For the building types and climate zones where cost-effective packages were identified, the results of this analysis can be used by local jurisdictions to support the adoption of reach codes. Cost-effectiveness was evaluated according to two metrics: On-Bill customer lifecycle benefit-to-cost and TDV lifecycle benefit-to-cost. While all the above code targets presented are based on packages that are cost-effective under at least one of these metrics, they are not all cost-effective under both metrics. Generally, the test for being cost-effective under the TDV methodology is less challenging than under the On-Bill methodology. Therefore, all packages presented are cost-effective based on TDV, and may or may not be cost-effective based on the On-Bill method. It is up to each jurisdiction to determine what metric is most appropriate for their application. A summary of results by climate zone are presented in Appendix G – Results by Climate Zone.

Above code targets are presented as Target EDR Margin, which have been defined for each scenario where a cost-effective package was identified. Target EDR Margins represent the maximum “reach” values that meet the requirements. Jurisdictions may adopt less stringent requirements. For the Efficiency Package the Target EDR Margin was defined based on the lower EDR Margin of the Efficiency – Non-Preempted Package and the Efficiency – Equipment, Preempted Package. For example, if the cost-effective Non-Preempted package has an EDR Margin of 3 and the Preempted package an EDR Margin of 4, the Target EDR Margin is set at 3.

The average incremental cost for the single family Efficiency packages is ~\$1,750. The Efficiency & PV Package average incremental cost is \$9,180 and for the Efficiency & PV/Battery Package it is approximately \$5,600 for the

mixed fuel cases and \$15,100 for the all-electric cases. The incremental costs for each multifamily apartment are approximately 30-40% lower. See Table 8 and Table 11 for a summary of package costs by case.

Table 18 and Table 19 summarize the maximum Target EDR Margins determined to be cost effective for each package for single family and multifamily, respectively. Cases labeled as “n/a” in the tables indicate where no cost-effective package was identified under either On-Bill or TDV methodology.

This analysis also looked at the GHG emissions impacts of the various packages. An all-electric design reduces GHG emissions 40-50% in most cases relative to a comparable mixed fuel design.

There is significant interest throughout California on electrification of new buildings. The Reach Code Team assembled data on the cost differences between a code compliant mixed fuel building and a code compliant all-electric building. Based on lifetime equipment cost savings (the difference in first cost for equipment and infrastructure combined with incremental replacement costs) of \$5,349 for an all-electric single family home this analysis found that from a customer on-bill perspective, the all-electric code compliant option is cost-effective in Climates Zones 6 through 9, 10 (SCE/SoCalGas territory only), and 15, and cost-effective in all climate zones except 1 and 16 based on TDV. For multifamily buildings, based on a cost savings of \$2,337 per apartment, the code compliant option is cost-effective in Climates Zones 6 through 9, 10 & 14 (SCE/SoCalGas territory only), and 15, and cost-effective based on TDV.

Adding efficiency and PV to the code compliant all-electric buildings increases the cost-effectiveness in all climate zones. The Efficiency & PV Package is cost-effective when compared to a mixed fuel code compliant building in all climate zones for both single family and multifamily buildings based on both the On-Bill and TDV methodologies. The Efficiency & PV package adds PV to offset 90% of the electricity use of the home. While this results in higher installed costs, the reduced lifetime utility costs are larger (\$0 to \$6,000 lifetime incremental equipment costs in many climates for single family homes and an associated \$4,500 to \$13,500 lifetime utility cost savings across the same cases), resulting in positive B/C ratios for all cases.

The Reach Code Team also evaluated a neutral cost electrification scenario where the cost savings for the all-electric code compliant home is invested in a larger PV system, resulting in a lifetime incremental cost of zero based on the On-Bill approach. This package results in utility cost savings and positive on-bill B/C ratio in all cases except Climate Zones 1 and 16 for single family, and Climate Zone 1 for low-rise multifamily. Increasing the PV sizes in those climates by approximately 30% resulted in positive on-bill B/C ratios, while still not resulting in oversizing of PV systems.

Other studies have shown that cost-effectiveness of electrification increases with high efficiency space conditioning and water heating equipment in the all-electric home. This was not directly evaluated in this analysis but based on the favorable cost-effectiveness results of the Equipment, Preempted package for the individual mixed fuel and all-electric upgrades it's expected that applying similar packages to the electrification analysis would result in increased cost-effectiveness.

The Reach Code Team found there can be substantial variability in first costs, particularly related to natural gas infrastructure. Costs are project-dependent and will be impacted by such factors as site characteristics, distance to the nearest gas main, joint trenching, whether work is conducted by the utility or a private contractor, and number of homes per development among other things. While the best cost data available to the Reach Code Team was applied in this analysis, individual projects may experience different costs, either higher or lower than the estimates presented here.



Table 18: Summary of Single Family Target EDR Margins

Climate Zone	Mixed Fuel		All-Electric		
	Efficiency	Efficiency & PV/Battery	Efficiency	Efficiency & PV	Efficiency & PV/Battery
01	5.0	10.5	6.5	31.0	41.0
02	3.0	10.0	4.5	19.0	30.0
03	2.5	10.0	4.0	18.0	29.0
04	2.5	10.0	3.0	17.0	28.5
05	2.5	9.0	4.0	18.0	28.5
06	1.5	9.5	2.0	14.0	26.0
07	n/a	9.0	n/a	11.0	24.0
08	1.0	8.0	1.5	10.5	21.5
09	2.5	8.5	2.5	11.5	21.0
10	3.0	9.5	3.0	11.0	21.0
11	4.0	9.0	4.5	14.0	23.0
12	3.0	9.5	3.5	15.5	25.0
13	4.5	9.5	5.0	13.0	22.0
14	4.5	9.0	5.5	15.5	23.5
15	4.5	7.0	5.5	6.0	13.0
16	5.0	10.5	4.5	26.5	35.0

Table 19: Summary of Multifamily Target EDR Margins

Climate Zone	Mixed Fuel		All-Electric		
	Efficiency	Efficiency & PV/Battery	Efficiency	Efficiency & PV	Efficiency & PV/Battery
01	2.0	11.5	3.0	22.5	34.5
02	1.5	10.5	1.5	17.5	30.5
03	0.5	10.0	n/a	16.0	29.5
04	1.0	11.0	1.0	15.0	28.5
05	0.5	9.5	0.5	17.0	30.0
06	1.0	10.5	1.0	13.5	27.5
07	0.5	11.0	0.5	12.5	27.0
08	1.0	9.5	1.0	11.5	24.0
09	1.5	9.5	1.5	11.0	23.0
10	1.5	10.0	1.5	10.5	23.0
11	2.5	10.5	3.5	13.0	25.0
12	1.5	10.0	2.5	14.0	26.5
13	3.0	10.5	3.0	12.0	23.5
14	3.0	9.5	3.5	14.0	24.5
15	4.0	8.5	4.0	7.0	16.5
16	2.0	9.5	3.0	19.5	29.5



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Appendix A – California Climate Zone Map

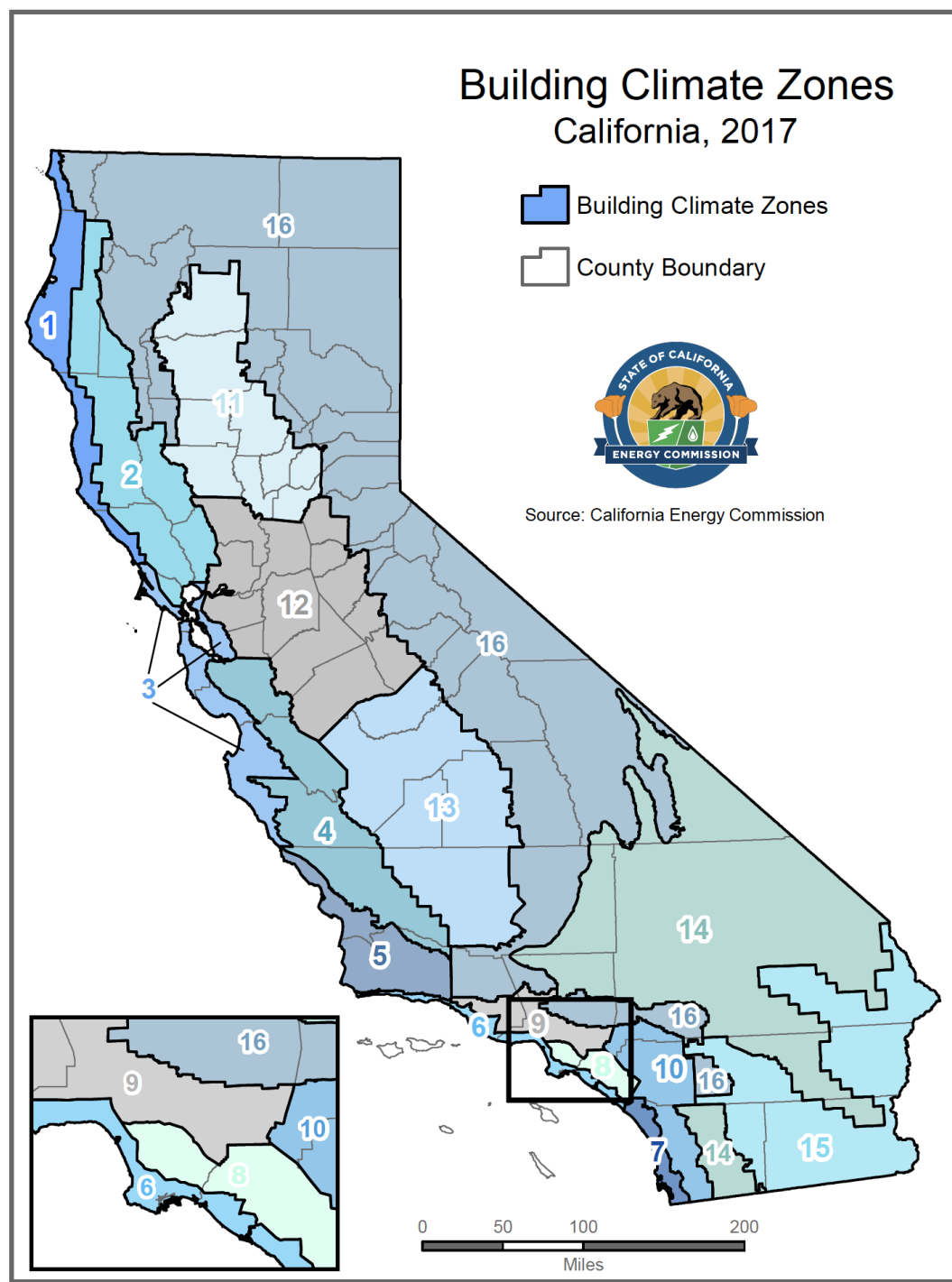


Figure 15: Map of California Climate Zones (courtesy of the California Energy Commission¹⁷)

¹⁷ https://ww2.energy.ca.gov/maps/renewable/building_climate_zones.html

Appendix B – Utility Tariff Details

PG&E	48
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Escalation Assumptions	56



PG&E

The following pages provide details on the PG&E electricity and natural gas tariffs applied in this study. Table 20 describes the baseline territories that were assumed for each climate zone.

Table 20: PG&E Baseline Territory by Climate Zone

	Baseline Territory
CZ01	V
CZ02	X
CZ03	T
CZ04	X
CZ05	T
CZ11	R
CZ12	S
CZ13	R
CZ16	Y

The PG&E monthly gas rate in \$/therm was applied on a monthly basis for the 12-month period ending January 2019 according to the rates shown below.

Pacific Gas and Electric Company							
Residential Non-CARE and CARE Gas Tariff Rates							
January 1, 2018, to Present							
(\$/therm) ^{1/}							
Effective Date	Advice Letter Number	Minimum Transportation Charge ^{2/} (per day)	Procurement Charge	Transportation Charge ^{2/}		TOTAL Residential Non-CARE Schedules Charge ^{3/}	
				Baseline	Excess	Baseline	Excess
01/01/18	3918-G	\$0.09863	\$0.37310	\$0.91828	\$1.46925	\$1.29138	\$1.84235
02/01/18	3931-G	\$0.09863	\$0.40635	\$0.91828	\$1.46925	\$1.32463	\$1.87560
03/01/18	3941-G	\$0.09863	\$0.32103	\$0.91828	\$1.46925	\$1.23931	\$1.79028
04/01/18	3959-G	\$0.09863	\$0.34783	\$0.91828	\$1.46925	\$1.26611	\$1.81708
05/01/18	3969-G	\$0.09863	\$0.26995	\$0.91828	\$1.46925	\$1.18823	\$1.73920
06/01/18	3980-G	\$0.09863	\$0.21571	\$0.91828	\$1.46925	\$1.13399	\$1.68496
07/01/18	3984-G	\$0.09863	\$0.22488	\$0.93438	\$1.49502	\$1.15926	\$1.71990
08/01/18	3995-G	\$0.09863	\$0.28814	\$0.93438	\$1.49502	\$1.22252	\$1.78316
09/01/18	4008-G	\$0.09863	\$0.25597	\$0.93438	\$1.49502	\$1.19035	\$1.75099
10/01/18	4018-G	\$0.09863	\$0.27383	\$0.93438	\$1.49502	\$1.20821	\$1.76885
11/01/18	4034-G	\$0.09863	\$0.35368	\$0.93438	\$1.49502	\$1.28806	\$1.84870
12/01/18	4046-G	\$0.09863	\$0.42932	\$0.93438	\$1.49502	\$1.36370	\$1.92434
01/01/19	4052-G	\$0.09863	\$0.43394 ^{7/}	\$0.99414	\$1.59063	\$1.42808	\$2.02457

^{1/} Unless otherwise noted

^{2/} Effective July 1, 2005, the Transportation Charge will be no less than the Minimum Transportation Charge of \$0.09863 (per day). Applicable to Rate Schedule G-1 only and does not apply to submetered tenants of master-metered customers served under gas Rate Schedule GS and GT.

^{3/} Schedule G-PPPS (Public Purpose Program Surcharge) needs to be added to the TOTAL Non-CARE Charge and TOTAL CARE Charge for bill calculation. See Schedule G-PPPS for details and exempt customers.

^{4/} CARE Schedules include California Solar Initiative (CSI) Exemption in accordance with Advice Letter 3257-G-A.

^{5/} Per dwelling unit per day (Multifamily Service)

^{6/} Per installed space per day (Mobilehome Park Service)

^{7/} This procurement rate includes a charge of \$0.03686 per therm to reflect account balance amortizations in accordance with Advice Letter 3157-G.

^{8/} Residential bill credit of (\$29.85) per household, annual bill credit occurring in the October 2018 bill cycle, thereafter in the April bill cycle.

Seasons: Winter = Nov-Mar Summer = April-Oct





**Pacific Gas and
Electric Company**
U 39 San Francisco, California

Cancelling

Revised
RevisedCal. P.U.C. Sheet No. 43533-E
Cal. P.U.C. Sheet No. 42728-E

**ELECTRIC SCHEDULE E-TOU
RESIDENTIAL TIME-OF-USE SERVICE**

Sheet 4

RATES:
(Cont'd.)

OPTION B TOTAL RATES

Total Energy Rates (\$ per kWh)	PEAK	OFF-PEAK
Summer (all usage)	\$0.37188 (R)	\$0.26882 (R)
Winter (all usage)	\$0.23441 (R)	\$0.21561 (R)

Delivery Minimum Bill Amount (\$ per meter per day) \$0.32854

California Climate Credit (per household, per semi-annual payment occurring in the April and October bill cycles) (\$39.42)

Total bundled service charges shown on customer's bills are unbundled according to the component rates shown below. Where the delivery minimum bill amount applies, the customer's bill will equal the sum of (1) the delivery minimum bill amount plus (2) for bundled service, the generation rate times the number of kWh used. For revenue accounting purposes, the revenues from the delivery minimum bill amount will be assigned to the Transmission, Transmission Rate Adjustments, Reliability Services, Public Purpose Programs, Nuclear Decommissioning, Competition Transition Charges, Energy Cost Recovery Amount, DWR Bond, and New System Generation Charges based on kWh usage times the corresponding unbundled rate component per kWh, with any residual revenue assigned to Distribution.***

UNBUNDLING OF OPTION B TOTAL RATES

Generation	PEAK	OFF-PEAK
Summer (all usage)	\$0.21238	\$0.10932
Winter (all usage)	\$0.10554	\$0.08674
Distribution**		
Summer (all usage)	\$0.10716 (R)	\$0.10716 (R)
Winter (all usage)	\$0.07653 (R)	\$0.07653 (R)
Transmission* (all usage)	\$0.02469 (R)	
Transmission Rate Adjustments* (all usage)	\$0.00214	
Reliability Services* (all usage)	\$0.00260	
Public Purpose Programs (all usage)	\$0.01413	
Nuclear Decommissioning (all usage)	\$0.00020	
Competition Transition Charges (all usage)	\$0.00132	
Energy Cost Recovery Amount (all usage)	(\$0.00005)	
DWR Bond (all usage)	\$0.00503 (R)	
New System Generation Charge (all usage)**	\$0.00228	

* Transmission, Transmission Rate Adjustments and Reliability Service charges are combined for presentation on customer bills.

** Distribution and New System Generation Charges are combined for presentation on customer bills.

*** This same assignment of revenues applies to direct access and community choice aggregation customers.

(Continued)

Advice	5444-E	Issued by	Submitted	December 18, 2018
Decision	18-08-013	Robert S. Kenney	Effective	January 1, 2019
		Vice President, Regulatory Affairs	Resolution	





Revised Cal. P.U.C. Sheet No. 34735-G
 Cancelling Revised Cal. P.U.C. Sheet No. 34691-G

**GAS SCHEDULE G-1
 RESIDENTIAL SERVICE**

Sheet 1

APPLICABILITY: This rate schedule¹ applies to natural gas service to Core End-Use Customers on PG&E's Transmission and/or Distribution Systems. To qualify, service must be to individually-metered single family premises for residential use, including those in a multifamily complex, and to separately-metered common areas in a multifamily complex where Schedules GM, GS, or GT are not applicable. Common area accounts that are separately metered by PG&E have an option of switching to a core commercial rate schedule. Common area accounts are those accounts that provide gas service to common use areas as defined in Rule 1.

Per D.15-10-032 and D.18-03-017, transportation rates include GHG Compliance Cost for non-covered entities. Customers who are directly billed by the Air Resources Board (ARB), i.e., covered entities, are exempt from paying AB 32 GHG Compliance Costs through PG&E's rates.² A "Cap-and-Trade Cost Exemption" credit for these costs will be shown as a line item on exempt customers' bills.^{3,4}

TERRITORY: Schedule G-1 applies everywhere within PG&E's natural gas Service Territory.

RATES: Customers on this schedule pay a Procurement Charge and a Transportation Charge, per meter, as shown below. The Transportation Charge will be no less than the Minimum Transportation Charge, as follows:

<u>Minimum Transportation Charge:</u> ⁵		<u>Per Day</u>	
		\$0.09863	
		<u>Per Therm</u>	
	<u>Baseline</u>		<u>Excess</u>
<u>Procurement:</u>	\$0.43394 (I)		\$0.43394 (I)
<u>Transportation Charge:</u>	\$0.99414 (I)		\$1.59063 (I)
<u>Total:</u>	\$1.42808 (I)		\$2.02457 (I)
California Natural Gas Climate Credit (per Household, annual payment occurring in October 2018 bill cycle, and thereafter in the April bill cycle)	(\$25.45) (I)		

Public Purpose Program Surcharge:

Customers served under this schedule are subject to a gas Public Purpose Program (PPP) Surcharge under Schedule G-PPPS.

See Preliminary Statement, Part B for the Default Tariff Rate Components.

The Procurement Charge on this schedule is equivalent to the rate shown on informational Schedule G-CP—Gas Procurement Service to Core End-Use Customers.

¹ PG&E's gas tariffs are available online at www.pge.com.

² Covered entities are not exempt from paying costs associated with LUAF Gas and Gas used by Company Facilities.

³ The exemption credit will be equal to the effective non-exempt AB 32 GHG Compliance Cost Rate (\$ per therm) included in Preliminary Statement – Part B, multiplied by the customer's billed volumes (therms) for each billing period.

⁴ PG&E will update its billing system annually to reflect newly exempt or newly excluded customers to conform with lists of Directly Billed Customers provided annually by the ARB.

⁵ The Minimum Transportation charge does not apply to submetered tenants of master-metered customers served under gas rate Schedules GS and GT.

(Continued)

<i>Advice</i>	4052-G	<i>Issued by</i>	<i>Submitted</i>	<i>December 21, 2018</i>
<i>Decision</i>	97-10-065 & 98-07-025	<i>Robert S. Kenney</i>	<i>Effective</i>	<i>January 1, 2019</i>
		<i>Vice President, Regulatory Affairs</i>	<i>Resolution</i>	



SCE

The following pages provide details on are the SCE electricity tariffs applied in this study. Table 21 describes the baseline territories that were assumed for each climate zone.

Table 21: SCE Baseline Territory by Climate Zone

	Baseline Territory
CZ06	6
CZ08	8
CZ09	9
CZ10	10
CZ14	14
CZ15	15

	Delivery	Generation	Total Rate
TOU-Default-Rate-1 (On-Peak 4:00 pm - 9:00 pm)			
Energy Charge - \$/kWh			
Summer Season - On-Peak	0.19880	0.20072	0.39952
Mid-Peak	0.19880	0.05948	0.25828
Off-Peak	0.15574	0.06023	0.21597
Winter Season - Mid-Peak	0.19880	0.08308	0.28188
Off-Peak	0.15574	0.11309	0.26883
Super-Off-Peak	0.15062	0.01344	0.16406
Basic Charge - \$/day			
Single-Family Residence	0.031	0.000	0.031
Multi-Family Residence	0.024	0.000	0.024
Minimum Charge - \$/day			
Single Family Residence	0.338	0.000	0.338
Multi-Family Residence	0.338	0.000	0.338
Baseline Credit - \$/kWh	(0.06512)	0.00000	(0.06512)



	Delivery	Generation	Total Rate
TOU-D-Rate PRIME			
Energy Charge - \$/kWh			
Summer Season - On-Peak	0.15926	0.19811	0.35737
Mid-Peak	0.15926	0.10092	0.26018
Off-Peak	0.08308	0.04687	0.12995
Winter Season - Mid-Peak	0.16268	0.16761	0.33029
Off-Peak	0.08081	0.04331	0.12412
Super-Off-Peak	0.08081	0.04331	0.12412
Customer Charge - \$/day	0.395	0.000	0.395

TOU Period	Weekdays		Weekends and Holidays	
	Summer	Winter	Summer	Winter
On-Peak	4 p.m. - 9 p.m.			
Mid-Peak		4 p.m. - 9 p.m.	4 p.m. - 9 p.m.	4 p.m. - 9 p.m.
Off-Peak	All other hours	9 p.m. - 8 a.m.	All other hours	9 p.m. - 8 a.m.
Super-Off-Peak		8 a.m. - 4 p.m.		8 a.m. - 4 p.m.

PROPOSED
(7 Year Average 2010-2016)

Summer kWh per Day			Winter kWh per Day		
Baseline Region	Basic	All Electric	Baseline Region	Basic	All Electric
05	17.2	17.9	05	18.7	29.1
06	11.4	8.8	06	11.3	13.0
08	12.6	9.8	08	10.6	12.7
09	16.5	12.4	09	12.3	14.3
10	18.9	15.8	10	12.5	17.0
13	22.0	24.6	13	12.6	24.3
14	18.7	18.3	14	12.0	21.3
15	46.4	24.1	15	9.9	18.2
16	14.4	13.5	16	12.6	23.1



SoCalGas

Following are the SoCalGas natural gas tariffs applied in this study. Table 22 describes the baseline territories that were assumed for each climate zone.

Table 22: SoCalGas Baseline Territory by Climate Zone

	Baseline Territory
CZ05	2
CZ06	1
CZ08	1
CZ09	1
CZ10	1
CZ14	2
CZ15	1

SOUTHERN CALIFORNIA GAS COMPANY Revised CAL P.U.C. SHEET NO. 55854-G
LOS ANGELES, CALIFORNIA CANCELING Revised CAL P.U.C. SHEET NO. 55828-G

Schedule No. GR <u>RESIDENTIAL SERVICE</u> (Includes GR, GR-C and GT-R Rates)				Sheet 1
APPLICABILITY				
The GR rate is applicable to natural gas procurement service to individually metered residential customers.				
The GR-C, cross-over rate, is a core procurement option for individually metered residential core transportation customers with annual consumption over 50,000 therms, as set forth in Special Condition 10.				
The GT-R rate is applicable to Core Aggregation Transportation (CAT) service to individually metered residential customers, as set forth in Special Condition 11.				
The California Alternate Rates for Energy (CARE) discount of 20%, reflected as a separate line item on the bill, is applicable to income-qualified households that meet the requirements for the CARE program as set forth in Schedule No. G-CARE.				
TERRITORY				
Applicable throughout the service territory.				
RATES				
<u>Customer Charge</u> , per meter per day:	GR 16.438¢	GR-C 16.438¢	GT-R 16.438¢	
For "Space Heating Only" customers, a daily Customer Charge applies during the winter period from November 1 through April 30 ^{1/} :	33.149¢	33.149¢	33.149¢	
<u>Baseline Rate</u> , per therm (baseline usage defined in Special Conditions 3 and 4):				
Procurement Charge: ^{2/}	41.589¢	42.676¢	N/A	R
<u>Transmission Charge</u> :	63.566¢	63.566¢	63.566¢	R
Total Baseline Charge:	105.155¢	106.242¢	63.566¢	R
<u>Non-Baseline Rate</u> , per therm (usage in excess of baseline usage):				
Procurement Charge: ^{2/}	41.589¢	42.676¢	N/A	R
<u>Transmission Charge</u> :	96.806¢	96.806¢	96.806¢	R
Total Non-Baseline Charge:	138.395¢	139.482¢	96.806¢	
^{1/} For the summer period beginning May 1 through October 31, with some exceptions, usage will be accumulated to at least 20 Ccf (100 cubic feet) before billing.				
(Footnotes continue next page.)				
(Continued)				

(TO BE INSERTED BY UTILITY)

ADVICE LETTER NO. 5410
DECISION NO.

106

ISSUED BY

Dan Skopec
Vice President
Regulatory Affairs

(TO BE INSERTED BY CAL. PUC)

SUBMITTED Jan 7, 2019
EFFECTIVE Jan 10, 2019
RESOLUTION NO. G-3351




SDG&E

Following are the SDG&E electricity and natural gas tariffs applied in this study. Table 23 describes the baseline territories that were assumed for each climate zone.

Table 23: SDG&E Baseline Territory by Climate Zone

	Baseline Territory
CZ07	Coastal
CZ10	Inland
CZ14	Mountain



San Diego Gas & Electric Company
San Diego, California

Revised Cal. P.U.C. Sheet No. 31320-E

Canceling Revised Cal. P.U.C. Sheet No. 31103-E

SCHEDULE TOU-DR1
RESIDENTIAL TIME-OF-USE

Sheet 2

RATES

Total Rates:

Description – TOU DR1	UDC Total Rate	DWR-BC Rate	EECC Rate + DWR Credit	Total Rate
Summer:				
On-Peak	0.29562	R 0.00503	R 0.35013	R 0.65078
Off-Peak	0.29562	R 0.00503	R 0.11235	R 0.41300
Super Off-Peak	0.29562	R 0.00503	R 0.05739	R 0.35804
Winter:				
On-Peak	0.32037	R 0.00503	R 0.07618	R 0.40158
Off-Peak	0.32037	R 0.00503	R 0.06762	R 0.39302
Super Off-Peak	0.32037	R 0.00503	R 0.05812	R 0.38352
Summer Baseline Adjustment Credit up to 130% of Baseline	(0.19921)	I		(0.19921)
Winter Baseline Adjustment Credit up to 130% of Baseline	(0.16853)	I		(0.16853)
Minimum Bill (\$/day)	0.329			0.329

Description – TOU DR1	UDC Total Rate	DWR-BC Rate	EECC Rate + DWR Credit	Total Rate	Total Effective Care Rate
Summer – CARE					
Rates:					
On-Peak	0.29494	R 0.00000	R 0.35013	R 0.64507	R 0.41628
Off-Peak	0.29494	R 0.00000	R 0.11235	R 0.40729	R 0.26077
Super Off-Peak	0.29494	R 0.00000	R 0.05739	R 0.35233	R 0.22483
Winter – CARE					
Rates:					
On-Peak	0.31969	R 0.00000	R 0.07618	R 0.39587	R 0.25330
Off-Peak	0.31969	R 0.00000	R 0.06762	R 0.38731	R 0.24770
Super Off-Peak	0.31969	R 0.00000	R 0.05812	R 0.37781	R 0.24149
Summer Baseline Adjustment Credit up to 130% of Baseline	(0.19921)	I		(0.19921)	(0.13028)
Winter Baseline Adjustment Credit up to 130% of Baseline	(0.16853)	I		(0.16853)	(0.11022)
Minimum Bill (\$/day)	0.164			0.164	0.164

Note:

- (1) Total Rates consist of UDC, Schedule DWR-BC (Department of Water Resources Bond Charge), and Schedule EECC (Electric Energy Commodity Cost) rates, with the EECC rates reflecting a DWR Credit.
- (2) Total Rates presented are for customers that receive commodity supply and delivery service from Utility.
- (3) DWR-BC charges do not apply to CARE customers.
- (4) As identified in the rates tables, customer bills will also include line-item summer and winter credits for usage up to 130% of baseline to provide the rate capping benefits adopted by Assembly Bill 1X and Senate Bill 695.

(Continued)

2C11

Advice Ltr. No. 3326-E

Decision No. _____

Issued by
Dan Skopec
Vice President
Regulatory Affairs

Submitted Dec 28, 2018

Effective Jan 1, 2019

Resolution No. _____





San Diego Gas & Electric Company
San Diego, California

Revised Cal. P.U.C. Sheet No. 23614-G

Canceling Revised Cal. P.U.C. Sheet No. 23601-G

SCHEDULE GR

Sheet 1

RESIDENTIAL NATURAL GAS SERVICE (Includes Rates for GR, GR-C, GTC/GTCA)

APPLICABILITY

The GR rate is applicable to natural gas procurement service for individually metered residential customers.

The GR-C, cross-over rate, is a core procurement option for individually metered residential core transportation customers with annual consumption over 50,000 therms, as set forth in Special Condition 10.

The GTC/GTCA rate is applicable to intrastate gas transportation-only services to individually metered residential customers, as set forth in Special Condition 11.

Customers taking service under this schedule may be eligible for a 20% California Alternate Rate for Energy (CARE) program discount, reflected as a separate line item on the bill, if they qualify to receive service under the terms and conditions of Schedule G-CARE.

TERRITORY

Within the entire territory served natural gas by the utility.

RATES

	<u>GR</u>	<u>GR-C</u>	<u>GTC/GTCA^{1/}</u>
<u>Baseline Rate</u> , per therm (baseline usage defined in Special Conditions 3 and 4):			
Procurement Charge: ^{2/}	\$0.41614	\$0.41614 R	N/A
Transmission Charge:	\$1.01230	\$1.01230	\$1.01230
Total Baseline Charge:	\$1.42844	\$1.42844 R	\$1.01230
<u>Non-Baseline Rate</u> , per therm (usage in excess of baseline usage):			
Procurement Charge: ^{2/}	\$0.41614	\$0.41614 R	N/A
Transmission Charge:	\$1.19980	\$1.19980	\$1.19980
Total Non-Baseline Charge:	\$1.61594	\$1.61594 R	\$1.19980
<u>Minimum Bill</u> , per day: ^{3/}			
Non-CARE customers:	\$0.09863	\$0.09863	\$0.09863
CARE customers:	\$0.07890	\$0.07890	\$0.07890

^{1/} The rates for core transportation-only customers, with the exception of customers taking service under Schedule GT-NGV, include any FERC Settlement Proceeds Memorandum Account (FSPMA) credit adjustments.

^{2/} This charge is applicable to Utility Procurement Customers and includes the GPC and GPC-A Procurement Charges shown in Schedule GPC which are subject to change monthly as set forth in Special Condition 7.

^{3/} Effective starting May 1, 2017, the minimum bill is calculated as the minimum bill charge of \$0.09863 per day times the number of days in the billing cycle (approximately \$3 per month) with a 20% discount applied for CARE customer resulting in a minimum bill charge of \$0.07890 per day (approximately \$2.40 per month).

(Continued)

1C5

Advice Ltr. No. 2735-G

Decision No.

Issued by
Dan Skopec
Vice President
Regulatory Affairs

Submitted Jan 7, 2019

Effective Jan 10, 2019

Resolution No.



Escalation Assumptions

The average annual escalation rates in the following table were used in this study and are from E3's 2019 study Residential Building Electrification in California (Energy & Environmental Economics, 2019). These rates are applied to the 2019 rate schedules over a thirty-year period beginning in 2020. SDG&E was not covered in the E3 study. The Reach Code Team reviewed SDG&E's GRC filing and applied the same approach that E3 applied for PG&E and SoCalGas to arrive at average escalation rates between 2020 and 2022.

Table 24: Real Utility Rate Escalation Rate Assumptions

	Statewide Electric Residential Average Rate (%/year, real)	Natural Gas Residential Core Rate (%/yr escalation, real)		
		PG&E	SoCalGas	SDG&E
2020	2.0%	1.48%	6.37%	5.00%
2021	2.0%	5.69%	4.12%	3.14%
2022	2.0%	1.11%	4.12%	2.94%
2023	2.0%	4.0%	4.0%	4.0%
2024	2.0%	4.0%	4.0%	4.0%
2025	2.0%	4.0%	4.0%	4.0%
2026	1.0%	1.0%	1.0%	1.0%
2027	1.0%	1.0%	1.0%	1.0%
2028	1.0%	1.0%	1.0%	1.0%
2029	1.0%	1.0%	1.0%	1.0%
2030	1.0%	1.0%	1.0%	1.0%
2031	1.0%	1.0%	1.0%	1.0%
2032	1.0%	1.0%	1.0%	1.0%
2033	1.0%	1.0%	1.0%	1.0%
2034	1.0%	1.0%	1.0%	1.0%
2035	1.0%	1.0%	1.0%	1.0%
2036	1.0%	1.0%	1.0%	1.0%
2037	1.0%	1.0%	1.0%	1.0%
2038	1.0%	1.0%	1.0%	1.0%
2039	1.0%	1.0%	1.0%	1.0%
2040	1.0%	1.0%	1.0%	1.0%
2041	1.0%	1.0%	1.0%	1.0%
2042	1.0%	1.0%	1.0%	1.0%
2043	1.0%	1.0%	1.0%	1.0%
2044	1.0%	1.0%	1.0%	1.0%
2045	1.0%	1.0%	1.0%	1.0%
2046	1.0%	1.0%	1.0%	1.0%
2047	1.0%	1.0%	1.0%	1.0%
2048	1.0%	1.0%	1.0%	1.0%
2049	1.0%	1.0%	1.0%	1.0%



Appendix C – Single Family Detailed Results

Table 25: Single Family Mixed Fuel Efficiency Package Cost-Effectiveness Results

CZ	Utility	BASECASE						Non-Preempted								Equipment - Preempted							
		Total EDR	Efficiency EDR	CALGreen Tier 1 EDR Target	lbs CO2 per sqft	PV kW	Total EDR	Efficiency EDR	Efficiency EDR Margin	% Comp Margin	lbs CO2 per sqft	PV kW	On-Bill B/C Ratio	TDV B/C Ratio	Total EDR	Efficiency EDR	Efficiency EDR Margin	% Comp Margin	lbs CO2 per sqft	PV kW	On-Bill B/C Ratio	TDV B/C Ratio	
1	PG&E	32.5	54.2	23	3.0	3.3	27.9	49.0	5.3	18.8%	2.5	3.2	3.4	2.8	26.0	47.3	6.9	25.1%	2.3	3.2	4.9	4.1	
2	PG&E	25.0	46.0	12	2.2	2.8	22.0	42.7	3.3	16.3%	1.9	2.8	1.6	1.7	21.8	42.6	3.3	16.4%	1.9	2.8	3.8	3.6	
3	PG&E	23.9	46.9	10	1.9	2.7	21.3	43.9	3.0	16.7%	1.6	2.7	1.3	1.3	20.1	42.8	4.1	22.8%	1.5	2.7	1.9	2.0	
4	PG&E	23.1	44.9	8	1.9	2.7	20.8	42.4	2.5	13.9%	1.7	2.7	0.9	1.2	20.5	42.2	2.7	14.9%	1.6	2.7	2.4	2.7	
5	PG&E	22.2	44.4	10	1.8	2.6	19.7	41.7	2.7	16.7%	1.6	2.5	1.1	1.2	19.7	41.7	2.6	16.2%	1.5	2.5	2.3	2.5	
5	PG&E/SoCalGas	22.2	44.4	10	1.8	2.6	19.7	41.7	2.7	16.7%	1.6	2.5	0.9	1.2	19.7	41.7	2.6	16.2%	1.5	2.5	2.0	2.5	
6	SCE/SoCalGas	23.3	49.9	10	1.6	2.7	21.5	47.8	2.0	12.1%	1.5	2.7	0.7	1.2	21.5	47.9	2.0	11.8%	1.4	2.7	1.6	2.0	
7	SDG&E	20.3	49.1	5	1.3	2.6	20.3	49.1	0.0	0.0%	1.3	2.6	-	-	18.8	47.6	1.5	12.4%	1.2	2.6	1.5	1.4	
8	SCE/SoCalGas	21.3	46.9	10	1.4	2.9	20.1	45.6	1.3	7.7%	1.3	2.9	0.6	1.4	19.7	45.3	1.6	9.4%	1.3	2.9	1.3	1.8	
9	SCE/SoCalGas	24.5	47.7	13	1.5	2.9	22.3	45.1	2.6	11.7%	1.5	2.9	0.7	2.0	21.9	44.8	2.9	13.4%	1.4	2.9	1.8	3.7	
10	SCE/SoCalGas	24.2	46.3	10	1.6	3.0	21.7	43.1	3.2	14.3%	1.5	3.0	0.6	1.3	21.5	43.1	3.2	14.6%	1.4	3.0	2.0	3.8	
10	SDG&E	24.2	46.3	10	1.6	3.0	21.7	43.1	3.2	14.3%	1.5	3.0	0.8	1.3	21.5	43.1	3.2	14.6%	1.4	3.0	2.6	3.8	
11	PG&E	24.6	44.9	11	2.1	3.6	21.3	40.6	4.3	16.4%	1.9	3.4	0.8	1.2	20.7	39.9	5.1	19.2%	1.8	3.4	2.5	3.7	
12	PG&E	25.5	44.8	12	2.1	3.0	22.5	41.3	3.5	14.9%	1.9	2.9	1.2	1.8	22.5	41.4	3.4	14.4%	1.9	3.0	3.3	4.6	
13	PG&E	25.7	46.5	11	2.0	3.8	22.2	41.9	4.6	16.9%	1.8	3.6	0.8	1.3	21.2	40.7	5.8	21.4%	1.7	3.6	5.3	8.4	
14	SCE/SoCalGas	25.3	46.3	15	2.3	3.2	21.5	41.3	5.0	18.5%	2.1	3.0	1.6	2.5	20.8	40.4	5.8	21.7%	2.0	3.0	4.0	6.1	
14	SDG&E	25.3	46.3	15	2.3	3.2	21.5	41.3	5.0	18.5%	2.1	3.0	1.9	2.5	20.8	40.4	5.8	21.7%	2.0	3.0	4.9	6.1	
15	SCE/SoCalGas	22.4	49.1	11	1.7	5.4	19.7	44.3	4.8	14.8%	1.6	5.0	1.0	1.6	19.5	44.1	5.0	15.4%	1.5	5.0	>1	>1	
16	PG&E	30.4	48.9	22	3.3	2.7	25.0	43.5	5.4	20.6%	2.6	2.7	1.6	1.5	24.8	42.7	6.2	23.5%	2.7	2.6	2.2	2.2	

">1" = indicates cases where there is both first cost savings and annual utility bill savings.



Table 26: Single Family Mixed Fuel Efficiency & PV/Battery Package Cost-Effectiveness Results

CZ	Utility	BASECASE				Efficiency & PV/Battery						
		Total EDR	CALGreen Tier 1 EDR Target	lbs CO2 per sqft	PV kW	Total EDR	Total EDR Margin	% Comp Margin	lbs CO2 per sqft	PV kW	On-Bill B/C Ratio	TDV B/C Ratio
1	PG&E	32.5	23	3.0	3.3	21.9	10.6	31.8%	2.4	3.3	0.9	1.6
2	PG&E	25.0	12	2.2	2.8	14.9	10.1	27.3%	1.8	2.9	0.5	1.6
3	PG&E	23.9	10	1.9	2.7	13.9	10.0	27.7%	1.5	2.8	0.4	1.4
4	PG&E	23.1	8	1.9	2.7	13.0	10.1	24.9%	1.5	2.8	0.3	1.5
5	PG&E	22.2	10	1.8	2.6	12.8	9.4	29.7%	1.4	2.6	0.4	1.3
5	PG&E/SoCalGas	22.2	10	1.8	2.6	12.8	9.4	29.7%	1.4	2.6	0.3	1.3
6	SCE/SoCalGas	23.3	10	1.6	2.7	13.6	9.8	20.1%	1.2	2.8	0.8	1.3
7	SDG&E	20.3	5	1.3	2.6	11.1	9.2	9.0%	1.0	2.7	0.1	1.3
8	SCE/SoCalGas	21.3	10	1.4	2.9	12.9	8.4	23.7%	1.1	3.0	0.9	1.3
9	SCE/SoCalGas	24.5	13	1.5	2.9	15.7	8.8	24.7%	1.2	3.0	1.0	1.5
10	SCE/SoCalGas	24.2	10	1.6	3.0	14.6	9.6	27.3%	1.3	3.1	1.0	1.5
10	SDG&E	24.2	10	1.6	3.0	14.6	9.6	27.3%	1.3	3.1	0.6	1.5
11	PG&E	24.6	11	2.1	3.6	15.4	9.2	29.4%	1.8	3.5	0.4	1.5
12	PG&E	25.5	12	2.1	3.0	15.9	9.6	28.9%	1.8	3.0	0.4	1.7
13	PG&E	25.7	11	2.0	3.8	16.1	9.7	28.9%	1.7	3.7	0.4	1.6
14	SCE/SoCalGas	25.3	15	2.3	3.2	16.3	9.0	30.1%	1.8	3.1	1.3	1.7
14	SDG&E	25.3	15	2.3	3.2	16.3	9.0	30.1%	1.8	3.1	1.2	1.7
15	SCE/SoCalGas	22.4	11	1.7	5.4	15.3	7.1	25.1%	1.4	5.1	1.1	1.5
16	PG&E	30.4	22	3.3	2.7	19.9	10.5	32.6%	2.4	2.8	0.9	1.4

">1" = indicates cases where there is both first cost savings and annual utility bill savings.



Table 27: Single Family All-Electric Efficiency Package Cost-Effectiveness Results

		BASECASE					Non-Preempted								Equipment - Preempted							
CZ	Utility	Total EDR	Efficiency EDR	CALGreen Tier 1 EDR Target	lbs CO2 per sqft	PV kW	Total EDR	Efficiency EDR	Efficiency EDR Margin	% Comp Margin	lbs CO2 per sqft	PV kW	On-Bill B/C Ratio	TDV B/C Ratio	Total EDR	Efficiency EDR	Efficiency EDR Margin	% Comp Margin	lbs CO2 per sqft	PV kW	On-Bill B/C Ratio	TDV B/C Ratio
1	PG&E	46.8	68.2	36	1.5	3.3	31.8	53.0	15.2	40.2%	1.0	3.3	1.8	1.7	39.9	61.3	6.9	18.3%	1.3	3.3	2.9	2.7
2	PG&E	32.8	53.7	16	1.1	2.8	27.9	48.7	4.9	20.5%	0.9	2.8	1.2	1.1	27.7	48.5	5.1	21.2%	0.9	2.8	2.3	2.1
3	PG&E	33.1	55.6	14	1.0	2.7	28.5	50.9	4.7	20.6%	0.8	2.7	2.6	2.4	28.7	51.2	4.4	19.6%	0.9	2.7	1.8	1.6
4	PG&E	31.3	52.8	12	1.0	2.7	27.9	49.4	3.4	15.5%	0.9	2.7	1.9	1.8	27.4	48.9	3.9	17.6%	0.9	2.7	1.5	1.5
5	PG&E	32.5	54.2	16	1.0	2.6	28.1	49.9	4.4	19.7%	0.9	2.6	2.6	2.3	28.0	49.8	4.4	20.3%	0.9	2.6	1.9	1.7
5	PG&E/SoCalGas	32.5	54.2	16	1.0	2.6	28.1	49.9	4.4	19.7%	0.9	2.6	2.6	2.3	28.0	49.8	4.4	20.3%	0.9	2.6	1.9	1.7
6	SCE/SoCalGas	29.7	55.8	12	0.9	2.7	27.7	53.8	2.0	10.9%	0.8	2.7	1.3	1.4	26.8	53.0	2.9	16.0%	0.8	2.7	2.2	2.3
7	SDG&E	27.1	55.3	7	0.7	2.6	27.1	55.3	0.0	0.0%	0.7	2.6	-	-	24.8	53.0	2.2	16.9%	0.7	2.6	1.6	1.7
8	SCE/SoCalGas	26.1	51.5	10	0.8	2.9	24.5	49.9	1.6	8.9%	0.8	2.9	0.6	1.2	24.4	49.7	1.8	9.7%	0.8	2.9	2.8	3.0
9	SCE/SoCalGas	28.8	51.9	13	0.9	2.9	26.0	49.1	2.8	12.5%	0.8	2.9	0.8	2.0	25.5	48.6	3.3	14.7%	0.8	2.9	2.1	3.2
10	SCE/SoCalGas	28.8	50.7	11	0.9	3.0	25.7	47.6	3.1	14.0%	0.9	3.0	0.9	1.5	25.3	47.2	3.4	15.5%	0.8	3.0	2.3	3.2
10	SDG&E	28.8	50.7	11	0.9	3.0	25.7	47.6	3.1	14.0%	0.9	3.0	1.1	1.5	25.3	47.2	3.4	15.5%	0.8	3.0	2.6	3.2
11	PG&E	30.0	50.2	12	1.1	3.6	25.4	45.6	4.6	16.2%	1.0	3.6	1.2	1.5	24.1	44.3	5.9	20.8%	0.9	3.6	3.0	3.3
12	PG&E	30.9	50.1	13	1.0	3.0	27.1	46.3	3.8	15.3%	0.9	3.0	0.8	1.1	25.8	45.0	5.1	20.4%	0.9	3.0	2.0	2.5
13	PG&E	30.7	51.5	13	1.1	3.8	25.7	46.4	5.1	17.4%	0.9	3.8	1.1	1.4	24.7	45.4	6.0	20.9%	0.9	3.8	2.9	3.3
14	SCE/SoCalGas	31.3	52.2	16	1.4	3.2	25.7	46.6	5.6	18.9%	1.2	3.2	1.0	1.5	25.3	46.2	6.0	20.5%	1.2	3.2	2.3	3.1
14	SDG&E	31.3	52.2	16	1.4	3.2	25.7	46.6	5.6	18.9%	1.2	3.2	1.3	1.5	25.3	46.2	6.0	20.5%	1.2	3.2	2.9	3.1
15	SCE/SoCalGas	26.2	52.8	8	1.3	5.4	20.6	47.2	5.6	16.8%	1.1	5.4	1.1	1.6	18.9	45.5	7.3	21.8%	1.0	5.4	3.3	4.5
16	PG&E	46.5	64.6	39	1.7	2.7	36.8	54.9	9.7	25.2%	1.4	2.7	1.7	1.7	41.6	59.7	4.9	12.7%	1.6	2.7	2.4	2.3



Table 28: Single Family All-Electric Efficiency & PV-PV/Battery Package Cost-Effectiveness Results

CZ	Utility	BASECASE				Efficiency & PV							Efficiency & PV/Battery						
		Total EDR	CALGreen Tier 1 EDR Target	lbs CO2 per sqft	PV kW	Total EDR	Total EDR Margin	% Comp Margin	lbs CO2 per sqft	PV kW	On-Bill B/C Ratio	TDV B/C Ratio	Total EDR	Total EDR Margin	% Comp Margin	lbs CO2 per sqft	PV kW	On-Bill B/C Ratio	TDV B/C Ratio
1	PG&E	46.8	36	1.5	3.3	15.4	31.4	40.2%	0.5	6.0	1.8	1.5	5.6	41.2	51.9%	0.3	6.76	1.4	1.4
2	PG&E	32.8	16	1.1	2.8	13.4	19.4	20.5%	0.5	4.9	1.8	1.4	2.7	30.1	31.5%	0.3	5.51	1.4	1.4
3	PG&E	33.1	14	1.0	2.7	14.6	18.5	20.6%	0.5	4.5	2.2	1.7	3.7	29.3	31.6%	0.2	5.10	1.5	1.6
4	PG&E	31.3	12	1.0	2.7	14.1	17.2	15.5%	0.5	4.5	2.1	1.6	2.8	28.6	26.5%	0.2	5.15	1.5	1.6
5	PG&E	32.5	16	1.0	2.6	14.3	18.2	19.7%	0.5	4.3	2.3	1.8	3.8	28.7	32.7%	0.2	4.84	1.6	1.6
5	PG&E/SoCalGas	32.5	16	1.0	2.6	14.3	18.2	19.7%	0.5	4.3	2.3	1.8	3.8	28.7	32.7%	0.2	4.84	1.6	1.6
6	SCE/SoCalGas	29.7	12	0.9	2.7	15.5	14.3	10.9%	0.6	4.1	1.2	1.5	3.6	26.1	18.9%	0.3	4.68	1.2	1.4
7	SDG&E	27.1	7	0.7	2.6	15.8	11.3	0.7%	0.6	3.7	1.9	1.5	2.9	24.2	6.7%	0.3	4.21	1.3	1.5
8	SCE/SoCalGas	26.1	10	0.8	2.9	15.1	10.9	8.9%	0.6	4.0	1.0	1.5	4.5	21.6	24.9%	0.3	4.54	1.1	1.4
9	SCE/SoCalGas	28.8	13	0.9	2.9	17.3	11.5	12.5%	0.7	4.1	1.1	1.6	7.6	21.3	25.5%	0.4	4.66	1.1	1.5
10	SCE/SoCalGas	28.8	11	0.9	3.0	17.7	11.1	14.0%	0.7	4.2	1.1	1.5	7.6	21.2	27.0%	0.4	4.78	1.1	1.5
10	SDG&E	28.8	11	0.9	3.0	17.7	11.1	14.0%	0.7	4.2	1.7	1.5	7.6	21.2	27.0%	0.4	4.78	1.4	1.5
11	PG&E	30.0	12	1.1	3.6	15.8	14.2	16.2%	0.6	5.4	1.8	1.6	6.8	23.2	29.2%	0.4	6.11	1.5	1.6
12	PG&E	30.9	13	1.0	3.0	15.2	15.7	15.3%	0.5	5.0	1.7	1.4	5.6	25.4	29.3%	0.3	5.62	1.3	1.5
13	PG&E	30.7	13	1.1	3.8	17.3	13.4	17.4%	0.6	5.4	1.7	1.5	8.2	22.5	29.4%	0.4	6.14	1.4	1.5
14	SCE/SoCalGas	31.3	16	1.4	3.2	15.8	15.5	18.9%	0.9	4.8	1.2	1.6	7.4	23.9	30.9%	0.6	5.39	1.4	1.6
14	SDG&E	31.3	16	1.4	3.2	15.8	15.5	18.9%	0.9	4.8	1.8	1.6	7.4	23.9	30.9%	0.6	5.39	1.7	1.6
15	SCE/SoCalGas	26.2	8	1.3	5.4	20.0	6.2	16.8%	1.1	5.5	1.1	1.6	12.7	13.5	27.0%	0.8	6.25	1.2	1.5
16	PG&E	46.5	39	1.7	2.7	19.6	27.0	25.2%	0.9	5.5	2.1	1.6	11.1	35.4	34.3%	0.6	6.17	1.7	1.5

">1" = indicates cases where there is both first cost savings and annual utility bill savings.



Appendix D – Single Family Measure Summary

Table 29: Single Family Mixed Fuel Efficiency – Non-Preempted Package Measure Summary

CZ	Duct	Infiltratio	Wall	Attic	Roof	Glazing	Slab	DHW	HVAC	PV
1	VLLDCS	Code Min	Code Min	Code Min	Code Min	Code Min	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling
2	VLLDCS	Code Min	Code Min	Code Min	Code Min	Code Min	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling
3	VLLDCS	Code Min	Code Min	Code Min	Code Min	Code Min	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling
4	VLLDCS	Code Min	Code Min	Code Min	Code Min	Code Min	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling
5	VLLDCS	Code Min	Code Min	Code Min	Code Min	Code Min	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling
6	VLLDCS	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling
7	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	1.0 PV scaling
8	< 12 ft ducts in attic	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling
9	VLLDCS	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling
10	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling
11	VLLDCS	Code Min	Code Min	R-38 + R-30 attic	0.25 solar reflectance	Code Min	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling
12	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling
13	VLLDCS	Code Min	Code Min	R-38 + R-30 attic	0.25 solar reflectance	Code Min	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling
14	VLLDCS	3 ACH50	Code Min	Code Min	0.25 solar reflectance	Code Min	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling
15	VLLDCS	Code Min	Code Min	R-38 + R-30 attic	0.25 solar reflectance	Code Min	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling
16	VLLDCS	Code Min	Code Min	Code Min	Code Min	0.24/0.50 windows	Code Min	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling

VLLDCS – Verified Low Leakage Ducts in Conditioned Space



Table 30: Single Family Mixed Fuel Efficiency – Equipment, Preempted Package Measure Summary

<u>CZ</u>	<u>Duct</u>	<u>Infiltratio</u>	<u>Wall</u>	<u>Attic</u>	<u>Roof</u>	<u>Glazing</u>	<u>Slab</u>	<u>DHW</u>	<u>HVAC</u>	<u>PV</u>
1	VLLDCS	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	95 EF, basic compact dist.	96 AFUE, 0.35W/cfm	1.0 PV scaling
2	LLAHU + 2% leakage	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	95 EF, basic compact dist.	96 AFUE, 0.35W/cfm	1.0 PV scaling
3	VLLDCS	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	95 EF, basic compact dist.	96 AFUE, 0.35W/cfm	1.0 PV scaling
4	LLAHU + 2% leakage	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	95 EF, basic compact dist.	96 AFUE, 0.35W/cfm	1.0 PV scaling
5	LLAHU + 2% leakage	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	95 EF, basic compact dist.	96 AFUE, 0.35W/cfm	1.0 PV scaling
6	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	95 EF, basic compact dist.	92 AFUE, 0.35W/cfm	1.0 PV scaling
7	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	95 EF, basic compact dist.	92 AFUE, 0.35W/cfm	1.0 PV scaling
8	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	95 EF, basic compact dist.	92 AFUE, 0.35W/cfm	1.0 PV scaling
9	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	95 EF, basic compact dist.	16 SEER, 92 AFUE, 0.35W/cfm	1.0 PV scaling
10	LLAHU + 2% leakage	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	95 EF, basic compact dist.	16 SEER, 92 AFUE, 0.35W/cfm	1.0 PV scaling
11	LLAHU + 2% leakage	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	95 EF, basic compact dist.	18 SEER, 96 AFUE, 0.35W/cfm	1.0 PV scaling
12	LLAHU + 2% leakage	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	95 EF, basic compact dist.	16 SEER, 92 AFUE, 0.35W/cfm	1.0 PV scaling
13	VLLDCS	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	95 EF, basic compact dist.	16 SEER, 92 AFUE, 0.35W/cfm	1.0 PV scaling
14	VLLDCS	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	95 EF, basic compact dist.	16 SEER, 92 AFUE, 0.35W/cfm	1.0 PV scaling
15	LLAHU + 2% leakage	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	95 EF, basic compact dist.	16 SEER, 92 AFUE, 0.35W/cfm	1.0 PV scaling
16	VLLDCS	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	95 EF, basic compact dist.	18 SEER, 96 AFUE, 0.35W/cfm	1.0 PV scaling

LLAHU - Low Leakage Air Handling Unit

VLLDCS – Verified Low Leakage Ducts in Conditioned Space



Table 31: Single Family Mixed Fuel Efficiency & PV/Battery Package Measure Summary

CZ	Duct	Infiltration	Wall	Attic	Roof	Glazing	Slab	DHW	HVAC	PV
1	VLLDCS	Code Min	Code Min	Code Min	Code Min	Code Min	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling + 5kWh batt
2	VLLDCS	Code Min	Code Min	Code Min	Code Min	Code Min	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling + 5kWh batt
3	VLLDCS	Code Min	Code Min	Code Min	Code Min	Code Min	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling + 5kWh batt
4	VLLDCS	Code Min	Code Min	Code Min	Code Min	Code Min	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling + 5kWh batt
5	VLLDCS	Code Min	Code Min	Code Min	Code Min	Code Min	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling + 5kWh batt
6	VLLDCS	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling + 5kWh batt
7	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Basic CHW credit (0.7)	Code Min	1.0 PV scaling + 5kWh batt
8	< 12 ft ducts in attic	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling + 5kWh batt
9	VLLDCS	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling + 5kWh batt
10	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling + 5kWh batt
11	VLLDCS	Code Min	Code Min	R-38 + R-30 attic	0.25 solar reflectance	Code Min	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling + 5kWh batt
12	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling + 5kWh batt
13	VLLDCS	Code Min	Code Min	R-38 + R-30 attic	0.25 solar reflectance	Code Min	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling + 5kWh batt
14	VLLDCS	3 ACH50	Code Min	Code Min	0.25 solar reflectance	Code Min	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling + 5kWh batt
15	VLLDCS	Code Min	Code Min	R-38 + R-30 attic	0.25 solar reflectance	Code Min	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling + 5kWh batt
16	VLLDCS	Code Min	Code Min	Code Min	Code Min	0.24/0.50 windows	Code Min	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling + 5kWh batt

VLLDCS – Verified Low Leakage Ducts in Conditioned Space



Table 32: Single Family All-Electric Efficiency – Non-Preempted Package Measure Summary

CZ	Duct	Infiltratio	Wall	Attic	Roof	Glazing	Slab	DHW	HVAC	PV
1	VLLDCS	Code Min	Code Min	R-38 + R-30 attic	Code Min	0.24/0.50 windows	R-10 slab insulation	Code Min	0.45 W/cfm	Std Design PV
2	VLLDCS	Code Min	Code Min	Code Min	Code Min	0.24/0.23 windows	R-10 slab insulation	Code Min	0.45 W/cfm	Std Design PV
3	VLLDCS	Code Min	Code Min	Code Min	Code Min	Code Min	R-10 slab insulation	Code Min	0.45 W/cfm	Std Design PV
4	VLLDCS	Code Min	Code Min	Code Min	Code Min	Code Min	R-10 slab insulation	Code Min	0.45 W/cfm	Std Design PV
5	VLLDCS	Code Min	Code Min	Code Min	Code Min	Code Min	R-10 slab insulation	Code Min	0.45 W/cfm	Std Design PV
6	VLLDCS	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	0.45 W/cfm	Std Design PV
7	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Std Design PV
8	VLLDCS	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	0.45 W/cfm	Std Design PV
9	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	Code Min	Code Min	0.45 W/cfm	Std Design PV
10	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	R-10 slab insulation	Code Min	0.45 W/cfm	Std Design PV
11	VLLDCS	Code Min	Code Min	R-38 + R-30 attic	0.25 solar reflectance	Code Min	R-10 slab insulation	Code Min	0.45 W/cfm	Std Design PV
12	VLLDCS	Code Min	Code Min	R-38 + R-30 attic	0.25 solar reflectance	Code Min	R-10 slab insulation	Code Min	0.45 W/cfm	Std Design PV
13	VLLDCS	3 ACH50	Code Min	R-38 + R-30 attic	0.25 solar reflectance	Code Min	R-10 slab insulation	Code Min	0.45 W/cfm	Std Design PV
14	VLLDCS	3 ACH50	Code Min	R-38 + R-30 attic	0.25 solar reflectance	Code Min	R-10 slab insulation	Code Min	0.45 W/cfm	Std Design PV
15	VLLDCS	Code Min	0.043 wall	R-38 + R-30 attic	0.25 solar reflectance	Code Min	R-10 slab insulation	Code Min	0.45 W/cfm	Std Design PV
16	VLLDCS	3 ACH50	Code Min	R-38 + R-30 attic	Code Min	0.24/0.50 windows	Code Min	Code Min	0.45 W/cfm	Std Design PV

VLLDCS – Verified Low Leakage Ducts in Conditioned Space



Table 33: Single Family All-Electric Efficiency – Equipment, Preempted Package Measure Summary

CZ	Duct	Infiltratio	Wall	Attic	Roof	Glazing	Slab	DHW	HVAC	PV
1	LLAHU + 2% leakage	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	NEEA Tier 3 HPWH	18 SEER, 10 HSPF, 0.45W/cfm	Std Design PV
2	LLAHU + 2% leakage	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	NEEA Tier 3 HPWH	18 SEER, 10 HSPF, 0.45W/cfm	Std Design PV
3	LLAHU + 2% leakage	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	NEEA Tier 3 HPWH	18 SEER, 10 HSPF, 0.45W/cfm	Std Design PV
4	LLAHU + 2% leakage	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	NEEA Tier 3 HPWH	18 SEER, 10 HSPF, 0.45W/cfm	Std Design PV
5	LLAHU + 2% leakage	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	NEEA Tier 3 HPWH	18 SEER, 10 HSPF, 0.45W/cfm	Std Design PV
6	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	NEEA Tier 3 HPWH	16 SEER, 9 HSPF, 0.45W/cfm	Std Design PV
7	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	NEEA Tier 3 HPWH	16 SEER, 9 HSPF, 0.45W/cfm	Std Design PV
8	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	NEEA Tier 3 HPWH	0.45 W/cfm	Std Design PV
9	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	NEEA Tier 3 HPWH	16 SEER, 9 HSPF, 0.45W/cfm	Std Design PV
10	LLAHU + 2% leakage	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	NEEA Tier 3 HPWH	16 SEER, 9 HSPF, 0.45W/cfm	Std Design PV
11	LLAHU + 2% leakage	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	NEEA Tier 3 HPWH	18 SEER, 10 HSPF, 0.45W/cfm	Std Design PV
12	LLAHU + 2% leakage	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	NEEA Tier 3 HPWH	18 SEER, 10 HSPF, 0.45W/cfm	Std Design PV
13	LLAHU + 2% leakage	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	NEEA Tier 3 HPWH	18 SEER, 10 HSPF, 0.45W/cfm	Std Design PV
14	LLAHU + 2% leakage	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	NEEA Tier 3 HPWH	18 SEER, 10 HSPF, 0.45W/cfm	Std Design PV
15	LLAHU + 2% leakage	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	NEEA Tier 3 HPWH	18 SEER, 10 HSPF, 0.45W/cfm	Std Design PV
16	LLAHU + 2% leakage	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	NEEA Tier 3 HPWH	18 SEER, 10 HSPF, 0.45W/cfm	Std Design PV

LLAHU - Low Leakage Air Handling Unit

VVLDCS – Verified Low Leakage Ducts in Conditioned Space



Table 34: Single Family All-Electric Efficiency & PV Package Measure Summary

CZ	Duct	Infiltratio	Wall	Attic	Roof	Glazing	Slab	DHW	HVAC	PV
1	VLLDCS	Code Min	Code Min	R-38 + R-30 attic	Code Min	0.24/0.50 windows	R-10 slab insulation	Code Min	0.45 W/cfm	0.9 PV scaling
2	VLLDCS	Code Min	Code Min	Code Min	Code Min	0.24/0.23 windows	R-10 slab insulation	Code Min	0.45 W/cfm	0.9 PV scaling
3	VLLDCS	Code Min	Code Min	Code Min	Code Min	Code Min	R-10 slab insulation	Code Min	0.45 W/cfm	0.9 PV scaling
4	VLLDCS	Code Min	Code Min	Code Min	Code Min	Code Min	R-10 slab insulation	Code Min	0.45 W/cfm	0.9 PV scaling
5	VLLDCS	Code Min	Code Min	Code Min	Code Min	Code Min	R-10 slab insulation	Code Min	0.45 W/cfm	0.9 PV scaling
6	VLLDCS	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	0.45 W/cfm	0.9 PV scaling
7	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	0.45 W/cfm	0.9 PV scaling
8	VLLDCS	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	0.45 W/cfm	0.9 PV scaling
9	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	Code Min	Code Min	0.45 W/cfm	0.9 PV scaling
10	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	R-10 slab insulation	Code Min	0.45 W/cfm	0.9 PV scaling
11	VLLDCS	Code Min	Code Min	R-38 + R-30 attic	0.25 solar reflectance	Code Min	R-10 slab insulation	Code Min	0.45 W/cfm	0.9 PV scaling
12	VLLDCS	Code Min	Code Min	R-38 + R-30 attic	0.25 solar reflectance	Code Min	R-10 slab insulation	Code Min	0.45 W/cfm	0.9 PV scaling
13	VLLDCS	3 ACH50	Code Min	R-38 + R-30 attic	0.25 solar reflectance	Code Min	R-10 slab insulation	Code Min	0.45 W/cfm	0.9 PV scaling
14	VLLDCS	3 ACH50	Code Min	R-38 + R-30 attic	0.25 solar reflectance	Code Min	R-10 slab insulation	Code Min	0.45 W/cfm	0.9 PV scaling
15	VLLDCS	Code Min	0.043 wall	R-38 + R-30 attic	0.25 solar reflectance	Code Min	R-10 slab insulation	Code Min	0.45 W/cfm	0.9 PV scaling
16	VLLDCS	3 ACH50	Code Min	R-38 + R-30 attic	Code Min	0.24/0.50 windows	Code Min	Code Min	0.45 W/cfm	0.9 PV scaling

VLLDCS – Verified Low Leakage Ducts in Conditioned Space



Table 35: Single Family All-Electric Efficiency & PV/Battery Package Measure Summary

CZ	Duct	Infiltration	Wall	Attic	Roof	Glazing	Slab	DHW	HVAC	PV
1	VLLDCS	Code Min	Code Min	R-38 + R-30 attic	Code Min	0.24/0.50 windows	R-10 slab insulation	Code Min	0.45 W/cfm	1.0 PV scaling + 5kWh batt
2	VLLDCS	Code Min	Code Min	Code Min	Code Min	0.24/0.23 windows	R-10 slab insulation	Code Min	0.45 W/cfm	1.0 PV scaling + 5kWh batt
3	VLLDCS	Code Min	Code Min	Code Min	Code Min	Code Min	R-10 slab insulation	Code Min	0.45 W/cfm	1.0 PV scaling + 5kWh batt
4	VLLDCS	Code Min	Code Min	Code Min	Code Min	Code Min	R-10 slab insulation	Code Min	0.45 W/cfm	1.0 PV scaling + 5kWh batt
5	VLLDCS	Code Min	Code Min	Code Min	Code Min	Code Min	R-10 slab insulation	Code Min	0.45 W/cfm	1.0 PV scaling + 5kWh batt
6	VLLDCS	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	0.45 W/cfm	1.0 PV scaling + 5kWh batt
7	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	0.45 W/cfm	1.0 PV scaling + 5kWh batt
8	VLLDCS	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	0.45 W/cfm	1.0 PV scaling + 5kWh batt
9	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	Code Min	Code Min	0.45 W/cfm	1.0 PV scaling + 5kWh batt
10	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	R-10 slab insulation	Code Min	0.45 W/cfm	1.0 PV scaling + 5kWh batt
11	VLLDCS	Code Min	Code Min	R-38 + R-30 attic	0.25 solar reflectance	Code Min	R-10 slab insulation	Code Min	0.45 W/cfm	1.0 PV scaling + 5kWh batt
12	VLLDCS	Code Min	Code Min	R-38 + R-30 attic	0.25 solar reflectance	Code Min	R-10 slab insulation	Code Min	0.45 W/cfm	1.0 PV scaling + 5kWh batt
13	VLLDCS	3 ACH50	Code Min	R-38 + R-30 attic	0.25 solar reflectance	Code Min	R-10 slab insulation	Code Min	0.45 W/cfm	1.0 PV scaling + 5kWh batt
14	VLLDCS	3 ACH50	Code Min	R-38 + R-30 attic	0.25 solar reflectance	Code Min	R-10 slab insulation	Code Min	0.45 W/cfm	1.0 PV scaling + 5kWh batt
15	VLLDCS	Code Min	0.043 wall (SF); 0.048 wall (MF)	R-38 + R-30 attic	0.25 solar reflectance	Code Min	R-10 slab insulation	Code Min	0.45 W/cfm	1.0 PV scaling + 5kWh batt
16	VLLDCS	3 ACH50	Code Min	R-38 + R-30 attic	Code Min	0.24/0.50 windows	Code Min	Code Min	0.45 W/cfm	1.0 PV scaling + 5kWh batt

VLLDCS – Verified Low Leakage Ducts in Conditioned Space



Appendix E – Multifamily Detailed Results

Table 36: Multifamily Mixed Fuel Efficiency Package Cost-Effectiveness Results

Climate Zone	Utility	BASECASE					Non-Preempted								Equipment - Preempted							
		Total EDR	Efficiency EDR	CALGreen Tier 1 EDR Target	lbs CO2 per sqft	PV kW per Building	Total EDR	Efficiency EDR	Efficiency EDR Margin	% Comp Margin	lbs CO2 per sqft	PV kW per Building	On-Bill B/C Ratio	TDV B/C Ratio	Total EDR	Efficiency EDR	Efficiency EDR Margin	% Comp Margin	lbs CO2 per sqft	PV kW per Building	On-Bill B/C Ratio	TDV B/C Ratio
01	PG&E	28.6	60.7	23	2.7	15.9	25.1	57.3	3.4	19.3%	2.3	16.0	1.1	1.2	26.4	58.4	2.3	12.2%	2.5	15.9	1.3	1.4
02	PG&E	25.7	56.5	12	2.4	13.9	24.2	54.7	1.8	9.9%	2.3	13.8	1.0	1.7	23.6	54.2	2.3	12.5%	2.2	13.9	1.1	1.5
03	PG&E	24.7	57.8	10	2.1	13.5	24.0	57.2	0.6	4.7%	2.1	13.5	1.0	1.1	23.1	56.2	1.6	11.2%	1.9	13.4	1.1	1.2
04	PG&E	25.5	56.8	8	2.2	13.6	24.3	55.5	1.3	7.7%	2.1	13.5	0.8	1.2	23.8	54.9	1.9	10.9%	2.0	13.5	1.1	1.7
05	PG&E	24.2	57.4	10	2.1	12.6	23.7	56.9	0.5	4.4%	2.0	12.6	1.0	1.0	22.7	55.9	1.5	10.9%	1.9	12.6	1.2	1.3
05	PG&E/SoCalGas	24.2	57.4	10	2.1	12.6	23.7	56.9	0.5	4.4%	2.0	12.6	0.8	1.0	22.7	55.9	1.5	10.9%	1.9	12.6	1.1	1.3
06	SCE/SoCalGas	26.8	63.2	10	2.2	13.9	25.8	61.9	1.3	7.0%	2.1	13.8	0.6	1.5	25.5	61.9	1.3	7.4%	2.0	13.9	1.4	1.7
07	SDG&E	26.8	64.5	5	2.1	13.2	26.1	63.6	0.9	5.3%	2.1	13.1	0.7	2.2	25.0	62.5	2.0	12.2%	2.0	13.2	1.1	1.4
08	SCE/SoCalGas	25.7	61.8	10	2.2	14.6	24.6	60.3	1.5	7.4%	2.1	14.5	0.7	1.4	24.6	60.7	1.1	5.7%	2.0	14.6	1.4	1.7
09	SCE/SoCalGas	26.4	59.7	13	2.2	14.7	25.0	57.9	1.8	8.2%	2.2	14.4	1.5	3.3	24.1	56.9	2.8	12.9%	2.1	14.4	1.7	2.9
10	SCE/SoCalGas	27.0	58.7	10	2.3	15.1	25.7	57.0	1.7	7.7%	2.2	14.9	0.8	1.7	24.7	55.8	2.9	13.0%	2.1	14.8	2.0	3.3
10	SDG&E	27.0	58.7	10	2.3	15.1	25.7	57.0	1.7	7.7%	2.2	14.9	1.1	1.7	24.7	55.8	2.9	13.0%	2.1	14.8	2.6	3.3
11	PG&E	24.5	54.5	11	2.4	16.6	22.3	51.6	2.9	11.9%	2.2	16.3	0.7	1.2	22.2	51.3	3.2	13.2%	2.2	16.1	1.8	3.3
12	PG&E	25.9	55.3	12	2.3	14.9	24.3	53.4	1.9	8.8%	2.2	14.8	1.1	2.2	23.5	52.5	2.8	12.8%	2.1	14.7	1.2	2.2
13	PG&E	26.1	55.9	11	2.3	17.5	23.7	52.8	3.1	12.1%	2.1	17.1	0.6	1.3	23.7	52.5	3.4	13.2%	2.1	16.9	2.0	3.8
14	SCE/SoCalGas	25.6	55.9	15	2.8	14.6	23.1	52.8	3.1	12.8%	2.5	14.3	0.7	1.2	23.2	52.6	3.3	13.3%	2.5	14.2	2.0	3.0
14	SDG&E	25.6	55.9	15	2.8	14.6	23.1	52.8	3.1	12.8%	2.5	14.3	0.9	1.2	23.2	52.6	3.3	13.3%	2.5	14.2	2.5	3.0
15	SCE/SoCalGas	25.0	59.2	11	2.5	21.6	22.7	55.0	4.2	12.9%	2.4	20.4	1.4	2.3	22.6	54.8	4.4	13.5%	2.3	20.4	>1	>1
16	PG&E	29.4	57.3	22	3.5	13.4	26.6	54.9	2.4	11.3%	3.0	13.7	1.1	1.2	26.9	54.4	2.9	13.1%	3.1	13.2	1.8	2.1

">1" = indicates cases where there is both first cost savings and annual utility bill savings.



Table 37: Multifamily Mixed Fuel Efficiency & PV/Battery Package Cost-Effectiveness Results

CZ	Utility	BASECASE				Efficiency & PV/Battery						
		Total EDR	CALGreen Tier 1 EDR Target	lbs CO2 per sqft	PV kW per Building	Total EDR	Total EDR Margin	% Comp Margin	lbs CO2 per sqft	PV kW per Building	On-Bill B/C Ratio	TDV B/C Ratio
01	PG&E	28.6	23	2.7	15.9	17.1	11.5	29.3%	2.1	16.5	0.4	1.2
02	PG&E	25.7	12	2.4	13.9	14.8	10.9	16.9%	2.1	14.2	0.2	1.6
03	PG&E	24.7	10	2.1	13.5	14.4	10.3	10.7%	1.9	13.9	0.1	1.4
04	PG&E	25.5	8	2.2	13.6	14.3	11.2	15.7%	1.9	13.9	0.2	1.6
05	PG&E	24.2	10	2.1	12.6	14.3	9.9	9.4%	1.8	13.1	0.2	1.4
05	PG&E/SoCalGas	24.2	10	2.1	12.6	14.3	9.9	9.4%	1.8	13.1	0.1	1.4
06	SCE/SoCalGas	26.8	10	2.2	13.9	16.1	10.7	10.0%	1.8	14.2	0.6	1.4
07	SDG&E	26.8	5	2.1	13.2	15.8	11.0	7.3%	1.7	13.6	0.0	1.4
08	SCE/SoCalGas	25.7	10	2.2	14.6	15.8	9.9	13.4%	1.8	14.9	0.7	1.3
09	SCE/SoCalGas	26.4	13	2.2	14.7	16.7	9.7	15.2%	1.8	14.9	0.9	1.5
10	SCE/SoCalGas	27.0	10	2.3	15.1	16.6	10.4	13.7%	1.9	15.3	1.0	1.6
10	SDG&E	27.0	10	2.3	15.1	16.6	10.4	13.7%	1.9	15.3	0.2	1.6
11	PG&E	24.5	11	2.4	16.6	14.0	10.5	19.9%	2.0	16.7	0.4	1.6
12	PG&E	25.9	12	2.3	14.9	15.6	10.3	17.8%	2.0	15.2	0.3	1.7
13	PG&E	26.1	11	2.3	17.5	15.4	10.7	20.1%	2.0	17.5	0.4	1.6
14	SCE/SoCalGas	25.6	15	2.8	14.6	16.0	9.6	20.8%	2.2	14.7	1.1	1.4
14	SDG&E	25.6	15	2.8	14.6	16.0	9.6	20.8%	2.2	14.7	0.5	1.4
15	SCE/SoCalGas	25.0	11	2.5	21.6	16.2	8.8	18.9%	2.1	20.9	1.3	1.7
16	PG&E	29.4	22	3.5	13.4	19.5	9.9	19.3%	2.7	14.1	0.5	1.3

"inf" = indicates cases where there is both first cost savings and annual utility bill savings.



Table 38: Multifamily All-Electric Efficiency Package Cost-Effectiveness Results

CZ	Utility	BASECASE					Non-Preempted								Equipment - Preempted							
		Total EDR	Efficiency EDR	CALGreen Tier 1 EDR Target	lbs CO2 per sqft	PV kW per Building	Total EDR	Efficiency EDR	Efficiency EDR Margin	% Comp Margin	lbs CO2 per sqft	PV kW per Building	On-Bill B/C Ratio	TDV B/C Ratio	Total EDR	Efficiency EDR	Efficiency EDR Margin	% Comp Margin	lbs CO2 per sqft	PV kW per Building	On-Bill B/C Ratio	TDV B/C Ratio
01	PG&E	41.1	70.6	36	1.6	15.9	37.5	67.0	3.6	14.6%	1.5	15.9	1.6	1.4	37.1	67.3	3.3	18.4%	1.4	15.9	2.4	2.3
02	PG&E	34.3	63.4	16	1.4	13.9	32.4	61.5	1.9	9.1%	1.3	13.9	1.7	2.1	31.1	60.2	3.2	15.1%	1.3	13.9	1.6	1.6
03	PG&E	33.5	64.2	14	1.3	13.5	33.5	64.2	0.0	0.0%	1.3	13.5	-	-	30.4	61.5	2.7	19.5%	1.1	13.5	1.7	1.6
04	PG&E	32.0	61.4	12	1.3	13.6	30.5	60.0	1.4	8.0%	1.2	13.6	1.4	1.5	29.7	59.2	2.2	12.2%	1.2	13.6	1.2	1.1
05	PG&E	34.7	65.4	16	1.3	12.6	34.1	64.8	0.6	3.4%	1.3	12.6	1.1	0.9	30.6	61.8	3.6	23.5%	1.2	12.6	2.1	2.0
05	PG&E/SoCalGas	34.7	65.4	16	1.3	12.6	34.1	64.8	0.6	3.4%	1.3	12.6	1.1	0.9	30.6	61.8	3.6	23.5%	1.2	12.6	2.1	2.0
06	SCE/SoCalGas	31.9	65.9	12	1.3	13.9	30.9	64.9	1.0	5.9%	1.3	13.9	0.7	1.3	29.8	63.7	2.2	13.0%	1.2	13.9	1.6	1.9
07	SDG&E	31.7	66.6	7	1.2	13.2	31.1	66.0	0.6	4.6%	1.2	13.2	0.6	1.0	29.7	64.7	1.9	13.6%	1.1	13.2	1.6	1.7
08	SCE/SoCalGas	29.8	63.6	10	1.3	14.6	28.6	62.4	1.2	6.5%	1.2	14.6	0.9	1.7	27.9	61.7	1.9	10.3%	1.2	14.6	1.6	1.8
09	SCE/SoCalGas	30.4	61.9	13	1.3	14.7	28.7	60.3	1.6	8.1%	1.3	14.7	1.3	2.7	28.8	60.4	1.5	7.4%	1.2	14.7	1.6	1.6
10	SCE/SoCalGas	31.2	61.3	11	1.4	15.1	29.3	59.5	1.8	8.7%	1.3	15.1	1.2	2.0	29.3	59.5	1.8	8.6%	1.3	15.1	1.7	2.0
10	SDG&E	31.2	61.3	11	1.4	15.1	29.3	59.5	1.8	8.7%	1.3	15.1	1.5	2.0	29.3	59.5	1.8	8.6%	1.3	15.1	2.0	2.0
11	PG&E	31.9	60.6	12	1.4	16.6	28.5	57.1	3.5	13.1%	1.3	16.6	1.4	1.6	28.1	56.7	3.9	14.4%	1.3	16.6	2.0	2.3
12	PG&E	32.0	59.9	13	1.3	14.9	29.4	57.3	2.6	11.4%	1.2	14.9	0.9	1.1	29.0	57.0	2.9	13.0%	1.2	14.9	1.6	1.6
13	PG&E	32.1	60.5	13	1.4	17.5	28.8	57.2	3.3	12.6%	1.2	17.5	1.3	1.6	28.3	56.7	3.8	14.3%	1.2	17.5	2.0	2.3
14	SCE/SoCalGas	32.5	61.6	16	1.7	14.6	28.9	57.9	3.7	13.8%	1.6	14.6	1.2	1.6	28.7	57.8	3.8	14.3%	1.6	14.6	1.6	2.2
14	SDG&E	32.5	61.6	16	1.7	14.6	28.9	57.9	3.7	13.8%	1.6	14.6	1.5	1.6	28.7	57.8	3.8	14.3%	1.6	14.6	2.0	2.2
15	SCE/SoCalGas	28.2	61.0	8	1.8	21.6	23.9	56.6	4.4	14.2%	1.6	21.6	1.5	2.3	21.9	54.6	6.4	20.6%	1.5	21.6	1.2	1.7
16	PG&E	40.2	66.6	39	1.9	13.4	36.2	62.5	4.1	15.0%	1.7	13.4	2.1	2.1	37.1	63.4	3.2	11.4%	1.7	13.4	1.6	1.7

">1" = indicates cases where there is both first cost savings and annual utility bill savings.



Table 39: Multifamily All-Electric Efficiency & PV-PV/Battery Package Cost-Effectiveness Results

Climate Zone	Utility	BASECASE				Efficiency & PV							Efficiency & PV/Battery						
		Total EDR	CALGreen Tier 1 EDR Target	lbs CO2 per sqft	PV kW per Building	Total EDR	Total EDR Margin	% Comp Margin	lbs CO2 per sqft	PV kW per Building	On-Bill B/C Ratio	TDV B/C Ratio	Total EDR	Total EDR Margin	% Comp Margin	lbs CO2 per sqft	PV kW per Building	On-Bill B/C Ratio	TDV B/C Ratio
01	PG&E	41.1	36	1.6	15.9	18.6	22.5	14.6%	0.8	26.9	2.0	1.5	6.6	34.5	24.6%	0.4	30.3	1.3	1.4
02	PG&E	34.3	16	1.4	13.9	16.8	17.5	9.1%	0.7	21.9	2.4	1.8	3.4	30.9	16.1%	0.3	24.8	1.4	1.7
03	PG&E	33.5	14	1.3	13.5	17.4	16.1	2.6%	0.7	20.8	2.4	1.7	4.0	29.5	8.6%	0.3	23.6	1.3	1.6
04	PG&E	32.0	12	1.3	13.6	17.0	15.0	8.0%	0.7	20.2	2.4	1.8	3.1	28.9	16.0%	0.3	22.9	1.30	1.77
05	PG&E	34.7	16	1.3	12.6	17.6	17.1	3.4%	0.7	19.9	2.5	1.8	4.4	30.3	8.4%	0.3	22.5	1.4	1.7
05	PG&E/SoCalGas	34.7	16	1.3	12.6	17.6	17.1	3.4%	0.7	19.9	2.5	1.8	4.4	30.3	8.4%	0.3	22.5	1.4	1.7
06	SCE/SoCalGas	31.9	12	1.3	13.9	18.1	13.8	5.9%	1.0	19.5	1.2	1.7	4.4	27.5	8.9%	0.5	22.1	1.2	1.6
07	SDG&E	31.7	7	1.2	13.2	18.9	12.8	4.6%	0.9	18.1	2.1	1.8	4.6	27.1	6.6%	0.5	20.5	1.2	1.6
08	SCE/SoCalGas	29.8	10	1.3	14.6	18.2	11.6	6.5%	1.0	19.4	1.3	1.8	5.6	24.2	12.5%	0.5	22.0	1.2	1.6
09	SCE/SoCalGas	30.4	13	1.3	14.7	19.1	11.3	8.1%	1.0	19.4	1.3	1.9	7.1	23.3	15.1%	0.6	22.0	1.3	1.7
10	SCE/SoCalGas	31.2	11	1.4	15.1	20.4	10.8	8.7%	1.1	19.9	1.3	1.8	7.9	23.3	14.7%	0.6	22.5	1.3	1.7
10	SDG&E	31.2	11	1.4	15.1	20.4	10.8	8.7%	1.1	19.9	2.1	1.8	7.9	23.3	14.7%	0.6	22.5	1.4	1.7
11	PG&E	31.9	12	1.4	16.6	18.5	13.4	13.1%	0.8	22.8	2.2	1.8	6.6	25.3	21.1%	0.4	25.8	1.4	1.8
12	PG&E	32.0	13	1.3	14.9	17.6	14.4	11.4%	0.7	21.7	2.1	1.6	5.4	26.6	20.4%	0.4	24.5	1.3	1.7
13	PG&E	32.1	13	1.4	17.5	19.9	12.2	12.6%	0.8	23.3	2.1	1.7	8.2	23.9	20.6%	0.4	26.4	1.4	1.7
14	SCE/SoCalGas	32.5	16	1.7	14.6	18.5	14.0	13.8%	1.3	20.2	1.4	1.9	7.7	24.8	21.8%	0.8	22.8	1.4	1.8
14	SDG&E	32.5	16	1.7	14.6	18.5	14.0	13.8%	1.3	20.2	2.2	1.9	7.7	24.8	21.8%	0.8	22.8	1.7	1.8
15	SCE/SoCalGas	28.2	8	1.8	21.6	21.1	7.1	14.2%	1.5	23.6	1.4	2.1	11.3	16.9	20.2%	1.1	26.6	1.3	1.8
16	PG&E	40.2	39	1.9	13.4	20.6	19.6	15.0%	1.2	22.0	2.6	1.9	10.3	29.9	23.0%	0.8	24.8	1.6	1.7

">1" = indicates cases where there is both first cost savings and annual utility bill savings.



Appendix F – Multifamily Measure Summary

Table 40: Multifamily Mixed Fuel Efficiency – Non-Preempted Package Measure Summary

CZ	Duct	Infiltration	Wall	Attic	Roof	Glazing	Slab	DHW	HVAC	PV
1	VLLDCS	Code Min	Code Min	Code Min	Code Min	0.24/0.50 windows	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling
2	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling
3	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling
4	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling
5	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling
6	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	Code Min	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling
7	Code Min	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	Code Min	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling
8	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	Code Min	Enh CHW credit (0.6)	0.35 W/cfm	1.0 PV scaling
9	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	Code Min	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling
10	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling
11	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	0.24/0.23 windows	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling
12	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling
13	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	0.24/0.23 windows	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling
14	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	0.24/0.23 windows	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling
15	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	0.24/0.23 windows	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling
16	VLLDCS	Code Min	Code Min	Code Min	Code Min	0.24/0.50 windows	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling

VLLDCS – Verified Low-Leakage Ducts in Conditioned Space



Table 41: Multifamily Mixed Fuel Efficiency – Equipment, Preempted Package Measure Summary

CZ	Duct	Infiltratio	Wall	Attic	Roof	Glazing	Slab	DHW	HVAC	PV
1	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	95 EF, basic compact dist.	16 SEER, 92 AFUE, 0.35W/cfm	1.0 PV scaling
2	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	95 EF, basic compact dist.	16 SEER, 92 AFUE, 0.35W/cfm	1.0 PV scaling
3	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	95 EF, basic compact dist.	92 AFUE, 0.35W/cfm	1.0 PV scaling
4	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	95 EF, basic compact dist.	16 SEER, 0.35 W/cfm	1.0 PV scaling
5	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	95 EF, basic compact dist.	92 AFUE, 0.45W/cfm	1.0 PV scaling
6	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	95 EF, basic compact dist.	Code Min	1.0 PV scaling
7	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	95 EF, basic compact dist.	16 SEER, 0.35 W/cfm	1.0 PV scaling
8	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	95 EF, basic compact dist.	Code Min	1.0 PV scaling
9	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	95 EF, basic compact dist.	16 SEER, 0.35 W/cfm	1.0 PV scaling
10	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	95 EF, basic compact dist.	16 SEER, 0.35 W/cfm	1.0 PV scaling
11	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	95 EF, basic compact dist.	16 SEER, 92 AFUE, 0.35W/cfm	1.0 PV scaling
12	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	95 EF, basic compact dist.	16 SEER, 92 AFUE, 0.35W/cfm	1.0 PV scaling
13	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	95 EF, basic compact dist.	16 SEER, 92 AFUE, 0.35W/cfm	1.0 PV scaling
14	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	95 EF, basic compact dist.	16 SEER, 92 AFUE, 0.35W/cfm	1.0 PV scaling
15	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	95 EF, basic compact dist.	16 SEER, 0.35 W/cfm	1.0 PV scaling
16	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	95 EF, basic compact dist.	16 SEER, 92 AFUE, 0.35W/cfm	1.0 PV scaling

VLLDCS – Verified Low-Leakage Ducts in Conditioned Space



Table 42: Multifamily Mixed Fuel Efficiency & PV/Battery Package Measure Summary

CZ	Duct	Infiltration	Wall	Attic	Roof	Glazing	Slab	DHW	HVAC	PV
1	VLLDCS	Code Min	Code Min	Code Min	Code Min	0.24/0.50 windows	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling + 22kWh batt
2	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling + 22kWh batt
3	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling + 22kWh batt
4	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling + 22kWh batt
5	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling + 22kWh batt
6	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	Code Min	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling + 22kWh batt
7	Code Min	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	Code Min	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling + 22kWh batt
8	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	Code Min	Enh CHW credit (0.6)	0.35 W/cfm	1.0 PV scaling + 22kWh batt
9	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	Code Min	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling + 22kWh batt
10	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling + 22kWh batt
11	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	0.24/0.23 windows	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling + 22kWh batt
12	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling + 22kWh batt
13	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	0.24/0.23 windows	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling + 22kWh batt
14	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	0.24/0.23 windows	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling + 22kWh batt
15	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	0.24/0.23 windows	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling + 22kWh batt
16	VLLDCS	Code Min	Code Min	Code Min	Code Min	0.24/0.50 windows	R-10 slab insulation	Basic CHW credit (0.7)	0.35 W/cfm	1.0 PV scaling + 22kWh batt

VLLDCS – Verified Low-Leakage Ducts in Conditioned Space



Table 43: Multifamily All-Electric Efficiency – Non-Preempted Package Measure Summary

CZ	Duct	Infiltration	Wall	Attic	Roof	Glazing	Slab	DHW	HVAC	PV
1	VLLDCS	Code Min	Code Min	Code Min	Code Min	0.24/0.50 windows	R-10 slab insulation	Code Min	0.45 W/cfm	Std Design PV
2	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	R-10 slab insulation	Code Min	0.45 W/cfm	Std Design PV
3	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Std Design PV
4	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	R-10 slab insulation	Code Min	0.45 W/cfm	Std Design PV
5	VLLDCS	Code Min	Code Min	Code Min	Code Min	Code Min	R-10 slab insulation	Code Min	Code Min	Std Design PV
6	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	Code Min	Code Min	0.45 W/cfm	Std Design PV
7	Code Min	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	Code Min	Code Min	0.45 W/cfm	Std Design PV
8	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	Code Min	Code Min	0.45 W/cfm	Std Design PV
9	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	Code Min	Code Min	0.45 W/cfm	Std Design PV
10	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	R-10 slab insulation	Code Min	0.45 W/cfm	Std Design PV
11	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	0.24/0.23 windows	R-10 slab insulation	Code Min	0.45 W/cfm	Std Design PV
12	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	0.24/0.23 windows	R-10 slab insulation	Code Min	0.45 W/cfm	Std Design PV
13	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	0.24/0.23 windows	R-10 slab insulation	Code Min	0.45 W/cfm	Std Design PV
14	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	0.24/0.23 windows	R-10 slab insulation	Code Min	0.45 W/cfm	Std Design PV
15	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	0.24/0.23 windows	R-10 slab insulation	Code Min	0.45 W/cfm	Std Design PV
16	VLLDCS	Code Min	Code Min	Code Min	Code Min	0.24/0.50 windows	R-10 slab insulation	Code Min	0.45 W/cfm	Std Design PV

VLLDCS – Verified Low-Leakage Ducts in Conditioned Space



Table 44: Multifamily All-Electric Efficiency – Equipment, Preempted Package Measure Summary

CZ	Duct	Infiltratio	Wall	Attic	Roof	Glazing	Slab	DHW	HVAC	PV
1	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	NEEA Tier 3 HPWH	16 SEER, 9 HSPF, 0.45W/cfm	Std Design PV
2	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	NEEA Tier 3 HPWH	16 SEER, 9 HSPF, 0.45W/cfm	Std Design PV
3	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	NEEA Tier 3 HPWH	16 SEER, 9 HSPF, 0.45W/cfm	Std Design PV
4	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	NEEA Tier 3 HPWH	16 SEER, 9 HSPF, 0.45W/cfm	Std Design PV
5	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	NEEA Tier 3 HPWH	16 SEER, 9 HSPF, 0.45W/cfm	Std Design PV
6	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	NEEA Tier 3 HPWH	0.45 W/cfm	Std Design PV
7	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	NEEA Tier 3 HPWH	0.45 W/cfm	Std Design PV
8	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	NEEA Tier 3 HPWH	0.45 W/cfm	Std Design PV
9	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	NEEA Tier 3 HPWH	0.45 W/cfm	Std Design PV
10	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	NEEA Tier 3 HPWH	0.45 W/cfm	Std Design PV
11	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	NEEA Tier 3 HPWH	16 SEER, 9 HSPF, 0.45W/cfm	Std Design PV
12	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	NEEA Tier 3 HPWH	16 SEER, 9 HSPF, 0.45W/cfm	Std Design PV
13	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	NEEA Tier 3 HPWH	16 SEER, 9 HSPF, 0.45W/cfm	Std Design PV
14	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	NEEA Tier 3 HPWH	16 SEER, 9 HSPF, 0.45W/cfm	Std Design PV
15	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	NEEA Tier 3 HPWH	18 SEER, 10 HSPF, 0.45W/cfm	Std Design PV
16	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	NEEA Tier 3 HPWH	16 SEER, 9 HSPF, 0.45W/cfm	Std Design PV

VLLDCS – Verified Low-Leakage Ducts in Conditioned Space



Table 45: Multifamily All-Electric Efficiency & PV Package Measure Summary

CZ	Duct	Infiltration	Wall	Attic	Roof	Glazing	Slab	DHW	HVAC	PV
1	VLLDCS	Code Min	Code Min	Code Min	Code Min	0.24/0.50 windows	R-10 slab insulation	Code Min	0.45 W/cfm	0.9 PV scaling
2	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	R-10 slab insulation	Code Min	0.45 W/cfm	0.9 PV scaling
3	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	R-10 slab insulation	Code Min	0.45 W/cfm	0.9 PV scaling
4	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	R-10 slab insulation	Code Min	0.45 W/cfm	0.9 PV scaling
5	VLLDCS	Code Min	Code Min	Code Min	Code Min	Code Min	R-10 slab insulation	Code Min	Code Min	0.9 PV scaling
6	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	Code Min	Code Min	0.45 W/cfm	0.9 PV scaling
7	Code Min	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	Code Min	Code Min	0.45 W/cfm	0.9 PV scaling
8	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	Code Min	Code Min	0.45 W/cfm	0.9 PV scaling
9	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	Code Min	Code Min	0.45 W/cfm	0.9 PV scaling
10	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	R-10 slab insulation	Code Min	0.45 W/cfm	0.9 PV scaling
11	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	0.24/0.23 windows	R-10 slab insulation	Code Min	0.45 W/cfm	0.9 PV scaling
12	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	0.24/0.23 windows	R-10 slab insulation	Code Min	0.45 W/cfm	0.9 PV scaling
13	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	0.24/0.23 windows	R-10 slab insulation	Code Min	0.45 W/cfm	0.9 PV scaling
14	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	0.24/0.23 windows	R-10 slab insulation	Code Min	0.45 W/cfm	0.9 PV scaling
15	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	0.24/0.23 windows	R-10 slab insulation	Code Min	0.45 W/cfm	0.9 PV scaling
16	VLLDCS	Code Min	Code Min	Code Min	Code Min	0.24/0.50 windows	R-10 slab insulation	Code Min	0.45 W/cfm	0.9 PV scaling

VLLDCS – Verified Low-Leakage Ducts in Conditioned Space



Table 46: Multifamily All-Electric Efficiency & PV/Battery Package Measure Summary

CZ	Duct	Infiltration	Wall	Attic	Roof	Glazing	Slab	DHW	HVAC	PV
1	VLLDCS	Code Min	Code Min	Code Min	Code Min	0.24/0.50 windows	R-10 slab insulation	Code Min	0.45 W/cfm	1.0 PV scaling + 22kWh batt
2	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	R-10 slab insulation	Code Min	0.45 W/cfm	1.0 PV scaling + 22kWh batt
3	Code Min	Code Min	Code Min	Code Min	Code Min	Code Min	R-10 slab insulation	Code Min	0.45 W/cfm	1.0 PV scaling + 22kWh batt
4	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	R-10 slab insulation	Code Min	0.45 W/cfm	1.0 PV scaling + 22kWh batt
5	VLLDCS	Code Min	Code Min	Code Min	Code Min	Code Min	R-10 slab insulation	Code Min	Code Min	1.0 PV scaling + 22kWh batt
6	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	Code Min	Code Min	0.45 W/cfm	1.0 PV scaling + 22kWh batt
7	Code Min	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	Code Min	Code Min	0.45 W/cfm	1.0 PV scaling + 22kWh batt
8	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	Code Min	Code Min	0.45 W/cfm	1.0 PV scaling + 22kWh batt
9	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	Code Min	Code Min	0.45 W/cfm	1.0 PV scaling + 22kWh batt
10	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	Code Min	R-10 slab insulation	Code Min	0.45 W/cfm	1.0 PV scaling + 22kWh batt
11	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	0.24/0.23 windows	R-10 slab insulation	Code Min	0.45 W/cfm	1.0 PV scaling + 22kWh batt
12	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	0.24/0.23 windows	R-10 slab insulation	Code Min	0.45 W/cfm	1.0 PV scaling + 22kWh batt
13	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	0.24/0.23 windows	R-10 slab insulation	Code Min	0.45 W/cfm	1.0 PV scaling + 22kWh batt
14	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	0.24/0.23 windows	R-10 slab insulation	Code Min	0.45 W/cfm	1.0 PV scaling + 22kWh batt
15	VLLDCS	Code Min	Code Min	Code Min	0.25 solar reflectance	0.24/0.23 windows	R-10 slab insulation	Code Min	0.45 W/cfm	1.0 PV scaling + 22kWh batt
16	VLLDCS	Code Min	Code Min	Code Min	Code Min	0.24/0.50 windows	R-10 slab insulation	Code Min	0.45 W/cfm	1.0 PV scaling + 22kWh batt

VLLDCS – Verified Low-Leakage Ducts in Conditioned Space



Appendix G – Results by Climate Zone

Climate Zone 1	80
Climate Zone 2	82
Climate Zone 3	84
Climate Zone 4	86
Climate Zone 5 PG&E	88
Climate Zone 5 PG&E/SoCalGas	90
Climate Zone 6	92
Climate Zone 7	94
Climate Zone 8	96
Climate Zone 9	98
Climate Zone 10 SCE/SoCalGas	100
Climate Zone 10 SDGE	102
Climate Zone 11	104
Climate Zone 12	106
Climate Zone 13	108
Climate Zone 14 SCE/SoCalGas	110
Climate Zone 14 SDGE	112
Climate Zone 15	114
Climate Zone 16	116



Climate Zone 1**Table 47: Single Family Climate Zone 1 Results Summary**

Climate Zone 1 PG&E Single Family		Annual Net kWh	Annual therms	EDR Margin ⁴	PV Size Change (kW) ⁵	CO2-Equivalent Emissions (lbs/sf)		NPV of Lifetime Incremental Cost (\$)	Benefit to Cost Ratio (B/C)	
						Total	Reduction		On-Bill	TDV
Mixed Fuel ¹	Code Compliant	(0)	581	n/a	n/a	3.00	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	(0)	480	5.0	(0.08)	2.51	0.49	\$1,355	3.38	2.82
	Efficiency-Equipment	0	440	6.5	(0.07)	2.32	0.68	\$1,280	4.92	4.10
	Efficiency & PV/Battery	(28)	480	10.5	0.04	2.40	0.60	\$5,311	0.87	1.61
All-Electric ²	Code Compliant	7,079	0	n/a	n/a	1.51	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	4,461	0	15.0	0.00	1.01	0.50	\$7,642	1.79	1.66
	Efficiency-Equipment	5,933	0	6.5	0.00	1.29	0.22	\$2,108	2.94	2.74
	Efficiency & PV	889	0	31.0	2.67	0.52	1.00	\$18,192	1.81	1.45
	Efficiency & PV/Battery	(14)	0	41.0	3.45	0.28	1.23	\$24,770	1.45	1.40
Mixed Fuel to All-Electric ³	Code Compliant	7,079	0	0.0	0.00	1.51	1.49	(\$5,349)	0.37	0.91
	Efficiency & PV	889	0	31.0	2.67	0.52	2.48	\$12,844	1.43	2.11
	Neutral Cost	5,270	0	8.0	1.35	1.26	1.74	\$0	0.00	1.09
	Min Cost Effectiveness	3,106	0	18.0	2.97	0.95	2.04	(\$6,372)	1.08	>1

¹All reductions and incremental costs relative to the **mixed fuel** code compliant home.

²All reductions and incremental costs relative to the **all-electric** code compliant home.

³All reductions and incremental costs relative to the **mixed fuel** code compliant home except the EDR Margins are relative to the Standard Design for each case which is the **all-electric** code compliant home. Incremental costs for these packages reflect the costs used in the On-Bill cost effectiveness methodology. Costs differ for the TDV methodology due to differences in the site gas infrastructure costs (see Section 2.6).

⁴This represents the Efficiency EDR Margin for the Efficiency-Non-Preempted and Efficiency-Equipment packages and Total EDR Margin for the Efficiency & PV, Efficiency & PV/Battery, Neutral Cost, and Min Cost Effectiveness packages.

⁵Positive values indicate an increase in PV capacity relative to the Standard Design.



Table 48: Multifamily Climate Zone 1 Results Summary (Per Dwelling Unit)

Climate Zone 1 PG&E Multifamily		Annual Net kWh	Annual therms	EDR Margin ⁴	PV Size Change (kW) ⁵	CO2-Equivalent Emissions (lbs/sf)		NPV of Lifetime Incremental Cost (\$)	Benefit to Cost Ratio (B/C)	
						Total	Reduction		On-Bill	TDV
Mixed Fuel ¹	Code Compliant	(0)	180	n/a	n/a	2.75	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	(0)	147	3.0	0.00	2.31	0.44	\$960	1.10	1.18
	Efficiency-Equipment	(0)	159	2.0	(0.01)	2.48	0.27	\$507	1.29	1.41
	Efficiency & PV/Battery	(14)	147	11.5	0.07	2.13	0.61	\$3,094	0.35	1.21
All-Electric ²	Code Compliant	2,624	0	n/a	n/a	1.62	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	2,328	0	3.5	0.00	1.46	0.15	\$949	1.55	1.40
	Efficiency-Equipment	2,278	0	3.0	0.00	1.41	0.20	\$795	2.39	2.26
	Efficiency & PV	499	0	22.5	1.37	0.75	0.86	\$5,538	2.04	1.50
	Efficiency & PV/Battery	(7)	0	34.5	1.80	0.38	1.24	\$8,919	1.33	1.43
Mixed Fuel to All-Electric ³	Code Compliant	2,624	0	0.0	0.00	1.62	1.13	(\$2,337)	0.38	1.01
	Efficiency & PV	62	0	22.5	1.37	0.75	2.00	\$3,202	1.63	>1
	Neutral Cost	1,693	0	9.5	0.70	1.25	1.50	\$0	0.00	1.57
	Min Cost Effectiveness	1,273	0	14.0	1.01	1.09	1.66	(\$1,052)	1.14	3.76

¹All reductions and incremental costs relative to the **mixed fuel** code compliant home.

²All reductions and incremental costs relative to the **all-electric** code compliant home.

³All reductions and incremental costs relative to the **mixed fuel** code compliant home except the EDR Margins are relative to the Standard Design for each case which is the **all-electric** code compliant home. Incremental costs for these packages reflect the costs used in the On-Bill cost effectiveness methodology. Costs differ for the TDV methodology due to differences in the site gas infrastructure costs (see Section 2.6).

⁴This represents the Efficiency EDR Margin for the Efficiency-Non-Preempted and Efficiency-Equipment packages and Total EDR Margin for the Efficiency & PV, Efficiency & PV/Battery, Neutral Cost, and Min Cost Effectiveness packages.

⁵Positive values indicate an increase in PV capacity relative to the Standard Design.



Climate Zone 2**Table 49: Single Family Climate Zone 2 Results Summary**

Climate Zone 2 PG&E Single Family		Annual Net kWh	Annual therms	EDR Margin⁴	PV Size Change (kW)⁵	CO2-Equivalent Emissions (lbs/sf)		NPV of Lifetime Incremental Cost (\$)	Benefit to Cost Ratio (B/C)	
						Total	Reduction		On-Bill	TDV
Mixed Fuel¹	Code Compliant	(0)	421	n/a	n/a	2.23	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	0	360	3.0	(0.04)	1.94	0.30	\$1,504	1.63	1.66
	Efficiency-Equipment	(0)	352	3.0	(0.03)	1.90	0.33	\$724	3.77	3.63
	Efficiency & PV/Battery	(22)	360	10.0	0.06	1.82	0.41	\$5,393	0.47	1.56
All-Electric²	Code Compliant	5,014	0	n/a	n/a	1.11	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	4,079	0	4.5	0.00	0.94	0.18	\$3,943	1.21	1.07
	Efficiency-Equipment	4,122	0	5.0	0.00	0.94	0.17	\$2,108	2.25	2.10
	Efficiency & PV	847	0	19.0	2.07	0.49	0.63	\$12,106	1.83	1.38
	Efficiency & PV/Battery	(15)	0	30.0	2.71	0.26	0.86	\$18,132	1.37	1.43
Mixed Fuel to All-Electric³	Code Compliant	5,014	0	0.0	0.00	1.11	1.12	(\$5,349)	0.52	1.59
	Efficiency & PV	847	0	19.0	2.07	0.49	1.75	\$6,758	1.76	39.70
	Neutral Cost	2,891	0	9.5	1.36	0.82	1.41	\$0	>1	>1

¹All reductions and incremental costs relative to the **mixed fuel** code compliant home.

²All reductions and incremental costs relative to the **all-electric** code compliant home.

³All reductions and incremental costs relative to the **mixed fuel** code compliant home except the EDR Margins are relative to the Standard Design for each case which is the **all-electric** code compliant home. Incremental costs for these packages reflect the costs used in the On-Bill cost effectiveness methodology. Costs differ for the TDV methodology due to differences in the site gas infrastructure costs (see Section 2.6).

⁴This represents the Efficiency EDR Margin for the Efficiency-Non-Preempted and Efficiency-Equipment packages and Total EDR Margin for the Efficiency & PV, Efficiency & PV/Battery, and Neutral Cost packages.

⁵Positive values indicate an increase in PV capacity relative to the Standard Design.



Table 50: Multifamily Climate Zone 2 Results Summary (Per Dwelling Unit)

Climate Zone 2 PG&E Multifamily		Annual Net kWh	Annual therms	EDR Margin ⁴	PV Size Change (kW) ⁵	CO2-Equivalent Emissions (lbs/sf)		NPV of Lifetime Incremental Cost (\$)	Benefit to Cost Ratio (B/C)	
						Total	Reduction		On-Bill	TDV
Mixed Fuel ¹	Code Compliant	(0)	150	n/a	n/a	2.37	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	0	142	1.5	(0.02)	2.25	0.12	\$309	0.97	1.75
	Efficiency-Equipment	(0)	134	2.0	(0.01)	2.15	0.22	\$497	1.08	1.49
	Efficiency & PV/Battery	(11)	142	10.5	0.04	2.07	0.30	\$2,413	0.17	1.60
All-Electric ²	Code Compliant	2,151	0	n/a	n/a	1.38	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	2,038	0	1.5	0.00	1.32	0.06	\$361	1.73	2.05
	Efficiency-Equipment	1,928	0	3.0	0.00	1.25	0.13	\$795	1.56	1.56
	Efficiency & PV	476	0	17.5	1.00	0.72	0.67	\$3,711	2.42	1.82
	Efficiency & PV/Battery	(7)	0	30.5	1.36	0.35	1.04	\$6,833	1.38	1.74
Mixed Fuel to All-Electric ³	Code Compliant	2,151	0	0.0	0.00	1.38	0.99	(\$2,337)	0.53	1.42
	Efficiency & PV	60	0	17.5	1.00	0.72	1.65	\$1,375	3.31	>1
	Neutral Cost	1,063	0	10.5	0.70	0.96	1.41	\$0	>1	>1

¹All reductions and incremental costs relative to the **mixed fuel** code compliant home.

²All reductions and incremental costs relative to the **all-electric** code compliant home.

³All reductions and incremental costs relative to the **mixed fuel** code compliant home except the EDR Margins are relative to the Standard Design for each case which is the **all-electric** code compliant home. Incremental costs for these packages reflect the costs used in the On-Bill cost effectiveness methodology. Costs differ for the TDV methodology due to differences in the site gas infrastructure costs (see Section 2.6).

⁴This represents the Efficiency EDR Margin for the Efficiency-Non-Preempted and Efficiency-Equipment packages and Total EDR Margin for the Efficiency & PV, Efficiency & PV/Battery, and Neutral Cost packages.

⁵Positive values indicate an increase in PV capacity relative to the Standard Design.



Climate Zone 3**Table 51: Single Family Climate Zone 3 Results Summary**

Climate Zone 3 PG&E Single Family		Annual Net kWh	Annual therms	EDR Margin ⁴	PV Size Change (kW) ⁵	CO2-Equivalent Emissions (lbs/sf)		NPV of Lifetime Incremental Cost (\$)	Benefit to Cost Ratio (B/C)	
						Total	Reduction		On-Bill	TDV
Mixed Fuel ¹	Code Compliant	(0)	348	n/a	n/a	1.88	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	(0)	296	2.5	(0.03)	1.63	0.26	\$1,552	1.28	1.31
	Efficiency-Equipment	(0)	273	4.0	(0.03)	1.52	0.37	\$1,448	1.91	1.97
	Efficiency & PV/Battery	(20)	296	10.0	0.07	1.50	0.38	\$5,438	0.38	1.38
All-Electric ²	Code Compliant	4,355	0	n/a	n/a	1.00	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	3,584	0	4.5	0.00	0.85	0.15	\$1,519	2.60	2.36
	Efficiency-Equipment	3,670	0	4.0	0.00	0.86	0.14	\$2,108	1.76	1.62
	Efficiency & PV	790	0	18.0	1.77	0.46	0.54	\$8,517	2.22	1.68
	Efficiency & PV/Battery	(12)	0	29.0	2.37	0.23	0.76	\$14,380	1.50	1.58
Mixed Fuel to All-Electric ³	Code Compliant	4,355	0	0.0	0.00	1.00	0.89	(\$5,349)	0.55	1.53
	Efficiency & PV	790	0	18.0	1.77	0.46	1.43	\$3,169	2.88	>1
	Neutral Cost	2,217	0	10.5	1.35	0.70	1.18	\$0	>1	>1

¹All reductions and incremental costs relative to the **mixed fuel** code compliant home.

²All reductions and incremental costs relative to the **all-electric** code compliant home.

³All reductions and incremental costs relative to the **mixed fuel** code compliant home except the EDR Margins are relative to the Standard Design for each case which is the **all-electric** code compliant home. Incremental costs for these packages reflect the costs used in the On-Bill cost effectiveness methodology. Costs differ for the TDV methodology due to differences in the site gas infrastructure costs (see Section 2.6).

⁴This represents the Efficiency EDR Margin for the Efficiency-Non-Preempted and Efficiency-Equipment packages and Total EDR Margin for the Efficiency & PV, Efficiency & PV/Battery, and Neutral Cost packages.

⁵Positive values indicate an increase in PV capacity relative to the Standard Design.



Table 52: Multifamily Climate Zone 3 Results Summary (Per Dwelling Unit)

Climate Zone 3 PG&E Multifamily		Annual Net kWh	Annual therms	EDR Margin ⁴	PV Size Change (kW) ⁵	CO2-Equivalent Emissions (lbs/sf)		NPV of Lifetime Incremental Cost (\$)	Benefit to Cost Ratio (B/C)	
						Total	Reduction		On-Bill	TDV
Mixed Fuel ¹	Code Compliant	(0)	133	n/a	n/a	2.13	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	(0)	127	0.5	(0.00)	2.06	0.07	\$175	1.00	1.11
	Efficiency-Equipment	(0)	119	1.5	(0.00)	1.94	0.19	\$403	1.11	1.23
	Efficiency & PV/Battery	(10)	127	10.0	0.05	1.86	0.27	\$2,279	0.11	1.41
All-Electric ²	Code Compliant	1,944	0	n/a	n/a	1.27	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	1,944	0	0.0	0.00	1.27	0.00	\$0	-	-
	Efficiency-Equipment	1,698	0	2.5	0.00	1.13	0.14	\$795	1.73	1.58
	Efficiency & PV	457	0	16.0	0.92	0.69	0.58	\$3,272	2.43	1.73
	Efficiency & PV/Battery	(7)	0	29.5	1.26	0.33	0.94	\$6,344	1.32	1.64
Mixed Fuel to All-Electric ³	Code Compliant	1,944	0	0.0	0.00	1.27	0.86	(\$2,337)	0.58	1.46
	Efficiency & PV	57	0	16.0	0.92	0.69	1.43	\$936	4.18	>1
	Neutral Cost	845	0	11.5	0.70	0.85	1.28	\$0	>1	>1

¹All reductions and incremental costs relative to the **mixed fuel** code compliant home.

²All reductions and incremental costs relative to the **all-electric** code compliant home.

³All reductions and incremental costs relative to the **mixed fuel** code compliant home except the EDR Margins are relative to the Standard Design for each case which is the **all-electric** code compliant home. Incremental costs for these packages reflect the costs used in the On-Bill cost effectiveness methodology. Costs differ for the TDV methodology due to differences in the site gas infrastructure costs (see Section 2.6).

⁴This represents the Efficiency EDR Margin for the Efficiency-Non-Preempted and Efficiency-Equipment packages and Total EDR Margin for the Efficiency & PV, Efficiency & PV/Battery, and Neutral Cost packages.

⁵Positive values indicate an increase in PV capacity relative to the Standard Design.



Climate Zone 4**Table 53: Single Family Climate Zone 4 Results Summary**

Climate Zone 4 PG&E Single Family		Annual Net kWh	Annual therms	EDR Margin ⁴	PV Size Change (kW) ⁵	CO2-Equivalent Emissions (lbs/sf)		NPV of Lifetime Incremental Cost (\$)	Benefit to Cost Ratio (B/C)	
						Total	Reduction		On-Bill	TDV
Mixed Fuel ¹	Code Compliant	0	347	n/a	n/a	1.88	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	0	306	2.5	(0.03)	1.68	0.20	\$1,556	0.93	1.15
	Efficiency-Equipment	(0)	294	2.5	(0.02)	1.62	0.26	\$758	2.39	2.67
	Efficiency & PV/Battery	(18)	306	10.0	0.07	1.55	0.33	\$5,434	0.30	1.48
All-Electric ²	Code Compliant	4,342	0	n/a	n/a	1.00	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	3,775	0	3.0	0.00	0.89	0.11	\$1,519	1.92	1.84
	Efficiency-Equipment	3,747	0	3.5	0.00	0.88	0.12	\$2,108	1.52	1.52
	Efficiency & PV	814	0	17.0	1.84	0.48	0.52	\$8,786	2.13	1.62
	Efficiency & PV/Battery	(11)	0	28.5	2.44	0.25	0.75	\$14,664	1.46	1.61
Mixed Fuel to All-Electric ³	Code Compliant	4,342	0	0.0	0.00	1.00	0.88	(\$5,349)	0.55	1.59
	Efficiency & PV	814	0	17.0	1.84	0.48	1.40	\$3,438	2.64	>1
	Neutral Cost	2,166	0	10.0	1.35	0.70	1.18	\$0	>1	>1

¹All reductions and incremental costs relative to the **mixed fuel** code compliant home.

²All reductions and incremental costs relative to the **all-electric** code compliant home.

³All reductions and incremental costs relative to the **mixed fuel** code compliant home except the EDR Margins are relative to the Standard Design for each case which is the **all-electric** code compliant home. Incremental costs for these packages reflect the costs used in the On-Bill cost effectiveness methodology. Costs differ for the TDV methodology due to differences in the site gas infrastructure costs (see Section 2.6).

⁴This represents the Efficiency EDR Margin for the Efficiency-Non-Preempted and Efficiency-Equipment packages and Total EDR Margin for the Efficiency & PV, Efficiency & PV/Battery, and Neutral Cost packages.

⁵Positive values indicate an increase in PV capacity relative to the Standard Design.



Table 54: Multifamily Climate Zone 4 Results Summary (Per Dwelling Unit)

Climate Zone 4 PG&E Multifamily		Annual Net kWh	Annual therms	EDR Margin ⁴	PV Size Change (kW) ⁵	CO2-Equivalent Emissions (lbs/sf)		NPV of Lifetime Incremental Cost (\$)	Benefit to Cost Ratio (B/C)	
						Total	Reduction		On-Bill	TDV
Mixed Fuel ¹	Code Compliant	(0)	134	n/a	n/a	2.16	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	(0)	127	1.0	(0.01)	2.06	0.10	\$329	0.75	1.24
	Efficiency-Equipment	(0)	123	1.5	(0.01)	2.01	0.15	\$351	1.06	1.74
	Efficiency & PV/Battery	(9)	127	11.0	0.04	1.87	0.29	\$2,429	0.17	1.60
All-Electric ²	Code Compliant	1,887	0	n/a	n/a	1.25	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	1,794	0	1.0	0.00	1.21	0.05	\$361	1.38	1.54
	Efficiency-Equipment	1,712	0	2.0	0.00	1.15	0.10	\$795	1.23	1.09
	Efficiency & PV	453	0	15.0	0.83	0.69	0.57	\$3,158	2.43	1.81
	Efficiency & PV/Battery	(7)	0	28.5	1.17	0.32	0.93	\$6,201	1.30	1.77
Mixed Fuel to All-Electric ³	Code Compliant	1,887	0	0.0	0.00	1.25	0.90	(\$2,337)	0.65	1.77
	Efficiency & PV	57	0	15.0	0.83	0.69	1.47	\$822	4.96	>1
	Neutral Cost	767	0	11.0	0.70	0.82	1.33	\$0	>1	>1

¹All reductions and incremental costs relative to the **mixed fuel** code compliant home.

²All reductions and incremental costs relative to the **all-electric** code compliant home.

³All reductions and incremental costs relative to the **mixed fuel** code compliant home except the EDR Margins are relative to the Standard Design for each case which is the **all-electric** code compliant home. Incremental costs for these packages reflect the costs used in the On-Bill cost effectiveness methodology. Costs differ for the TDV methodology due to differences in the site gas infrastructure costs (see Section 2.6).

⁴This represents the Efficiency EDR Margin for the Efficiency-Non-Preempted and Efficiency-Equipment packages and Total EDR Margin for the Efficiency & PV, Efficiency & PV/Battery, and Neutral Cost packages.

⁵Positive values indicate an increase in PV capacity relative to the Standard Design..



Climate Zone 5 PG&E**Table 55: Single Family Climate Zone 5 PG&E Results Summary**

Climate Zone 5 PG&E Single Family		Annual Net kWh	Annual therms	EDR Margin ⁴	PV Size Change (kW) ⁵	CO2-Equivalent Emissions (lbs/sf)		NPV of Lifetime Incremental Cost (\$)	Benefit to Cost Ratio (B/C)	
						Total	Reduction		On-Bill	TDV
Mixed Fuel ¹	Code Compliant	0	331	n/a	n/a	1.79	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	(0)	281	2.5	(0.03)	1.55	0.24	\$1,571	1.10	1.22
	Efficiency-Equipment	(0)	279	2.5	(0.02)	1.54	0.25	\$772	2.29	2.48
	Efficiency & PV/Battery	(14)	281	9.0	0.07	1.43	0.36	\$5,433	0.37	1.32
All-Electric ²	Code Compliant	4,452	0	n/a	n/a	1.01	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	3,687	0	4.0	0.00	0.86	0.15	\$1,519	2.58	2.31
	Efficiency-Equipment	3,737	0	4.0	0.00	0.87	0.14	\$2,108	1.85	1.70
	Efficiency & PV	798	0	18.0	1.72	0.46	0.55	\$8,307	2.31	1.76
	Efficiency & PV/Battery	(8)	0	28.5	2.29	0.24	0.78	\$14,047	1.59	1.63
Mixed Fuel to All-Electric ³	Code Compliant	4,452	0	0.0	0.00	1.01	0.78	(\$5,349)	0.48	1.32
	Efficiency & PV	798	0	18.0	1.72	0.46	1.33	\$2,959	2.72	>1
	Neutral Cost	2,172	0	11.0	1.35	0.70	1.10	\$0	>1	40.07

¹All reductions and incremental costs relative to the **mixed fuel** code compliant home.

²All reductions and incremental costs relative to the **all-electric** code compliant home.

³All reductions and incremental costs relative to the **mixed fuel** code compliant home except the EDR Margins are relative to the Standard Design for each case which is the **all-electric** code compliant home. Incremental costs for these packages reflect the costs used in the On-Bill cost effectiveness methodology. Costs differ for the TDV methodology due to differences in the site gas infrastructure costs (see Section 2.6).

⁴This represents the Efficiency EDR Margin for the Efficiency-Non-Preempted and Efficiency-Equipment packages and Total EDR Margin for the Efficiency & PV, Efficiency & PV/Battery, and Neutral Cost packages.

⁵Positive values indicate an increase in PV capacity relative to the Standard Design.



Table 56: Multifamily Climate Zone 5 PG&E Results Summary (Per Dwelling Unit)

Climate Zone 5 PG&E Multifamily		Annual Net kWh	Annual therms	EDR Margin ⁴	PV Size Change (kW) ⁵	CO2-Equivalent Emissions (lbs/sf)		NPV of Lifetime Incremental Cost (\$)	Benefit to Cost Ratio (B/C)	
						Total	Reduction		On-Bill	TDV
Mixed Fuel ¹	Code Compliant	0	131	n/a	n/a	2.10	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	(0)	126	0.5	(0.00)	2.03	0.07	\$180	0.99	1.03
	Efficiency-Equipment	(0)	117	1.5	(0.00)	1.92	0.19	\$358	1.24	1.34
	Efficiency & PV/Battery	(7)	126	9.5	0.05	1.84	0.26	\$2,273	0.15	1.38
All-Electric ²	Code Compliant	2,044	0	n/a	n/a	1.32	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	1,990	0	0.5	0.00	1.30	0.03	\$247	1.09	0.86
	Efficiency-Equipment	1,738	0	3.5	0.00	1.15	0.17	\$795	2.15	2.03
	Efficiency & PV	465	0	17.0	0.91	0.70	0.62	\$3,293	2.53	1.82
	Efficiency & PV/Battery	(6)	0	30.0	1.24	0.34	0.98	\$6,314	1.44	1.69
Mixed Fuel to All-Electric ³	Code Compliant	2,044	0	0.0	0.00	1.32	0.78	(\$2,337)	0.50	1.28
	Efficiency & PV	58	0	17.0	0.91	0.70	1.40	\$956	3.80	>1
	Neutral Cost	874	0	12.5	0.70	0.87	1.23	\$0	>1	23.44

¹All reductions and incremental costs relative to the **mixed fuel** code compliant home.

²All reductions and incremental costs relative to the **all-electric** code compliant home.

³All reductions and incremental costs relative to the **mixed fuel** code compliant home except the EDR Margins are relative to the Standard Design for each case which is the **all-electric** code compliant home. Incremental costs for these packages reflect the costs used in the On-Bill cost effectiveness methodology. Costs differ for the TDV methodology due to differences in the site gas infrastructure costs (see Section 2.6).

⁴This represents the Efficiency EDR Margin for the Efficiency-Non-Preempted and Efficiency-Equipment packages and Total EDR Margin for the Efficiency & PV, Efficiency & PV/Battery, and Neutral Cost packages.

⁵Positive values indicate an increase in PV capacity relative to the Standard Design.



Climate Zone 5 PG&E/SoCalGas**Table 57: Single Family Climate Zone 5 PG&E/SoCalGas Results Summary**

Climate Zone 5 PG&E/SoCalGas Single Family		Annual Net kWh	Annual therms	EDR Margin ⁴	PV Size Change (kW) ⁵	CO2-Equivalent Emissions (lbs/sf)		NPV of Lifetime Incremental Cost (\$)	Benefit to Cost Ratio (B/C)	
						Total	Reduction		On- Bill	TDV
Mixed Fuel ¹	Code Compliant	0	331	n/a	n/a	1.79	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	(0)	281	2.5	(0.03)	1.55	0.24	\$1,571	0.92	1.22
	Efficiency-Equipment	(0)	279	2.5	(0.02)	1.54	0.25	\$772	1.98	2.48
	Efficiency & PV/Battery	(14)	281	9.0	0.07	1.43	0.36	\$5,433	0.31	1.32
All-Electric ²	Code Compliant	4,452	0	n/a	n/a	1.01	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	3,687	0	4.0	0.00	0.86	0.15	\$1,519	2.58	2.31
	Efficiency-Equipment	3,737	0	4.0	0.00	0.87	0.14	\$2,108	1.85	1.70
	Efficiency & PV	798	0	18.0	1.72	0.46	0.55	\$8,307	2.31	1.76
	Efficiency & PV/Battery	(8)	0	28.5	2.29	0.24	0.78	\$14,047	1.59	1.63
Mixed Fuel to All-Electric ³	Code Compliant	4,452	0	0.0	0.00	1.01	0.78	(\$5,349)	0.48	1.32
	Efficiency & PV	798	0	18.0	1.72	0.46	1.33	\$2,959	2.75	>1
	Neutral Cost	2,172	0	11.0	1.35	0.70	1.10	\$0	>1	40.07

¹All reductions and incremental costs relative to the **mixed fuel** code compliant home.

²All reductions and incremental costs relative to the **all-electric** code compliant home.

³All reductions and incremental costs relative to the **mixed fuel** code compliant home except the EDR Margins are relative to the Standard Design for each case which is the **all-electric** code compliant home. Incremental costs for these packages reflect the costs used in the On-Bill cost effectiveness methodology. Costs differ for the TDV methodology due to differences in the site gas infrastructure costs (see Section 2.6).

⁴This represents the Efficiency EDR Margin for the Efficiency-Non-Preempted and Efficiency-Equipment packages and Total EDR Margin for the Efficiency & PV, Efficiency & PV/Battery, and Neutral Cost packages.

⁵Positive values indicate an increase in PV capacity relative to the Standard Design.



Table 58: Multifamily Climate Zone 5 PG&E/SoCalGas Results Summary (Per Dwelling Unit)

Climate Zone 5 PG&E/SoCalGas Multifamily		Annual Net kWh	Annual therms	EDR Margin ⁴	PV Size Change (kW) ⁵	CO2-Equivalent Emissions (lbs/sf)		NPV of Lifetime Incremental Cost (\$)	Benefit to Cost Ratio (B/C)	
						Total	Reduction		On-Bill	TDV
Mixed Fuel ¹	Code Compliant	0	131	n/a	n/a	2.10	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	(0)	126	0.5	(0.00)	2.03	0.07	\$180	0.85	1.03
	Efficiency-Equipment	(0)	117	1.5	(0.00)	1.92	0.19	\$358	1.09	1.34
	Efficiency & PV/Battery	(7)	126	9.5	0.05	1.84	0.26	\$2,273	0.14	1.38
All-Electric ²	Code Compliant	2,044	0	n/a	n/a	1.32	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	1,990	0	0.5	0.00	1.30	0.03	\$247	1.09	0.86
	Efficiency-Equipment	1,738	0	3.5	0.00	1.15	0.17	\$795	2.15	2.03
	Efficiency & PV	465	0	17.0	0.91	0.70	0.62	\$3,293	2.53	1.82
	Efficiency & PV/Battery	(6)	0	30.0	1.24	0.34	0.98	\$6,314	1.44	1.69
Mixed Fuel to All-Electric ³	Code Compliant	2,044	0	0.0	0.00	1.32	0.78	(\$2,337)	0.65	1.28
	Efficiency & PV	58	0	17.0	0.91	0.70	1.40	\$956	4.98	>1
	Neutral Cost	874	0	12.5	0.70	0.87	1.23	\$0	>1	23.44

¹All reductions and incremental costs relative to the **mixed fuel** code compliant home.

²All reductions and incremental costs relative to the **all-electric** code compliant home.

³All reductions and incremental costs relative to the **mixed fuel** code compliant home except the EDR Margins are relative to the Standard Design for each case which is the **all-electric** code compliant home. Incremental costs for these packages reflect the costs used in the On-Bill cost effectiveness methodology. Costs differ for the TDV methodology due to differences in the site gas infrastructure costs (see Section 2.6).

⁴This represents the Efficiency EDR Margin for the Efficiency-Non-Preempted and Efficiency-Equipment packages and Total EDR Margin for the Efficiency & PV, Efficiency & PV/Battery, and Neutral Cost packages.

⁵Positive values indicate an increase in PV capacity relative to the Standard Design.



Climate Zone 6**Table 59: Single Family Climate Zone 6 Results Summary**

Climate Zone 6 SCE/SoCalGas Single Family		Annual Net kWh	Annual therms	EDR Margin ⁴	PV Size Change (kW) ⁵	CO2-Equivalent Emissions (lbs/sf)		NPV of Lifetime Incremental Cost (\$)	Benefit to Cost Ratio (B/C)	
						Total	Reduction		On-Bill	TDV
Mixed Fuel ¹	Code Compliant	(0)	249	n/a	n/a	1.57	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	0	229	2.0	(0.02)	1.47	0.10	\$1,003	0.66	1.15
	Efficiency-Equipment	(0)	218	1.5	(0.01)	1.41	0.15	\$581	1.58	2.04
	Efficiency & PV/Battery	(13)	229	9.5	0.08	1.22	0.34	\$4,889	0.84	1.27
All-Electric ²	Code Compliant	3,099	0	n/a	n/a	0.87	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	2,885	0	2.0	0.00	0.83	0.05	\$926	1.31	1.41
	Efficiency-Equipment	2,746	0	2.5	0.00	0.80	0.08	\$846	2.20	2.29
	Efficiency & PV	722	0	14.0	1.37	0.63	0.24	\$6,341	1.19	1.48
	Efficiency & PV/Battery	(6)	0	26.0	1.93	0.33	0.55	\$12,036	1.15	1.43
Mixed Fuel to All-Electric ³	Code Compliant	3,099	0	0.0	0.00	0.87	0.69	(\$5,349)	1.19	2.46
	Efficiency & PV	722	0	14.0	1.37	0.63	0.93	\$992	3.07	>1
	Neutral Cost	959	0	12.0	1.36	0.67	0.89	\$0	>1	>1

¹All reductions and incremental costs relative to the **mixed fuel** code compliant home.

²All reductions and incremental costs relative to the **all-electric** code compliant home.

³All reductions and incremental costs relative to the **mixed fuel** code compliant home except the EDR Margins are relative to the Standard Design for each case which is the **all-electric** code compliant home. Incremental costs for these packages reflect the costs used in the On-Bill cost effectiveness methodology. Costs differ for the TDV methodology due to differences in the site gas infrastructure costs (see Section 2.6).

⁴This represents the Efficiency EDR Margin for the Efficiency-Non-Preempted and Efficiency-Equipment packages and Total EDR Margin for the Efficiency & PV, Efficiency & PV/Battery, and Neutral Cost packages.

⁵Positive values indicate an increase in PV capacity relative to the Standard Design.



Table 60: Multifamily Climate Zone 6 Results Summary (Per Dwelling Unit)

Climate Zone 6 SCE/SoCalGas Multifamily		Annual Net kWh	Annual therms	EDR Margin ⁴	PV Size Change (kW) ⁵	CO2-Equivalent Emissions (lbs/sf)		NPV of Lifetime Incremental Cost (\$)	Benefit to Cost Ratio (B/C)	
						Total	Reduction		On-Bill	TDV
Mixed Fuel ¹	Code Compliant	(0)	114	n/a	n/a	2.17	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	(0)	112	1.0	(0.01)	2.14	0.03	\$190	0.65	1.49
	Efficiency-Equipment	(0)	103	1.0	(0.00)	2.03	0.15	\$213	1.43	1.74
	Efficiency & PV/Battery	(6)	112	10.5	0.04	1.76	0.41	\$2,294	0.56	1.35
All-Electric ²	Code Compliant	1,558	0	n/a	n/a	1.28	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	1,531	0	1.0	0.00	1.26	0.02	\$231	0.65	1.34
	Efficiency-Equipment	1,430	0	2.0	0.00	1.20	0.08	\$361	1.62	1.91
	Efficiency & PV	427	0	13.5	0.70	0.97	0.31	\$2,580	1.24	1.71
	Efficiency & PV/Battery	(5)	0	27.5	1.02	0.49	0.79	\$5,590	1.22	1.58
Mixed Fuel to All-Electric ³	Code Compliant	1,558	0	0.0	0.00	1.28	0.90	(\$2,337)	2.59	2.38
	Efficiency & PV	53	0	13.5	0.70	0.97	1.20	\$243	9.50	>1
	Neutral Cost	459	0	12.5	0.70	0.99	1.18	\$0	>1	>1

¹All reductions and incremental costs relative to the **mixed fuel** code compliant home.

²All reductions and incremental costs relative to the **all-electric** code compliant home.

³All reductions and incremental costs relative to the **mixed fuel** code compliant home except the EDR Margins are relative to the Standard Design for each case which is the **all-electric** code compliant home. Incremental costs for these packages reflect the costs used in the On-Bill cost effectiveness methodology. Costs differ for the TDV methodology due to differences in the site gas infrastructure costs (see Section 2.6).

⁴This represents the Efficiency EDR Margin for the Efficiency-Non-Preempted and Efficiency-Equipment packages and Total EDR Margin for the Efficiency & PV, Efficiency & PV/Battery, and Neutral Cost packages.

⁵Positive values indicate an increase in PV capacity relative to the Standard Design.



Climate Zone 7**Table 61: Single Family Climate Zone 7 Results Summary**

Climate Zone 7 SDG&E Single Family		Annual Net kWh	Annual therms	EDR Margin ⁴	PV Size Change (kW) ⁵	CO2-Equivalent Emissions (lbs/sf)		NPV of Lifetime Incremental Cost (\$)	Benefit to Cost Ratio (B/C)	
						Total	Reduction		On-Bill	TDV
Mixed Fuel ¹	Code Compliant	(0)	196	n/a	n/a	1.30	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	(0)	196	0.0	0.00	1.30	0.00	\$0	-	-
	Efficiency-Equipment	0	171	1.5	(0.00)	1.18	0.12	\$606	1.50	1.40
	Efficiency & PV/Battery	(12)	189	9.0	0.10	1.04	0.26	\$4,028	0.06	1.32
All-Electric ²	Code Compliant	2,479	0	n/a	n/a	0.75	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	2,479	0	0.0	0.00	0.75	0.00	\$0	-	-
	Efficiency-Equipment	2,222	0	2.0	0.00	0.69	0.06	\$846	1.60	1.65
	Efficiency & PV	674	0	11.0	1.10	0.58	0.17	\$4,436	1.87	1.55
	Efficiency & PV/Battery	(6)	0	24.0	1.61	0.29	0.46	\$9,936	1.25	1.47
Mixed Fuel to All-Electric ³	Code Compliant	2,479	0	0.0	0.00	0.75	0.55	(\$5,349)	1.04	2.54
	Efficiency & PV	674	0	11.0	1.10	0.58	0.72	(\$912)	>1	>1
	Neutral Cost	267	0	13.5	1.35	0.55	0.75	\$0	>1	>1

¹All reductions and incremental costs relative to the **mixed fuel** code compliant home.

²All reductions and incremental costs relative to the **all-electric** code compliant home.

³All reductions and incremental costs relative to the **mixed fuel** code compliant home except the EDR Margins are relative to the Standard Design for each case which is the **all-electric** code compliant home. Incremental costs for these packages reflect the costs used in the On-Bill cost effectiveness methodology. Costs differ for the TDV methodology due to differences in the site gas infrastructure costs (see Section 2.6).

⁴This represents the Efficiency EDR Margin for the Efficiency-Non-Preempted and Efficiency-Equipment packages and Total EDR Margin for the Efficiency & PV, Efficiency & PV/Battery, and Neutral Cost packages.

⁵Positive values indicate an increase in PV capacity relative to the Standard Design.



Table 62: Multifamily Climate Zone 7 Results Summary (Per Dwelling Unit)

Climate Zone 7 SDG&E Multifamily		Annual Net kWh	Annual therms	EDR Margin ⁴	PV Size Change (kW) ⁵	CO2-Equivalent Emissions (lbs/sf)		NPV of Lifetime Incremental Cost (\$)	Benefit to Cost Ratio (B/C)	
						Total	Reduction		On-Bill	TDV
Mixed Fuel ¹	Code Compliant	(0)	110	n/a	n/a	2.11	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	(0)	108	0.5	(0.01)	2.08	0.03	\$90	0.73	2.24
	Efficiency-Equipment	(0)	99	2.0	(0.00)	1.96	0.15	\$366	1.07	1.41
	Efficiency & PV/Battery	(6)	108	11.0	0.05	1.71	0.40	\$2,188	0.03	1.40
All-Electric ²	Code Compliant	1,434	0	n/a	n/a	1.21	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	1,416	0	0.5	0.00	1.20	0.01	\$202	0.60	1.02
	Efficiency-Equipment	1,319	0	1.5	0.00	1.14	0.07	\$361	1.59	1.71
	Efficiency & PV	412	0	12.5	0.61	0.94	0.27	\$2,261	2.08	1.76
	Efficiency & PV/Battery	(5)	0	27.0	0.92	0.47	0.74	\$5,203	1.19	1.62
Mixed Fuel to All-Electric ³	Code Compliant	1,434	0	0.0	0.00	1.21	0.90	(\$2,337)	1.12	2.47
	Efficiency & PV	51	0	12.5	0.61	0.94	1.17	(\$75)	>1	>1
	Neutral Cost	294	0	13.5	0.70	0.91	1.20	\$0	>1	>1

¹All reductions and incremental costs relative to the **mixed fuel** code compliant home.

²All reductions and incremental costs relative to the **all-electric** code compliant home.

³All reductions and incremental costs relative to the **mixed fuel** code compliant home except the EDR Margins are relative to the Standard Design for each case which is the **all-electric** code compliant home. Incremental costs for these packages reflect the costs used in the On-Bill cost effectiveness methodology. Costs differ for the TDV methodology due to differences in the site gas infrastructure costs (see Section 2.6).

⁴This represents the Efficiency EDR Margin for the Efficiency-Non-Preempted and Efficiency-Equipment packages and Total EDR Margin for the Efficiency & PV, Efficiency & PV/Battery, and Neutral Cost packages.

⁵Positive values indicate an increase in PV capacity relative to the Standard Design.



Climate Zone 8**Table 63: Single Family Climate Zone 8 Results Summary**

Climate Zone 8 SCE/SoCalGas Single Family		Annual Net kWh	Annual therms	EDR Margin ⁴	PV Size Change (kW) ⁵	CO2-Equivalent Emissions (lbs/sf)		NPV of Lifetime Incremental Cost (\$)	Benefit to Cost Ratio (B/C)	
						Total	Reduction		On-Bill	TDV
Mixed Fuel ¹	Code Compliant	(0)	206	n/a	n/a	1.38	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	(0)	198	1.0	(0.02)	1.34	0.05	\$581	0.57	1.41
	Efficiency-Equipment	0	181	1.5	(0.01)	1.27	0.12	\$586	1.30	1.82
	Efficiency & PV/Battery	(13)	198	8.0	0.08	1.11	0.27	\$4,466	0.90	1.31
All-Electric ²	Code Compliant	2,576	0	n/a	n/a	0.80	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	2,483	0	1.5	0.00	0.78	0.02	\$926	0.57	1.22
	Efficiency-Equipment	2,352	0	1.5	0.00	0.75	0.05	\$412	2.82	3.03
	Efficiency & PV	703	0	10.5	1.13	0.62	0.18	\$5,373	1.00	1.48
	Efficiency & PV/Battery	(7)	0	21.5	1.67	0.32	0.48	\$11,016	1.09	1.42
Mixed Fuel to All-Electric ³	Code Compliant	2,576	0	0.0	0.00	0.80	0.58	(\$5,349)	1.83	2.99
	Efficiency & PV	703	0	10.5	1.13	0.62	0.77	\$25	107.93	>1
	Neutral Cost	439	0	11.0	1.36	0.60	0.78	\$0	>1	>1

¹All reductions and incremental costs relative to the **mixed fuel** code compliant home.

²All reductions and incremental costs relative to the **all-electric** code compliant home.

³All reductions and incremental costs relative to the **mixed fuel** code compliant home except the EDR Margins are relative to the Standard Design for each case which is the **all-electric** code compliant home. Incremental costs for these packages reflect the costs used in the On-Bill cost effectiveness methodology. Costs differ for the TDV methodology due to differences in the site gas infrastructure costs (see Section 2.6).

⁴This represents the Efficiency EDR Margin for the Efficiency-Non-Preempted and Efficiency-Equipment packages and Total EDR Margin for the Efficiency & PV, Efficiency & PV/Battery, and Neutral Cost packages.

⁵Positive values indicate an increase in PV capacity relative to the Standard Design.



Table 64: Multifamily Climate Zone 8 Results Summary (Per Dwelling Unit)

Climate Zone 8 SCE/SoCalGas Multifamily		Annual Net kWh	Annual therms	EDR Margin ⁴	PV Size Change (kW) ⁵	CO2-Equivalent Emissions (lbs/sf)		NPV of Lifetime Incremental Cost (\$)	Benefit to Cost Ratio (B/C)	
						Total	Reduction		On-Bill	TDV
Mixed Fuel ¹	Code Compliant	(0)	109	n/a	n/a	2.18	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	(0)	106	1.5	(0.02)	2.13	0.05	\$250	0.70	1.36
	Efficiency-Equipment	(0)	99	1.0	(0.00)	2.04	0.14	\$213	1.37	1.67
	Efficiency & PV/Battery	(6)	106	9.5	0.03	1.77	0.41	\$2,353	0.74	1.32
All-Electric ²	Code Compliant	1,409	0	n/a	n/a	1.26	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	1,373	0	1.0	0.00	1.24	0.02	\$231	0.87	1.72
	Efficiency-Equipment	1,276	0	1.5	0.00	1.18	0.08	\$361	1.63	1.75
	Efficiency & PV	426	0	11.5	0.60	0.99	0.27	\$2,240	1.26	1.78
	Efficiency & PV/Battery	(5)	0	24.0	0.92	0.53	0.73	\$5,249	1.24	1.59
Mixed Fuel to All-Electric ³	Code Compliant	1,409	0	0.0	0.00	1.26	0.91	(\$2,337)	6.69	2.67
	Efficiency & PV	53	0	11.5	0.60	0.99	1.18	(\$96)	>1	>1
	Neutral Cost	309	0	12.0	0.70	0.98	1.20	\$0	>1	>1

¹All reductions and incremental costs relative to the **mixed fuel** code compliant home.

²All reductions and incremental costs relative to the **all-electric** code compliant home.

³All reductions and incremental costs relative to the **mixed fuel** code compliant home except the EDR Margins are relative to the Standard Design for each case which is the **all-electric** code compliant home. Incremental costs for these packages reflect the costs used in the On-Bill cost effectiveness methodology. Costs differ for the TDV methodology due to differences in the site gas infrastructure costs (see Section 2.6).

⁴This represents the Efficiency EDR Margin for the Efficiency-Non-Preempted and Efficiency-Equipment packages and Total EDR Margin for the Efficiency & PV, Efficiency & PV/Battery, and Neutral Cost packages.

⁵Positive values indicate an increase in PV capacity relative to the Standard Design.



Climate Zone 9**Table 65: Single Family Climate Zone 9 Results Summary**

Climate Zone 9 SCE/SoCalGas Single Family		Annual Net kWh	Annual therms	EDR Margin ⁴	PV Size Change (kW) ⁵	CO2-Equivalent Emissions (lbs/sf)		NPV of Lifetime Incremental Cost (\$)	Benefit to Cost Ratio (B/C)	
						Total	Reduction		On-Bill	TDV
Mixed Fuel ¹	Code Compliant	0	229	n/a	n/a	1.53	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	(0)	216	2.5	(0.04)	1.46	0.07	\$912	0.69	1.97
	Efficiency-Equipment	0	201	2.5	(0.04)	1.38	0.15	\$574	1.80	3.66
	Efficiency & PV/Battery	(14)	216	8.5	0.05	1.23	0.30	\$4,785	0.99	1.48
All-Electric ²	Code Compliant	2,801	0	n/a	n/a	0.87	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	2,645	0	2.5	0.00	0.84	0.04	\$1,180	0.78	1.96
	Efficiency-Equipment	2,460	0	3.0	0.00	0.80	0.07	\$846	2.11	3.22
	Efficiency & PV	745	0	11.5	1.16	0.66	0.21	\$5,778	1.08	1.64
	Efficiency & PV/Battery	(9)	0	21.0	1.72	0.37	0.50	\$11,454	1.11	1.53
Mixed Fuel to All-Electric ³	Code Compliant	2,801	0	0.0	0.00	0.87	0.66	(\$5,349)	1.67	2.90
	Efficiency & PV	745	0	11.5	1.16	0.66	0.87	\$429	7.15	>1
	Neutral Cost	594	0	10.0	1.36	0.67	0.86	\$0	>1	>1

¹All reductions and incremental costs relative to the **mixed fuel** code compliant home.²All reductions and incremental costs relative to the **all-electric** code compliant home.³All reductions and incremental costs relative to the **mixed fuel** code compliant home except the EDR Margins are relative to the Standard Design for each case which is the **all-electric** code compliant home. Incremental costs for these packages reflect the costs used in the On-Bill cost effectiveness methodology. Costs differ for the TDV methodology due to differences in the site gas infrastructure costs (see Section 2.6).⁴This represents the Efficiency EDR Margin for the Efficiency-Non-Preempted and Efficiency-Equipment packages and Total EDR Margin for the Efficiency & PV, Efficiency & PV/Battery, and Neutral Cost packages.⁵Positive values indicate an increase in PV capacity relative to the Standard Design.

Table 66: Multifamily Climate Zone 9 Results Summary (Per Dwelling Unit)

Climate Zone 9 SCE/SoCalGas Multifamily		Annual Net kWh	Annual therms	EDR Margin ⁴	PV Size Change (kW) ⁵	CO2-Equivalent Emissions (lbs/sf)		NPV of Lifetime Incremental Cost (\$)	Benefit to Cost Ratio (B/C)	
						Total	Reduction		On-Bill	TDV
Mixed Fuel ¹	Code Compliant	0	111	n/a	n/a	2.24	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	(0)	109	1.5	(0.03)	2.19	0.05	\$136	1.46	3.35
	Efficiency-Equipment	(0)	101	2.5	(0.03)	2.08	0.16	\$274	1.66	2.87
	Efficiency & PV/Battery	(7)	109	9.5	0.03	1.84	0.40	\$2,234	0.90	1.49
All-Electric ²	Code Compliant	1,468	0	n/a	n/a	1.33	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	1,414	0	1.5	0.00	1.30	0.03	\$231	1.29	2.70
	Efficiency-Equipment	1,334	0	1.5	0.00	1.25	0.08	\$361	1.63	1.58
	Efficiency & PV	441	0	11.0	0.60	1.04	0.29	\$2,232	1.34	1.91
	Efficiency & PV/Battery	(7)	0	23.0	0.92	0.58	0.75	\$5,236	1.28	1.67
Mixed Fuel to All-Electric ³	Code Compliant	1,468	0	0.0	0.00	1.33	0.91	(\$2,337)	4.38	2.55
	Efficiency & PV	55	0	11.0	0.60	1.04	1.20	(\$104)	>1	>1
	Neutral Cost	331	0	11.0	0.70	1.03	1.21	\$0	>1	>1

¹All reductions and incremental costs relative to the **mixed fuel** code compliant home.

²All reductions and incremental costs relative to the **all-electric** code compliant home.

³All reductions and incremental costs relative to the **mixed fuel** code compliant home except the EDR Margins are relative to the Standard Design for each case which is the **all-electric** code compliant home. Incremental costs for these packages reflect the costs used in the On-Bill cost effectiveness methodology. Costs differ for the TDV methodology due to differences in the site gas infrastructure costs (see Section 2.6).

⁴This represents the Efficiency EDR Margin for the Efficiency-Non-Preempted and Efficiency-Equipment packages and Total EDR Margin for the Efficiency & PV, Efficiency & PV/Battery, and Neutral Cost packages.

⁵Positive values indicate an increase in PV capacity relative to the Standard Design.



Climate Zone 10 SCE/SoCalGas**Table 67: Single Family Climate Zone 10 SCE/SoCalGas Results Summary**

Climate Zone 10 SCE/SoCalGas Single Family		Annual Net kWh	Annual therms	EDR Margin ⁴	PV Size Change (kW) ⁵	CO2-Equivalent Emissions (lbs/sf)		NPV of Lifetime Incremental Cost (\$)	Benefit to Cost Ratio (B/C)	
						Total	Reduction		On-Bill	TDV
Mixed Fuel ¹	Code Compliant	(0)	239	n/a	n/a	1.61	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	(0)	217	3.0	(0.07)	1.48	0.13	\$1,648	0.63	1.33
	Efficiency-Equipment	(0)	209	3.0	(0.06)	1.45	0.16	\$593	2.05	3.84
	Efficiency & PV/Battery	(12)	217	9.5	0.03	1.25	0.36	\$5,522	1.00	1.48
All-Electric ²	Code Compliant	2,981	0	n/a	n/a	0.94	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	2,673	0	3.0	0.00	0.88	0.07	\$1,773	0.92	1.52
	Efficiency-Equipment	2,563	0	3.0	0.00	0.85	0.10	\$949	2.27	3.19
	Efficiency & PV	762	0	11.0	1.17	0.70	0.24	\$6,405	1.08	1.50
	Efficiency & PV/Battery	(6)	0	21.0	1.74	0.41	0.53	\$12,129	1.11	1.51
Mixed Fuel to All-Electric ³	Code Compliant	2,981	0	0.0	0.00	0.94	0.67	(\$5,349)	1.45	2.66
	Efficiency & PV	762	0	11.0	1.17	0.70	0.91	\$1,057	3.04	>1
	Neutral Cost	770	0	9.0	1.36	0.74	0.87	\$0	>1	>1

¹All reductions and incremental costs relative to the **mixed fuel** code compliant home.

²All reductions and incremental costs relative to the **all-electric** code compliant home.

³All reductions and incremental costs relative to the **mixed fuel** code compliant home except the EDR Margins are relative to the Standard Design for each case which is the **all-electric** code compliant home. Incremental costs for these packages reflect the costs used in the On-Bill cost effectiveness methodology. Costs differ for the TDV methodology due to differences in the site gas infrastructure costs (see Section 2.6).

⁴This represents the Efficiency EDR Margin for the Efficiency-Non-Preempted and Efficiency-Equipment packages and Total EDR Margin for the Efficiency & PV, Efficiency & PV/Battery, and Neutral Cost packages.

⁵Positive values indicate an increase in PV capacity relative to the Standard Design.



Table 68: Multifamily Climate Zone 10 SCE/SoCalGas Results Summary (Per Dwelling Unit)

Climate Zone 10 SCE/SoCalGas Multifamily		Annual Net kWh	Annual therms	EDR Margin ⁴	PV Size Change (kW) ⁵	CO2-Equivalent Emissions (lbs/sf)		NPV of Lifetime Incremental Cost (\$)	Benefit to Cost Ratio (B/C)	
						Total	Reduction		On-Bill	TDV
Mixed Fuel ¹	Code Compliant	(0)	112	n/a	n/a	2.29	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	(0)	108	1.5	(0.02)	2.23	0.06	\$278	0.81	1.69
	Efficiency-Equipment	(0)	102	2.5	(0.04)	2.13	0.16	\$250	1.96	3.27
	Efficiency & PV/Battery	(6)	108	10.0	0.03	1.88	0.41	\$2,376	0.98	1.57
All-Electric ²	Code Compliant	1,507	0	n/a	n/a	1.39	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	1,425	0	1.5	0.00	1.34	0.05	\$361	1.16	2.00
	Efficiency-Equipment	1,369	0	1.5	0.00	1.31	0.08	\$361	1.71	1.98
	Efficiency & PV	450	0	10.5	0.60	1.09	0.30	\$2,371	1.31	1.79
	Efficiency & PV/Battery	(4)	0	23.0	0.93	0.63	0.76	\$5,395	1.27	1.69
Mixed Fuel to All-Electric ³	Code Compliant	1,507	0	0.0	0.00	1.39	0.90	(\$2,337)	3.35	2.36
	Efficiency & PV	56	0	10.5	0.60	1.09	1.20	\$34	70.89	>1
	Neutral Cost	372	0	10.5	0.70	1.10	1.19	\$0	>1	>1

¹All reductions and incremental costs relative to the **mixed fuel** code compliant home.

²All reductions and incremental costs relative to the **all-electric** code compliant home.

³All reductions and incremental costs relative to the **mixed fuel** code compliant home except the EDR Margins are relative to the Standard Design for each case which is the **all-electric** code compliant home. Incremental costs for these packages reflect the costs used in the On-Bill cost effectiveness methodology. Costs differ for the TDV methodology due to differences in the site gas infrastructure costs (see Section 2.6).

⁴This represents the Efficiency EDR Margin for the Efficiency-Non-Preempted and Efficiency-Equipment packages and Total EDR Margin for the Efficiency & PV, Efficiency & PV/Battery, and Neutral Cost packages.

⁵Positive values indicate an increase in PV capacity relative to the Standard Design.



Climate Zone 10 SDGE**Table 69: Single Family Climate Zone 10 SDGE Results Summary**

Climate Zone 10 SDG&E Single Family		Annual Net kWh	Annual therms	EDR Margin ⁴	PV Size Change (kW) ⁵	CO2-Equivalent Emissions (lbs/sf)		NPV of Lifetime Incremental Cost (\$)	Benefit to Cost Ratio (B/C)	
						Total	Reduction		On-Bill	TDV
Mixed Fuel ¹	Code Compliant	(0)	239	n/a	n/a	1.61	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	(0)	217	3.0	(0.07)	1.48	0.13	\$1,648	0.80	1.33
	Efficiency-Equipment	(0)	209	3.0	(0.06)	1.45	0.16	\$593	2.64	3.84
	Efficiency & PV/Battery	(12)	217	9.5	0.03	1.25	0.36	\$5,522	0.58	1.48
All-Electric ²	Code Compliant	2,981	0	n/a	n/a	0.94	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	2,673	0	3.0	0.00	0.88	0.07	\$1,773	1.08	1.52
	Efficiency-Equipment	2,563	0	3.0	0.00	0.85	0.10	\$949	2.62	3.19
	Efficiency & PV	762	0	11.0	1.17	0.70	0.24	\$6,405	1.68	1.50
	Efficiency & PV/Battery	(6)	0	21.0	1.74	0.41	0.53	\$12,129	1.42	1.51
Mixed Fuel to All-Electric ³	Code Compliant	2,981	0	0.0	0.00	0.94	0.67	(\$5,349)	0.90	2.66
	Efficiency & PV	762	0	11.0	1.17	0.70	0.91	\$1,057	4.55	>1
	Neutral Cost	770	0	9.0	1.36	0.74	0.87	\$0	>1	>1

¹All reductions and incremental costs relative to the **mixed fuel** code compliant home.²All reductions and incremental costs relative to the **all-electric** code compliant home.³All reductions and incremental costs relative to the **mixed fuel** code compliant home except the EDR Margins are relative to the Standard Design for each case which is the **all-electric** code compliant home. Incremental costs for these packages reflect the costs used in the On-Bill cost effectiveness methodology. Costs differ for the TDV methodology due to differences in the site gas infrastructure costs (see Section 2.6).⁴This represents the Efficiency EDR Margin for the Efficiency-Non-Preempted and Efficiency-Equipment packages and Total EDR Margin for the Efficiency & PV, Efficiency & PV/Battery, and Neutral Cost packages.⁵Positive values indicate an increase in PV capacity relative to the Standard Design.

Table 70: Multifamily Climate Zone 10 SDGE Results Summary (Per Dwelling Unit)

Climate Zone 10 SDG&E Multifamily		Annual Net kWh	Annual therms	EDR Margin ⁴	PV Size Change (kW) ⁵	CO2-Equivalent Emissions (lbs/sf)		NPV of Lifetime Incremental Cost (\$)	Benefit to Cost Ratio (B/C)	
						Total	Reduction		On-Bill	TDV
Mixed Fuel ¹	Code Compliant	(0)	112	n/a	n/a	2.29	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	(0)	108	1.5	(0.02)	2.23	0.06	\$278	1.09	1.69
	Efficiency-Equipment	(0)	102	2.5	(0.04)	2.13	0.16	\$250	2.60	3.27
	Efficiency & PV/Battery	(6)	108	10.0	0.03	1.88	0.41	\$2,376	0.23	1.57
All-Electric ²	Code Compliant	1,507	0	n/a	n/a	1.39	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	1,425	0	1.5	0.00	1.34	0.05	\$361	1.53	2.00
	Efficiency-Equipment	1,369	0	1.5	0.00	1.31	0.08	\$361	2.05	1.98
	Efficiency & PV	450	0	10.5	0.60	1.09	0.30	\$2,371	2.12	1.79
	Efficiency & PV/Battery	(4)	0	23.0	0.93	0.63	0.76	\$5,395	1.44	1.69
Mixed Fuel to All-Electric ³	Code Compliant	1,507	0	0.0	0.00	1.39	0.90	(\$2,337)	0.73	2.36
	Efficiency & PV	56	0	10.5	0.60	1.09	1.20	\$34	54.15	>1
	Neutral Cost	372	0	10.5	0.70	1.10	1.19	\$0	>1	>1

¹All reductions and incremental costs relative to the **mixed fuel** code compliant home.

²All reductions and incremental costs relative to the **all-electric** code compliant home.

³All reductions and incremental costs relative to the **mixed fuel** code compliant home except the EDR Margins are relative to the Standard Design for each case which is the **all-electric** code compliant home. Incremental costs for these packages reflect the costs used in the On-Bill cost effectiveness methodology. Costs differ for the TDV methodology due to differences in the site gas infrastructure costs (see Section 2.6).

⁴This represents the Efficiency EDR Margin for the Efficiency-Non-Preempted and Efficiency-Equipment packages and Total EDR Margin for the Efficiency & PV, Efficiency & PV/Battery, and Neutral Cost packages.

⁵Positive values indicate an increase in PV capacity relative to the Standard Design.



Climate Zone 11**Table 71: Single Family Climate Zone 11 Results Summary**

Climate Zone 11 PG&E Single Family		Annual Net kWh	Annual therms	EDR Margin ⁴	PV Size Change (kW) ⁵	CO2-Equivalent Emissions (lbs/sf)		NPV of Lifetime Incremental Cost (\$)	Benefit to Cost Ratio (B/C)	
						Total	Reduction		On-Bill	TDV
Mixed Fuel ¹	Code Compliant	(0)	378	n/a	n/a	2.14	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	(0)	333	4.0	(0.19)	1.90	0.24	\$3,143	0.78	1.20
	Efficiency-Equipment	0	320	5.0	(0.21)	1.83	0.31	\$1,222	2.50	3.68
	Efficiency & PV/Battery	(18)	333	9.0	(0.09)	1.78	0.36	\$7,026	0.36	1.51
All-Electric ²	Code Compliant	4,585	0	n/a	n/a	1.15	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	3,815	0	4.5	0.00	0.99	0.16	\$3,735	1.24	1.47
	Efficiency-Equipment	3,533	0	5.5	0.00	0.93	0.22	\$2,108	2.97	3.33
	Efficiency & PV	957	0	14.0	1.79	0.60	0.55	\$10,827	1.84	1.55
	Efficiency & PV/Battery	(13)	0	23.0	2.49	0.36	0.79	\$17,077	1.49	1.61
Mixed Fuel to All-Electric ³	Code Compliant	4,585	0	0.0	0.00	1.15	0.99	(\$5,349)	0.49	1.69
	Efficiency & PV	957	0	14.0	1.79	0.60	1.54	\$5,478	1.64	>1
	Neutral Cost	2,429	0	7.0	1.36	0.85	1.29	\$0	>1	>1

¹All reductions and incremental costs relative to the **mixed fuel** code compliant home.

²All reductions and incremental costs relative to the **all-electric** code compliant home.

³All reductions and incremental costs relative to the **mixed fuel** code compliant home except the EDR Margins are relative to the Standard Design for each case which is the **all-electric** code compliant home. Incremental costs for these packages reflect the costs used in the On-Bill cost effectiveness methodology. Costs differ for the TDV methodology due to differences in the site gas infrastructure costs (see Section 2.6).

⁴This represents the Efficiency EDR Margin for the Efficiency-Non-Preempted and Efficiency-Equipment packages and Total EDR Margin for the Efficiency & PV, Efficiency & PV/Battery, and Neutral Cost packages.

⁵Positive values indicate an increase in PV capacity relative to the Standard Design.



Table 72: Multifamily Climate Zone 11 Results Summary (Per Dwelling Unit)

Climate Zone 11 PG&E Multifamily		Annual Net kWh	Annual therms	EDR Margin ⁴	PV Size Change (kW) ⁵	CO2-Equivalent Emissions (lbs/sf)		NPV of Lifetime Incremental Cost (\$)	Benefit to Cost Ratio (B/C)	
						Total	Reduction		On-Bill	TDV
Mixed Fuel ¹	Code Compliant	(0)	141	n/a	n/a	2.38	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	0	127	2.5	(0.05)	2.18	0.20	\$850	0.65	1.17
	Efficiency-Equipment	(0)	126	3.0	(0.06)	2.16	0.22	\$317	1.84	3.29
	Efficiency & PV/Battery	(9)	127	10.5	0.01	2.00	0.38	\$2,950	0.39	1.60
All-Electric ²	Code Compliant	1,974	0	n/a	n/a	1.42	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	1,732	0	3.5	0.00	1.29	0.13	\$1,011	1.40	1.64
	Efficiency-Equipment	1,707	0	3.5	0.00	1.26	0.16	\$795	2.02	2.33
	Efficiency & PV	504	0	13.0	0.77	0.81	0.61	\$3,601	2.22	1.81
	Efficiency & PV/Battery	(6)	0	25.0	1.14	0.45	0.98	\$6,759	1.42	1.81
Mixed Fuel to All-Electric ³	Code Compliant	1,974	0	0.0	0.00	1.42	0.96	(\$2,337)	0.56	1.33
	Efficiency & PV	63	0	13.0	0.77	0.81	1.56	\$1,264	3.03	>1
	Neutral Cost	866	0	9.0	0.70	0.99	1.38	\$0	>1	73.96

¹All reductions and incremental costs relative to the **mixed fuel** code compliant home.

²All reductions and incremental costs relative to the **all-electric** code compliant home.

³All reductions and incremental costs relative to the **mixed fuel** code compliant home except the EDR Margins are relative to the Standard Design for each case which is the **all-electric** code compliant home. Incremental costs for these packages reflect the costs used in the On-Bill cost effectiveness methodology. Costs differ for the TDV methodology due to differences in the site gas infrastructure costs (see Section 2.6).

⁴This represents the Efficiency EDR Margin for the Efficiency-Non-Preempted and Efficiency-Equipment packages and Total EDR Margin for the Efficiency & PV, Efficiency & PV/Battery, and Neutral Cost packages.

⁵Positive values indicate an increase in PV capacity relative to the Standard Design.



Climate Zone 12**Table 73: Single Family Climate Zone 12 Results Summary**

Climate Zone 12 PG&E Single Family		Annual Net kWh	Annual therms	EDR Margin ⁴	PV Size Change (kW) ⁵	CO2-Equivalent Emissions (lbs/sf)		NPV of Lifetime Incremental Cost (\$)	Benefit to Cost Ratio (B/C)	
						Total	Reduction		On-Bill	TDV
Mixed Fuel ¹	Code Compliant	(0)	390	n/a	n/a	2.11	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	(0)	344	3.5	(0.06)	1.88	0.23	\$1,679	1.18	1.83
	Efficiency-Equipment	0	338	3.0	(0.05)	1.85	0.26	\$654	3.31	4.65
	Efficiency & PV/Battery	(23)	344	9.5	0.04	1.76	0.35	\$5,568	0.43	1.72
All-Electric ²	Code Compliant	4,492	0	n/a	n/a	1.05	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	3,958	0	3.5	0.00	0.94	0.10	\$3,735	0.78	1.06
	Efficiency-Equipment	3,721	0	5.0	0.00	0.90	0.15	\$2,108	2.00	2.51
	Efficiency & PV	867	0	15.5	1.97	0.51	0.53	\$11,520	1.69	1.41
	Efficiency & PV/Battery	(15)	0	25.0	2.62	0.29	0.76	\$17,586	1.29	1.48
Mixed Fuel to All-Electric ³	Code Compliant	4,492	0	0.0	0.00	1.05	1.07	(\$5,349)	0.63	1.89
	Efficiency & PV	867	0	15.5	1.97	0.51	1.60	\$6,172	1.77	>1
	Neutral Cost	2,374	0	8.0	1.35	0.76	1.36	\$0	>1	>1

¹All reductions and incremental costs relative to the **mixed fuel** code compliant home.

²All reductions and incremental costs relative to the **all-electric** code compliant home.

³All reductions and incremental costs relative to the **mixed fuel** code compliant home except the EDR Margins are relative to the Standard Design for each case which is the **all-electric** code compliant home. Incremental costs for these packages reflect the costs used in the On-Bill cost effectiveness methodology. Costs differ for the TDV methodology due to differences in the site gas infrastructure costs (see Section 2.6).

⁴This represents the Efficiency EDR Margin for the Efficiency-Non-Preempted and Efficiency-Equipment packages and Total EDR Margin for the Efficiency & PV, Efficiency & PV/Battery, and Neutral Cost packages.

⁵Positive values indicate an increase in PV capacity relative to the Standard Design.



Table 74: Multifamily Climate Zone 12 Results Summary (Per Dwelling Unit)

Climate Zone 12 PG&E Multifamily		Annual Net kWh	Annual therms	EDR Margin ⁴	PV Size Change (kW) ⁵	CO2-Equivalent Emissions (lbs/sf)		NPV of Lifetime Incremental Cost (\$)	Benefit to Cost Ratio (B/C)	
						Total	Reduction		On-Bill	TDV
Mixed Fuel ¹	Code Compliant	(0)	143	n/a	n/a	2.33	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	(0)	135	1.5	(0.02)	2.21	0.12	\$291	1.10	2.22
	Efficiency-Equipment	0	128	2.5	(0.03)	2.12	0.21	\$434	1.25	2.22
	Efficiency & PV/Battery	(11)	135	10.0	0.03	2.03	0.30	\$2,394	0.30	1.75
All-Electric ²	Code Compliant	1,963	0	n/a	n/a	1.34	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	1,792	0	2.5	0.00	1.24	0.09	\$1,011	0.91	1.12
	Efficiency-Equipment	1,744	0	2.5	0.00	1.21	0.13	\$795	1.56	1.63
	Efficiency & PV	472	0	14.0	0.84	0.73	0.60	\$3,835	2.08	1.65
	Efficiency & PV/Battery	(8)	0	26.5	1.20	0.38	0.96	\$6,943	1.26	1.68
Mixed Fuel to All-Electric ³	Code Compliant	1,963	0	0.0	0.00	1.34	1.00	(\$2,337)	0.64	1.66
	Efficiency & PV	59	0	14.0	0.84	0.73	1.60	\$1,498	2.88	>1
	Neutral Cost	872	0	9.5	0.70	0.92	1.42	\$0	>1	>1

¹All reductions and incremental costs relative to the **mixed fuel** code compliant home.

²All reductions and incremental costs relative to the **all-electric** code compliant home.

³All reductions and incremental costs relative to the **mixed fuel** code compliant home except the EDR Margins are relative to the Standard Design for each case which is the **all-electric** code compliant home. Incremental costs for these packages reflect the costs used in the On-Bill cost effectiveness methodology. Costs differ for the TDV methodology due to differences in the site gas infrastructure costs (see Section 2.6).

⁴This represents the Efficiency EDR Margin for the Efficiency-Non-Preempted and Efficiency-Equipment packages and Total EDR Margin for the Efficiency & PV, Efficiency & PV/Battery, and Neutral Cost packages.

⁵Positive values indicate an increase in PV capacity relative to the Standard Design.



Climate Zone 13**Table 75: Single Family Climate Zone 13 Results Summary**

Climate Zone 13 PG&E Single Family		Annual Net kWh	Annual therms	EDR Margin ⁴	PV Size Change (kW) ⁵	CO2-Equivalent Emissions (lbs/sf)		NPV of Lifetime Incremental Cost (\$)	Benefit to Cost Ratio (B/C)	
						Total	Reduction		On-Bill	TDV
Mixed Fuel ¹	Code Compliant	(0)	352	n/a	n/a	2.02	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	(0)	311	4.5	(0.21)	1.80	0.22	\$3,060	0.76	1.28
	Efficiency-Equipment	(0)	292	5.5	(0.24)	1.70	0.32	\$611	5.26	8.40
	Efficiency & PV/Battery	(19)	311	9.5	(0.11)	1.69	0.33	\$6,954	0.36	1.56
All-Electric ²	Code Compliant	4,180	0	n/a	n/a	1.08	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	3,428	0	5.0	0.00	0.92	0.15	\$4,154	1.12	1.40
	Efficiency-Equipment	3,177	0	6.0	0.00	0.87	0.21	\$2,108	2.88	3.30
	Efficiency & PV	934	0	13.0	1.61	0.57	0.50	\$10,532	1.70	1.47
	Efficiency & PV/Battery	(11)	0	22.0	2.32	0.35	0.73	\$16,806	1.40	1.54
Mixed Fuel to All-Electric ³	Code Compliant	4,180	0	0.0	0.00	1.08	0.94	(\$5,349)	0.54	1.83
	Efficiency & PV	934	0	13.0	1.61	0.57	1.44	\$5,184	1.56	>1
	Neutral Cost	2,092	0	7.0	1.36	0.79	1.23	\$0	>1	>1

¹All reductions and incremental costs relative to the **mixed fuel** code compliant home.

²All reductions and incremental costs relative to the **all-electric** code compliant home.

³All reductions and incremental costs relative to the **mixed fuel** code compliant home except the EDR Margins are relative to the Standard Design for each case which is the **all-electric** code compliant home. Incremental costs for these packages reflect the costs used in the On-Bill cost effectiveness methodology. Costs differ for the TDV methodology due to differences in the site gas infrastructure costs (see Section 2.6).

⁴This represents the Efficiency EDR Margin for the Efficiency-Non-Preempted and Efficiency-Equipment packages and Total EDR Margin for the Efficiency & PV, Efficiency & PV/Battery, and Neutral Cost packages.

⁵Positive values indicate an increase in PV capacity relative to the Standard Design.



Table 76: Multifamily Climate Zone 13 Results Summary (Per Dwelling Unit)

Climate Zone 13 PG&E Multifamily		Annual Net kWh	Annual therms	EDR Margin ⁴	PV Size Change (kW) ⁵	CO2-Equivalent Emissions (lbs/sf)		NPV of Lifetime Incremental Cost (\$)	Benefit to Cost Ratio (B/C)	
						Total	Reduction		On-Bill	TDV
Mixed Fuel ¹	Code Compliant	(0)	135	n/a	n/a	2.30	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	(0)	123	3.0	(0.05)	2.12	0.18	\$831	0.63	1.27
	Efficiency-Equipment	(0)	121	3.0	(0.07)	2.10	0.21	\$290	1.95	3.75
	Efficiency & PV/Battery	(9)	123	10.5	0.00	1.95	0.35	\$2,936	0.38	1.64
All-Electric ²	Code Compliant	1,849	0	n/a	n/a	1.36	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	1,629	0	3.0	0.00	1.24	0.12	\$1,011	1.31	1.56
	Efficiency-Equipment	1,590	0	3.5	0.00	1.21	0.16	\$795	1.98	2.28
	Efficiency & PV	501	0	12.0	0.73	0.80	0.56	\$3,462	2.12	1.71
	Efficiency & PV/Battery	(5)	0	23.5	1.11	0.44	0.92	\$6,650	1.35	1.74
Mixed Fuel to All-Electric ³	Code Compliant	1,849	0	0.0	0.00	1.36	0.94	(\$2,337)	0.63	1.54
	Efficiency & PV	63	0	12.0	0.73	0.80	1.50	\$1,125	3.22	>1
	Neutral Cost	773	0	8.5	0.70	0.94	1.36	\$0	>1	>1

¹All reductions and incremental costs relative to the **mixed fuel** code compliant home.

²All reductions and incremental costs relative to the **all-electric** code compliant home.

³All reductions and incremental costs relative to the **mixed fuel** code compliant home except the EDR Margins are relative to the Standard Design for each case which is the **all-electric** code compliant home. Incremental costs for these packages reflect the costs used in the On-Bill cost effectiveness methodology. Costs differ for the TDV methodology due to differences in the site gas infrastructure costs (see Section 2.6).

⁴This represents the Efficiency EDR Margin for the Efficiency-Non-Preempted and Efficiency-Equipment packages and Total EDR Margin for the Efficiency & PV, Efficiency & PV/Battery, and Neutral Cost packages.

⁵Positive values indicate an increase in PV capacity relative to the Standard Design.



Climate Zone 14 SCE/SoCalGas**Table 77: Single Family Climate Zone 14 SCE/SoCalGas Results Summary**

Climate Zone 14 SCE/SoCalGas Single Family		Annual Net kWh	Annual therms	EDR Margin ⁴	PV Size Change (kW) ⁵	CO2-Equivalent Emissions (lbs/sf)		NPV of Lifetime Incremental Cost (\$)	Benefit to Cost Ratio (B/C)	
						Total	Reduction		On-Bill	TDV
Mixed Fuel ¹	Code Compliant	(0)	371	n/a	n/a	2.35	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	(0)	319	4.5	(0.17)	2.06	0.29	\$1,662	1.57	2.46
	Efficiency-Equipment	(0)	305	5.5	(0.19)	1.98	0.36	\$799	3.95	6.14
	Efficiency & PV/Battery	(5)	319	9.0	(0.08)	1.83	0.52	\$5,526	1.31	1.74
All-Electric ²	Code Compliant	4,725	0	n/a	n/a	1.38	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	3,819	0	5.5	0.00	1.19	0.19	\$4,154	0.95	1.46
	Efficiency-Equipment	3,676	0	6.0	0.00	1.16	0.22	\$2,108	2.29	3.13
	Efficiency & PV	953	0	15.5	1.60	0.93	0.45	\$10,459	1.21	1.62
	Efficiency & PV/Battery	(2)	0	23.5	2.21	0.63	0.75	\$16,394	1.35	1.59
Mixed Fuel to All-Electric ³	Code Compliant	4,725	0	0.0	0.00	1.38	0.97	(\$5,349)	0.72	1.67
	Efficiency & PV	953	0	15.5	1.60	0.93	1.42	\$5,111	1.01	>1
	Neutral Cost	2,299	0	8.5	1.35	1.15	1.19	\$0	0.00	>1
	Min Cost Effectiveness	1,853	0	10.0	1.61	1.12	1.23	(\$1,000)	1.24	>1

¹All reductions and incremental costs relative to the **mixed fuel** code compliant home.

²All reductions and incremental costs relative to the **all-electric** code compliant home.

³All reductions and incremental costs relative to the **mixed fuel** code compliant home except the EDR Margins are relative to the Standard Design for each case which is the **all-electric** code compliant home. Incremental costs for these packages reflect the costs used in the On-Bill cost effectiveness methodology. Costs differ for the TDV methodology due to differences in the site gas infrastructure costs (see Section 2.6).

⁴This represents the Efficiency EDR Margin for the Efficiency-Non-Preempted and Efficiency-Equipment packages and Total EDR Margin for the Efficiency & PV, Efficiency & PV/Battery, Neutral Cost, and Min Cost Effectiveness packages.

⁵Positive values indicate an increase in PV capacity relative to the Standard Design.



Table 78: Multifamily Climate Zone 14 SCE/SoCalGas Results Summary (Per Dwelling Unit)

Climate Zone 14 SCE/SoCalGas Multifamily		Annual Net kWh	Annual therms	EDR Margin ⁴	PV Size Change (kW) ⁵	CO2-Equivalent Emissions (lbs/sf)		NPV of Lifetime Incremental Cost (\$)	Benefit to Cost Ratio (B/C)	
						Total	Reduction		On-Bill	TDV
Mixed Fuel ¹	Code Compliant	(0)	141	n/a	n/a	2.76	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	(0)	126	3.0	(0.04)	2.53	0.23	\$874	0.73	1.21
	Efficiency-Equipment	(0)	126	3.0	(0.05)	2.52	0.23	\$347	1.96	2.99
	Efficiency & PV/Battery	(3)	126	9.5	0.01	2.18	0.58	\$2,957	1.09	1.39
All-Electric ²	Code Compliant	2,022	0	n/a	n/a	1.73	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	1,759	0	3.5	0.00	1.58	0.15	\$1,011	1.24	1.65
	Efficiency-Equipment	1,748	0	3.5	0.00	1.56	0.16	\$795	1.59	2.20
	Efficiency & PV	504	0	14.0	0.70	1.26	0.47	\$3,356	1.39	1.91
	Efficiency & PV/Battery	(2)	0	24.5	1.03	0.79	0.94	\$6,380	1.36	1.77
Mixed Fuel to All-Electric ³	Code Compliant	2,022	0	0.0	0.00	1.73	1.03	(\$2,337)	1.13	1.48
	Efficiency & PV	63	0	14.0	0.70	1.26	1.50	\$1,019	2.57	>1
	Neutral Cost	772	0	10.0	0.70	1.41	1.35	\$0	>1	>1

¹All reductions and incremental costs relative to the **mixed fuel** code compliant home.

²All reductions and incremental costs relative to the **all-electric** code compliant home.

³All reductions and incremental costs relative to the **mixed fuel** code compliant home except the EDR Margins are relative to the Standard Design for each case which is the **all-electric** code compliant home. Incremental costs for these packages reflect the costs used in the On-Bill cost effectiveness methodology. Costs differ for the TDV methodology due to differences in the site gas infrastructure costs (see Section 2.6).

⁴This represents the Efficiency EDR Margin for the Efficiency-Non-Preempted and Efficiency-Equipment packages and Total EDR Margin for the Efficiency & PV, Efficiency & PV/Battery, and Neutral Cost packages.

⁵Positive values indicate an increase in PV capacity relative to the Standard Design.



Climate Zone 14 SDGE**Table 79: Single Family Climate Zone 14 SDGE Results Summary**

Climate Zone 14 SDG&E Single Family		Annual Net kWh	Annual therms	EDR Margin ⁴	PV Size Change (kW) ⁵	CO2-Equivalent Emissions (lbs/sf)		NPV of Lifetime Incremental Cost (\$)	Benefit to Cost Ratio (B/C)	
						Total	Reduction		On-Bill	TDV
Mixed Fuel ¹	Code Compliant	(0)	371	n/a	n/a	2.35	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	(0)	319	4.5	(0.17)	2.06	0.29	\$1,662	1.92	2.46
	Efficiency-Equipment	(0)	305	5.5	(0.19)	1.98	0.36	\$799	4.88	6.14
	Efficiency & PV/Battery	(5)	319	9.0	(0.08)	1.83	0.52	\$5,526	1.23	1.74
All-Electric ²	Code Compliant	4,725	0	n/a	n/a	1.38	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	3,819	0	5.5	0.00	1.19	0.19	\$4,154	1.30	1.46
	Efficiency-Equipment	3,676	0	6.0	0.00	1.16	0.22	\$2,108	2.92	3.13
	Efficiency & PV	953	0	15.5	1.60	0.93	0.45	\$10,459	1.80	1.62
	Efficiency & PV/Battery	(2)	0	23.5	2.21	0.63	0.75	\$16,394	1.67	1.59
Mixed Fuel to All-Electric ³	Code Compliant	4,725	0	0.0	0.00	1.38	0.97	(\$5,349)	0.60	1.67
	Efficiency & PV	953	0	15.5	1.60	0.93	1.42	\$5,111	1.94	>1
	Neutral Cost	2,299	0	8.5	1.35	1.15	1.19	\$0	>1	>1

¹All reductions and incremental costs relative to the **mixed fuel** code compliant home.²All reductions and incremental costs relative to the **all-electric** code compliant home.³All reductions and incremental costs relative to the **mixed fuel** code compliant home except the EDR Margins are relative to the Standard Design for each case which is the **all-electric** code compliant home. Incremental costs for these packages reflect the costs used in the On-Bill cost effectiveness methodology. Costs differ for the TDV methodology due to differences in the site gas infrastructure costs (see Section 2.6).⁴This represents the Efficiency EDR Margin for the Efficiency-Non-Preempted and Efficiency-Equipment packages and Total EDR Margin for the Efficiency & PV, Efficiency & PV/Battery, and Neutral Cost packages.⁵Positive values indicate an increase in PV capacity relative to the Standard Design.

Table 80: Multifamily Climate Zone 14 SDGE Results Summary (Per Dwelling Unit)

Climate Zone 14 SDG&E Multifamily		Annual Net kWh	Annual therms	EDR Margin ⁴	PV Size Change (kW) ⁵	CO2-Equivalent Emissions (lbs/sf)		NPV of Lifetime Incremental Cost (\$)	Benefit to Cost Ratio (B/C)	
						Total	Reduction		On-Bill	TDV
Mixed Fuel ¹	Code Compliant	(0)	141	n/a	n/a	2.76	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	(0)	126	3.0	(0.04)	2.53	0.23	\$874	0.93	1.21
	Efficiency-Equipment	(0)	126	3.0	(0.05)	2.52	0.23	\$347	2.48	2.99
	Efficiency & PV/Battery	(3)	126	9.5	0.01	2.18	0.58	\$2,957	0.51	1.39
All-Electric ²	Code Compliant	2,022	0	n/a	n/a	1.73	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	1,759	0	3.5	0.00	1.58	0.15	\$1,011	1.47	1.65
	Efficiency-Equipment	1,748	0	3.5	0.00	1.56	0.16	\$795	2.00	2.20
	Efficiency & PV	504	0	14.0	0.70	1.26	0.47	\$3,356	2.16	1.91
	Efficiency & PV/Battery	(2)	0	24.5	1.03	0.79	0.94	\$6,380	1.69	1.77
Mixed Fuel to All-Electric ³	Code Compliant	2,022	0	0.0	0.00	1.73	1.03	(\$2,337)	0.51	1.48
	Efficiency & PV	63	0	14.0	0.70	1.26	1.50	\$1,019	2.60	>1
	Neutral Cost	772	0	10.0	0.70	1.41	1.35	\$0	>1	>1

¹All reductions and incremental costs relative to the **mixed fuel** code compliant home.

²All reductions and incremental costs relative to the **all-electric** code compliant home.

³All reductions and incremental costs relative to the **mixed fuel** code compliant home except the EDR Margins are relative to the Standard Design for each case which is the **all-electric** code compliant home. Incremental costs for these packages reflect the costs used in the On-Bill cost effectiveness methodology. Costs differ for the TDV methodology due to differences in the site gas infrastructure costs (see Section 2.6).

⁴This represents the Efficiency EDR Margin for the Efficiency-Non-Preempted and Efficiency-Equipment packages and Total EDR Margin for the Efficiency & PV, Efficiency & PV/Battery, and Neutral Cost packages.

⁵Positive values indicate an increase in PV capacity relative to the Standard Design.



Climate Zone 15**Table 81: Single Family Climate Zone 15 Results Summary**

Climate Zone 15 SCE/SoCalGas Single Family		Annual Net kWh	Annual therms	EDR Margin ⁴	PV Size Change (kW) ⁵	CO2-Equivalent Emissions (lbs/sf)		NPV of Lifetime Incremental Cost (\$)	Benefit to Cost Ratio (B/C)	
						Total	Reduction		On-Bill	TDV
Mixed Fuel ¹	Code Compliant	0	149	n/a	n/a	1.69	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	0	141	4.5	(0.43)	1.56	0.13	\$2,179	1.00	1.58
	Efficiency-Equipment	(0)	132	4.5	(0.45)	1.51	0.18	(\$936)	>1	>1
	Efficiency & PV/Battery	(3)	141	7.0	(0.34)	1.38	0.32	\$6,043	1.15	1.51
All-Electric ²	Code Compliant	2,149	0	n/a	n/a	1.32	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	1,230	0	5.5	0.00	1.12	0.20	\$4,612	1.12	1.58
	Efficiency-Equipment	866	0	7.0	0.00	1.04	0.28	\$2,108	3.30	4.47
	Efficiency & PV	1,030	0	6.0	0.12	1.10	0.22	\$5,085	1.12	1.57
	Efficiency & PV/Battery	(2)	0	13.0	0.83	0.84	0.48	\$11,382	1.16	1.54
Mixed Fuel to All-Electric ³	Code Compliant	2,149	0	0.0	0.00	1.32	0.37	(\$5,349)	1.73	2.21
	Efficiency & PV	1,030	0	6.0	0.12	1.10	0.59	(\$264)	>1	>1
	Neutral Cost	23	0	6.0	1.36	1.13	0.57	\$0	>1	>1

¹All reductions and incremental costs relative to the **mixed fuel** code compliant home.

²All reductions and incremental costs relative to the **all-electric** code compliant home.

³All reductions and incremental costs relative to the **mixed fuel** code compliant home except the EDR Margins are relative to the Standard Design for each case which is the **all-electric** code compliant home. Incremental costs for these packages reflect the costs used in the On-Bill cost effectiveness methodology. Costs differ for the TDV methodology due to differences in the site gas infrastructure costs (see Section 2.6).

⁴This represents the Efficiency EDR Margin for the Efficiency-Non-Preempted and Efficiency-Equipment packages and Total EDR Margin for the Efficiency & PV, Efficiency & PV/Battery, and Neutral Cost packages.

⁵Positive values indicate an increase in PV capacity relative to the Standard Design.



Table 82: Multifamily Climate Zone 15 Results Summary (Per Dwelling Unit)

Climate Zone 15 SCE/SoCalGas Multifamily		Annual Net kWh	Annual therms	EDR Margin ⁴	PV Size Change (kW) ⁵	CO2-Equivalent Emissions (lbs/sf)		NPV of Lifetime Incremental Cost (\$)	Benefit to Cost Ratio (B/C)	
						Total	Reduction		On-Bill	TDV
Mixed Fuel ¹	Code Compliant	0	93	n/a	n/a	2.53	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	0	92	4.0	(0.15)	2.42	0.11	\$510	1.35	2.28
	Efficiency-Equipment	0	86	4.0	(0.16)	2.33	0.20	(\$157)	>1	>1
	Efficiency & PV/Battery	(3)	92	8.5	(0.10)	2.13	0.40	\$2,604	1.29	1.70
All-Electric ²	Code Compliant	1,243	0	n/a	n/a	1.78	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	954	0	4.0	0.00	1.61	0.17	\$1,011	1.50	2.28
	Efficiency-Equipment	764	0	6.0	0.00	1.50	0.29	\$1,954	1.24	1.72
	Efficiency & PV	548	0	7.0	0.24	1.50	0.28	\$1,826	1.43	2.07
	Efficiency & PV/Battery	(3)	0	16.5	0.62	1.08	0.70	\$5,020	1.34	1.80
Mixed Fuel to All-Electric ³	Code Compliant	1,243	0	0.0	0.00	1.78	0.75	(\$2,337)	6.36	2.35
	Efficiency & PV	68	0	7.0	0.24	1.50	1.03	(\$511)	>1	>1
	Neutral Cost	78	0	7.5	0.70	1.48	1.05	\$0	>1	>1

¹All reductions and incremental costs relative to the **mixed fuel** code compliant home.

²All reductions and incremental costs relative to the **all-electric** code compliant home.

³All reductions and incremental costs relative to the **mixed fuel** code compliant home except the EDR Margins are relative to the Standard Design for each case which is the **all-electric** code compliant home. Incremental costs for these packages reflect the costs used in the On-Bill cost effectiveness methodology. Costs differ for the TDV methodology due to differences in the site gas infrastructure costs (see Section 2.6).

⁴This represents the Efficiency EDR Margin for the Efficiency-Non-Preempted and Efficiency-Equipment packages and Total EDR Margin for the Efficiency & PV, Efficiency & PV/Battery, and Neutral Cost packages.

⁵Positive values indicate an increase in PV capacity relative to the Standard Design.



Climate Zone 16**Table 83: Single Family Climate Zone 16 Results Summary**

Climate Zone 16 PG&E Single Family		Annual Net kWh	Annual therms	EDR Margin⁴	PV Size Change (kW)⁵	CO2-Equivalent Emissions (lbs/sf)		NPV of Lifetime Incremental Cost (\$)	Benefit to Cost Ratio (B/C)	
						Total	Reduction		On-Bill	TDV
Mixed Fuel¹	Code Compliant	(0)	605	n/a	n/a	3.31	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	0	454	5.0	0.01	2.59	0.72	\$3,542	1.62	1.46
	Efficiency-Equipment	0	474	6.0	(0.08)	2.66	0.65	\$2,441	2.19	2.20
	Efficiency & PV/Battery	(18)	454	10.5	0.10	2.36	0.95	\$7,399	0.87	1.37
All-Electric²	Code Compliant	7,694	0	n/a	n/a	1.73	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	5,696	0	9.5	0.00	1.38	0.35	\$5,731	1.72	1.69
	Efficiency-Equipment	6,760	0	4.5	0.00	1.55	0.18	\$2,108	2.36	2.32
	Efficiency & PV	1,032	0	26.5	2.75	0.94	0.79	\$16,582	2.09	1.62
	Efficiency & PV/Battery	(11)	0	35.0	3.45	0.64	1.09	\$22,838	1.71	1.55
Mixed Fuel to All-Electric³	Code Compliant	7,694	0	0.0	0.00	1.73	1.58	(\$5,349)	0.31	0.68
	Efficiency & PV	1,032	0	26.5	2.75	0.94	2.37	\$11,234	1.55	2.02
	Neutral Cost	5,398	0	8.5	1.35	1.51	1.80	\$0	0.00	0.74
	Min Cost Effectiveness	3,358	0	16.0	2.56	1.32	1.99	(\$4,753)	1.24	1.40

¹All reductions and incremental costs relative to the **mixed fuel** code compliant home.

²All reductions and incremental costs relative to the **all-electric** code compliant home.

³All reductions and incremental costs relative to the **mixed fuel** code compliant home except the EDR Margins are relative to the Standard Design for each case which is the **all-electric** code compliant home. Incremental costs for these packages reflect the costs used in the On-Bill cost effectiveness methodology. Costs differ for the TDV methodology due to differences in the site gas infrastructure costs (see Section 2.6).

⁴This represents the Efficiency EDR Margin for the Efficiency-Non-Preempted and Efficiency-Equipment packages and Total EDR Margin for the Efficiency & PV, Efficiency & PV/Battery, Neutral Cost, and Min Cost Effectiveness packages.

⁵Positive values indicate an increase in PV capacity relative to the Standard Design.



Table 84: Multifamily Climate Zone 16 Results Summary (Per Dwelling Unit)

Climate Zone 16 PG&E Multifamily		Annual Net kWh	Annual therms	EDR Margin ⁴	PV Size Change (kW) ⁵	CO2-Equivalent Emissions (lbs/sf)		NPV of Lifetime Incremental Cost (\$)	Benefit to Cost Ratio (B/C)	
						Total	Reduction		On-Bill	TDV
Mixed Fuel ¹	Code Compliant	0	206	n/a	n/a	3.45	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	(0)	172	2.0	0.03	3.02	0.44	\$937	1.11	1.19
	Efficiency-Equipment	(0)	183	2.5	(0.02)	3.12	0.33	\$453	1.76	2.15
	Efficiency & PV/Battery	(9)	172	9.5	0.08	2.65	0.80	\$3,028	0.47	1.28
All-Electric ²	Code Compliant	2,699	0	n/a	n/a	1.86	n/a	n/a	n/a	n/a
	Efficiency-Non-Preempted	2,329	0	4.0	0.00	1.70	0.16	\$843	2.08	2.05
	Efficiency-Equipment	2,470	0	3.0	0.00	1.74	0.13	\$795	1.59	1.70
	Efficiency & PV	518	0	19.5	1.07	1.23	0.63	\$4,423	2.58	1.89
	Efficiency & PV/Battery	(6)	0	29.5	1.42	0.75	1.11	\$7,533	1.65	1.69
Mixed Fuel to All-Electric ³	Code Compliant	2,699	0	0.0	0.00	1.86	1.59	(\$2,337)	0.43	1.03
	Efficiency & PV	65	0	19.5	1.07	1.23	2.22	\$2,087	2.87	>1
	Neutral Cost	1,518	0	10.0	0.70	1.56	1.90	\$0	>1	2.58

¹All reductions and incremental costs relative to the **mixed fuel** code compliant home.

²All reductions and incremental costs relative to the **all-electric** code compliant home.

³All reductions and incremental costs relative to the **mixed fuel** code compliant home except the EDR Margins are relative to the Standard Design for each case which is the **all-electric** code compliant home. Incremental costs for these packages reflect the costs used in the On-Bill cost effectiveness methodology. Costs differ for the TDV methodology due to differences in the site gas infrastructure costs (see Section 2.6).

⁴This represents the Efficiency EDR Margin for the Efficiency-Non-Preempted and Efficiency-Equipment packages and Total EDR Margin for the Efficiency & PV, Efficiency & PV/Battery, and Neutral Cost packages.

⁵Positive values indicate an increase in PV capacity relative to the Standard Design.



2020 REACH CODE
COST-EFFECTIVENESS ANALYSIS:
Detached Accessory Dwelling Units

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Acronym List

B/C – Benefit-to-Cost Ratio

CBECC - California Building Energy Code Compliance

CBSC - California Building Standards Commission

CEC - California Energy Commission

CZ – Climate Zone

GHG - Greenhouse Gas

IOU – Investor-Owned Utility

POU – Publicly Owned Utility

PG&E – Pacific Gas & Electric (utility)

SCE – Southern California Edison (utility)

SCG – Southern California Gas (utility)

SDG&E – San Diego Gas & Electric (utility)

CPAU – City of Palo Alto Utilities

SMUD – Sacramento Municipal Utility District

LADWP – Los Angeles Department of Water and Power

kWh – Kilowatt Hour

NPV – Net Present Value

PV - Solar Photovoltaic

TDV - Time Dependent Valuation

Title 24 – California Code of Regulations Title 24, Part 6



Summary of Revisions		
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1 Introduction

The California Building Energy Efficiency Standards Title 24, Part 6 (Title 24) (CEC, 2019) is maintained and updated every three years by two state agencies: the California Energy Commission (the Energy Commission) and the Building Standards Commission (BSC). In addition to enforcing the code, local jurisdictions have the authority to adopt local energy efficiency ordinances—or reach codes—that exceed the minimum standards defined by Title 24 (as established by Public Resources Code Section 25402.1(h)2 and Section 10-106 of the Building Energy Efficiency Standards). Local jurisdictions must demonstrate that the requirements of the proposed ordinance are cost-effective and do not result in buildings consuming more energy than is permitted by Title 24. In addition, the jurisdiction must obtain approval from the Energy Commission and file the ordinance with the BSC for the ordinance to be legally enforceable.

This report documents cost-effective combinations of measures that exceed the minimum state requirements, the 2019 Building Energy Efficiency Standards, effective January 1, 2020, for newly constructed detached Accessory Dwelling Unit (ADU) buildings. This report was developed in coordination with the California Statewide Investor-Owned Utilities (CA IOUs) Codes and Standards Program, key consultants, and engaged cities—collectively known as the Reach Code Team.

The Reach Code Team published a residential new construction report in 2019 that documented the cost-effectiveness of energy measure packages of single family and low-rise multifamily prototypes (Statewide Reach Code Team, 2019). Based on stakeholder requests, this report extends that analysis to Residential Detached Accessory Dwelling Units (ADUs). Measures include energy efficiency, electrification, solar photovoltaics (PV), and battery storage.

The Department of Energy (DOE) sets minimum efficiency standards for equipment and appliances that are federally regulated under the National Appliance Energy Conservation Act, including heating, cooling, and water heating equipment (E-CFR, 2020). Since state and local governments are prohibited from adopting higher minimum efficiencies than the federal standards require, the focus of this study is to identify and evaluate cost-effective packages that do not include high efficiency heating, cooling, and water heating equipment. High efficiency appliances are often the easiest and most affordable measures to increase energy performance. While federal preemption limits reach code mandatory requirements for covered appliances, in practice, builders may install any package of compliant measures to achieve the performance requirements.

2 Methodology and Assumptions

The Reach Codes Team analyzed one prototype design to represent a detached ADU building using the cost-effectiveness methodology detailed in this section below. The general methodology is consistent with analyses of other prototypes, whereas some specifics such as utility rate selection are customized for the residential detached ADU prototype.

2.1 Reach Codes

This section describes the approach to calculating cost-effectiveness including benefits, costs, metrics, and utility rate selection.

2.1.1 Benefits

This analysis used both on-bill and time dependent valuation (TDV) of energy-based approaches to evaluate cost-effectiveness. Both on-bill and TDV require estimating and quantifying the energy savings and costs associated with energy measures. The primary difference between on-bill and TDV is how energy is valued:

- **On-Bill:** Customer-based lifecycle cost approach that values energy based upon estimated site energy usage and customer on-bill savings using electricity and natural gas utility rate schedules over a 30-year duration for the detached ADU accounting for a three percent discount rate and energy cost inflation per Appendix 7.4 .
- **TDV:** TDV was developed by the Energy Commission to reflect the time dependent value of energy including long-term projected costs of energy such as the cost of providing energy during peak periods of demand and other societal costs including projected costs for carbon emissions and grid transmission impacts. This metric values energy use differently depending on the fuel source (gas, electricity, and propane), time of day, and season. Electricity used (or saved) during peak periods has a much higher value than electricity used (or saved) during off-peak periods.

The Reach Code Team performed energy simulations using the most recent software available for 2019 Title 24 code compliance analysis, CBECC-Res 2019.1.3. The Team also used CBECC-Res 2022.0.1 RV for testing the impacts of updated weather files and 2022 TDV multipliers on cost-effectiveness. 2022 weather files have more cooling loads and less heating loads, and 2022 TDV multipliers increased significantly for fossil-fuel sources to reflect CO2 price forecasts and emissions abatement, while comparatively reducing for electricity to reflect increased renewable generation penetration (California Energy Commission, 2019).

2.1.2 Costs

The Reach Code Team assessed the incremental costs and savings of the energy packages over the lifecycle of 30 years. Incremental costs represent the equipment, installation, replacements, and maintenance costs of the proposed measure relative to the 2019 Title 24 Standards minimum requirements or standard industry practices. The Reach Code Team obtained measure costs from manufacturer distributors, contractors, literature review, and online sources such as Home Depot and RS Means. Taxes and contractor markups were added as appropriate. Maintenance and replacement costs are included.

2.1.3 Metrics

Cost-effectiveness is presented using net present value (NPV) and benefit-to-cost (B/C) ratio metrics.

- **NPV:** The Reach Code Team uses net savings (NPV benefits minus NPV costs) as the cost-effectiveness metric. If the net savings of a measure or package is positive, it is considered cost effective. Negative net savings represent net costs to the consumer. A measure that has negative energy cost benefits (energy cost increase) can still be cost effective if the costs to implement the measure are even more negative (i.e., construction and maintenance cost savings).

- **B/C Ratio:** Ratio of the present value of all benefits to the present value of all costs over 30 years (NPV benefits divided by NPV costs). The criteria for cost-effectiveness is a B/C greater than 1.0. A value of one indicates the savings over the life of the measure are equivalent to the incremental cost of that measure. A value greater than one represents a positive return on investment.

Improving the energy performance of a building often requires an initial investment. In most cases the benefit is represented by annual on-bill utility or TDV savings, and the cost by incremental first cost and replacement costs. However, some packages result in initial construction cost savings (negative incremental cost), and either energy cost savings (positive benefits), or increased energy costs (negative benefits). In cases where both construction costs and energy-related savings are negative, the construction cost savings are treated as the benefit while the increased energy costs are the cost. In cases where a measure or package is cost-effective immediately (i.e., upfront construction cost savings and lifetime energy cost savings), B/C ratio cost-effectiveness is represented by “>1”. Because of these situations, NPV savings are also reported, which, in these cases, are positive values.

2.1.4 Utility Rates

In coordination with the CA IOU rate team, and the publicly available information for several Publicly-Owned-Utilities (POUs), the Reach Code Team determined appropriate utility rates for each climate zone and package. The utility tariffs, summarized in Table 1, were determined based on the annual load profile of the prototype and the corresponding package, the most prevalent rate in each territory, and information assuring that the rates were not getting phased out.

TRC assumed that the ADU would have a separate electric and gas meter. A time-of-use (TOU) rate was applied to all cases. For cases with PV generation, the approved NEM tariffs were applied along with minimum daily use billing and mandatory non-bypassable charges. For the PV cases annual electric production was always less than annual electricity consumption; and therefore, no credits for surplus generation were necessary. For a more detailed breakdown of the rates selected refer to Appendix 7.2 - Utility Rate Schedules.

Table 1. Utility Tariffs Used Based on Climate Zone

Climate Zones	Electric / Gas Utility	Electricity	Natural Gas
IOUs			
1-5,11-13,16	PG&E	E-TOU Option C	G-1
6, 8-10, 14, 15	SCE / Southern California Gas Company	TOU-D Option 4-9	GM
7, 10, 14	San Diego Gas and Electric Company (SDG&E)	TOU-DR-1	GM
POUs			
4	City of Palo Alto (CPAU)	E-1	G-1
12	Sacramento Municipal Utility District (SMUD) / PG&E	R TOD Option 5-8	G-1
6, 8, 9	Los Angeles Department of Water and Power (LADWP) / SCG	R-1	GM (GM-E)
16	Los Angeles Department of Water and Power (LADWP) / PG&E	R-1	G-1

Utility rates are assumed to escalate over time, using assumptions from research conducted by Energy and Environmental Economics (E3) in the 2019 study Residential Building Electrification in California (Energy & Environmental Economics, 2019). Escalation of natural gas rates between 2020 and 2022 is based on the currently

filed General Rate Cases for PG&E, SoCalGas and SDG&E. From 2023 through 2025, gas rates are assumed to escalate at four percent per year above inflation, which reflects historical rate increases between 2013 and 2018. Escalation of electricity rates from 2020 through 2025 is assumed to be four percent per year above inflation, based on electric utility estimates. After 2025, escalation rates for both natural gas and electric rates are assumed to drop to a more conservative one percent escalation per year above inflation for long-term rate trajectories beginning in 2026 through 2050. See Appendix 7.4 - **Utility Rate Schedules** for additional details.

2.2 Greenhouse Gas Emissions

The analysis uses the greenhouse gas (GHG) emissions estimates built-in to CBECC-Res. There are 8760 hourly multipliers accounting for time dependent energy use and carbon emissions based on source emissions, including renewable portfolio standard projections. Natural gas fugitive emissions, which are shown to be substantial, are not included. There are two strings of multipliers—one for Northern California climate zones, and another for Southern California climate zones.¹

¹ CBECC-Res multipliers are the same for CZs 1-5 and 11-13 (presumed to be Northern California), while there is another set of multipliers for CZs 6-10 and 14-16 (assumed to be Southern California).

3 Prototypes, Measure Packages, and Costs

This section describes the prototype and the scope of analysis drawing from previous 2019 Reach Code research where necessary.

A customized detached ADU prototype was built to reflect California construction. TRC designed the baseline prototype to be mixed fuel and have total EDR margins as close to zero as possible to reflect a prescriptively compliant new construction building in each climate zone.

ADUs are additional dwelling units typically built on the property of an existing single-family parcel. ADUs are defined as new construction in the energy code when they are ground-up developments, do not convert an existing space to livable space, and are not attached to the primary dwelling. The Reach Code Team leveraged prior research and performed interviews to help define the detached ADU baseline and measure packages, primarily to include infrastructural costs.

3.1 Prior Reach Code Research

In 2019, the Statewide CA IOU Reach Codes Team analyzed the cost-effectiveness of residential new construction projects for mixed-fuel plus efficiency, all-electric plus efficiency, and demand flexibility packages (Statewide Reach Codes Team 2019a). Using this analysis, several cities and counties in California adopted local energy code amendments encouraging or requiring that low-rise residential new construction to be all-electric. However, many jurisdictions exempted ADUs from these requirements due to uncertainties around how infrastructural and operational costs may be different between mixed-fuel and all-electric detached ADUs, and to avoid potentially stifling ADU development.

Because the mixed-fuel packages plus efficiency ADUs are not subject to jurisdictional exemptions, this study focuses on a new construction all-electric detached ADU and discerns how infrastructural costs and operational costs may impact the cost-effectiveness compared to a mixed-fuel baseline.

3.2 Prototype Characteristics

To determine a typical set of ADU characteristics, the Reach Code team contacted over twenty ADU builders and city staff members from regions representing Sacramento, the San Francisco Bay Area, the Los Angeles area, and the San Diego area. Ultimately, four builders with construction experience with multiple projects and two city staff members with experience reviewing and approving ADU project plans were interviewed. Respondents indicated that there are not particular determinants for siting and sizing detached ADUs other than the site conditions—maximizing available space is the key consideration. Responses varied greatly on detached ADU size, as client preference, location, and avoidance of impact fees were expressed as considerations. Sizes can range from roughly 300 ft² for a studio to over 1200 ft² for a two-bedroom unit. The Reach Code team selected an average size of 750 ft² as a typical size for a detached ADU. 750 ft² also relates to a threshold for state regulation over which impact fees and discretionary approval would be applied. Some other findings include:

- **Setback requirements** follow the four-foot setback requirements of state Assembly Bill 881. Mechanical equipment may not reside in the setbacks, however, interviewees indicated that there is always one side of the ADU that isn't against a setback. Mechanical equipment can usually be placed along those sides and be hidden by a shed or fence.
- **Mechanical equipment footprints** may be too big to include inside an ADU with limited floor area, so clients tend to want to locate the mechanical equipment outside. This is reflected in the all-electric Package 2 (see [Section 3.4](#)).
- Some cities have **noise ordinances** that limit maximum decibels at the property line, which may pose issues for exterior heat pump water heaters or heating, ventilation, and air-conditioning (HVAC) equipment. These maximum noise requirements range from 50-66 decibels (dBs), and exterior heat pump equipment commonly ranges between 45-60 decibels at the equipment. Interviewees did not express significant concerns about

noise ordinances because manufacturers can provide sound blankets to reduce the decibel rating by five or more decibels, or developers can locate equipment in an insulated shed to reduce noise.

- When adding a detached ADU the primary dwelling's **electrical panel and service connection** nearly always needs to be upgraded at least to a 125-amp panel, and at least a 200-amp panel where solar PV is being installed. A 225-amp panel is also common. Electrical upgrades cost roughly \$3500, for most common existing panel sizes or upgraded panel sizes.
- The **distance** between the detached ADU and primary dwelling can range widely due to lot size and location of meter and other infrastructure, from as little as five feet to over 100 feet. Based on respondent feedback, the Reach Code Team used an average distance of 50 feet as the length for both the natural gas and electrical line extensions for costing purposes.
- Cities do not impose a differing **fee structure** between all-electric or mixed-fuel ADU design. Fees range from \$4,000 - \$6,000 including inspections.

Table 2 summarizes the ADU prototype characteristics, based on prescriptive Title 24 new construction requirements.

Table 2. Detached ADU Baseline Mixed-fuel Prototype Characteristics

Conditioned floor area (ft²)	750
Number of stories	1
Distance from primary dwelling (ft)	50
Wall U-factor	0.048 (CZ 1-5, 8-16), 0.065 (CZ 6,7)
Roof Assembly	Option B in Table 150.1-A of Title 24 2019
Window-to-floor area ratio	20%
Solar PV size	Each climate zone sized as 'Specific PV System Scaling' = 1 offsetting 100% of electricity load

3.3 Measure Definitions and Costs

ADU measures fall into two categories: those associated with building all-electric, and those associated with general efficiency and demand flexibility.

3.3.1 All-Electric

For HVAC and water heating appliance-related costs, the Reach Code Team primarily leveraged measure definitions and costs from the 2019 Residential New Construction Reach Code Cost-Effectiveness Study. For HVAC system, air-conditioning is included in both baseline and proposed models. For in-house and site infrastructure the Reach Code Team developed new data based on interviews and RS Means.

The Reach Code Team found that a new detached ADU would require that the building owner upgrade the service connection to the lot in both the mixed-fuel ADU design and the all-electric design. The most common size for this upgrade is 225A, which would not represent an incremental cost from the mixed-fuel project to the all-electric project. Feeder wiring to the ADU and the ADU subpanel will need to be slightly upgraded for the all-electric design. Electric vehicle (EV) infrastructure upgrades are excluded from this analysis as ADUs are not required to have dedicated parking – however, a 225-amp panel is likely to be sufficient for some EV infrastructure for a majority of existing homes. The total cost for the all-electric measures is summarized in Table 3.

Table 3. New Construction Detached ADU Construction Costs, All CZs

	Mixed-Fuel Cost	All-Electric Measure	All-Electric Cost	All-Electric Incremental Cost	Source
Appliances: Space heater, water heater, clothes dryer, range.				(\$221)	Residential New Construction Report (2019) Table 6
In-house gas plumbing	\$540	In-house electrical upgrades for branch circuits	\$600	\$60	RSMeans
Site gas service extension	\$1,998	No site gas service	\$0	(\$1998)	Interviews, RSMeans
Site electrical service connection upgrade 225A	\$3,500	Site electrical service connection upgrade 225A	\$3,500	\$0	
100A Feeder to ADU with breaker	\$933	125A feeder to ADU	\$1,206	\$273	
100A ADU subpanel	\$733	125A ADU subpanel	\$946	\$213	
Outdoor closet	n/a	Heat pump water heater closet*	\$650	\$650	
Total (HPWH outside closet)	\$7,704		\$6,901	(\$1,024)	
Total (HPWH in conditioned space)	\$7,704		\$6,251	(\$1,674)	

* Additional cost for outdoor closet is required only for climate zones where heat pump water heater is located 'Outside'.

3.3.2 Efficiency and Solar PV

The Reach Code team used the efficiency measures and costs developed in the 2019 Residential New Construction report (2019). The measures are summarized below by climate zone, including measure costs, in Table 4.

Table 4. Measures for Detached ADU

Measure Name	Applicable Climate Zones	Incremental Cost Description	Cost for ADU Prototype
Verified low leakage ducts in conditioned space (including HERS* verification)	All	\$0.31/ft ² of floor area + \$110 HERS test	\$343
Low pressure drop ducts - 2% vs 5%	All	\$96/hr labor for installation	\$96
Reduced infiltration: 3ACH50 vs 5ACH50	13, 14, 16	\$0.115/ft ² + \$100 HERS test	\$186
Exterior wall insulation: R-7.5 vs R-5 (U-0.043)	15	\$0.36/ft ² of floor area	\$272
High performance attics: R-38 attic floor + R-30 Under Deck	1, 11-16	\$0.34/ft ² attic floor + \$1.61/ft ² roof	\$1,563
Cool roof - 0.25 vs 0.20	9-15	\$0.09/ft ² of roof	\$73
Improved fenestration	1, 2, 16	\$4.23/ft ² of window	\$381

Measure Name	Applicable Climate Zones	Incremental Cost Description	Cost for ADU Prototype
Slab edge insulation: R-10 vs R-0	1-5, 10-15	\$4/linear foot	\$339
Solar PV to offset 90% of the annual electricity use**	All	\$3.99/Wdc	\$800-\$6,200 depending on climate zone
Total Costs			\$4,500 - \$10,253 depending on climate zone.

*HERS = Home Energy Rating System

**Incremental cost for added PV over and above the prescriptive PV size in baseline models.

The cost for solar PV is derived from an LBNL study (Barbose, 2019) and Rooftop Solar PV System Measure Study (California Energy Commission, 2017), summarized in Table 5. Solar PV prices have been discounted to reflect the federal solar investment tax credit, by an average of 26% over 2021 and 2022.

Table 5. Solar PV Measure Cost Breakdown

	Unit Cost, \$2020 Present Value	Useful Life (yrs.)	Source
Solar PV System	\$3.70 / Wdc	30	LBNL Study
Inverter Replacement, year 11	\$0.15 / Wdc	10	E3 Rooftop Solar PV System Report (CEC 2017) ²
Inverter Replacement, year 21	\$0.12 / Wdc	10	
Annual Maintenance Costs	\$0.02 / Wdc	1	
Total	\$3.99 / Wdc		

3.4 Measure Packages

The Reach Code Team examined the two electrification packages against a baseline mixed-fuel prescriptive package:

- Detached ADU Baseline Package: Mixed-fuel prescriptively built, including gas utility extension from primarily dwelling to detached ADU.
- All-Electric Prescriptive Minimum: All-electric prescriptively built, including heat pump water heater location per Residential Alternate Calculation Method (ACM), shown in Table 6. Includes electric utility extension upgrade from the primary dwelling to the detached ADU and avoided cost of gas utility extension. This package has the same PV size as mixed-fuel prescriptive baseline model, offsetting 100 percent of annual electricity demand.
- All-Electric Energy Efficiency + PV: All-electric prescriptively built as above, except water heater location is outside in exterior closet in all climate zones except Climate Zones 14, 15, and 16, plus energy efficiency measures, and additional solar PV (offsetting 90 percent of kWh load) to improve cost-effectiveness based on prior reach code research.

² Available at: <https://efiling.energy.ca.gov/getdocument.aspx?tn=221366>

Table 6. Heat Pump Water Heater Location, All-Electric Prescriptive Baseline

Climate Zone	Single-Family
01	Outside
02	Conditioned
03	Outside
04	Conditioned
05	Outside
06	Outside
07	Outside
08	Conditioned
09	Conditioned
10	Conditioned
11	Conditioned
12	Conditioned
13	Conditioned
14	Conditioned
15	Conditioned
16	Conditioned

Source: California Energy Commission, Residential ACM

The Reach Code Team analyzed some additional measure packages:

- 2022 TDV: Both electrification packages, 'Prescriptive Minimum' and 'Energy Efficiency + PV' are analyzed against the mixed-fuel baseline package using 2022 TDV multipliers and weather files in CBECC-Res 2022 software.
- Efficiency-Only: The All-Electric Energy Efficiency + PV package is analyzed using CBECC-Res 2019 without solar PV measure to evaluate the impact of efficiency measures alone, in the case that solar PV cannot be installed due to shading.

4 Results

Results are presented as per the prototype-specific Measure Packages described in Section 3.

There are several overarching factors to keep in mind when reviewing the results include:

- What constitutes a ‘**benefit**’ or a ‘**cost**’ varies with the scenarios because both energy savings, and incremental construction costs may be negative depending on the package. Typically, utility bill savings are categorized as a ‘benefit’ while incremental construction costs are treated as ‘costs.’ In cases where both construction costs are negative and utility bill savings are negative, the construction cost savings are treated as the ‘benefit’ while the utility bill negative savings are the ‘cost.’
- All-electric packages will have lower **GHG emissions** than mixed-fuel packages in all cases, due to the clean power sources currently available from California’s power providers.
- Since January 2020, compliance of low-rise residential building is analyzed using **Energy Design Rating (EDR)**. This rating scales from 1 to 100 with 100 being the performance equivalent of a 2006 International Energy Conservation Code (IECC). This study uses ‘Total EDR Margin’ as a compliance metric that accounts for all compliant loads along with renewable energy and battery storage. ‘Total EDR Margin’ of 0 represents a prescriptively compliant building that exactly matches the minimum energy budget prescribed by the 2019 T24 code.
- To receive the Energy Commission’s approval, local reach codes that amend the energy code must **both be cost effective** compared to the mixed-fuel baseline package **and exceed the energy performance budget** using ‘Total EDR Margin’ metric (i.e., have a positive compliance margin) compared to the standard model in the compliance software. To emphasize these two important factors, the figures in this Section highlight in green the modeling results that have a positive compliance margin and/or are cost effective. This will allow readers to identify whether a scenario is fully or partially supportive of a reach code, and the opportunities/challenges that the scenario presents. Conversely, *Section 5* only highlights results that have **both** a positive compliance margin and are cost effective, to allow readers to identify reach code-ready scenarios.
- When performance modeling residential buildings of three stories or less (such as the Detached ADU), the Standard Design is electric if the Proposed Design is electric, which removes TDV-related penalties and associated negative compliance margins. This essentially allows for a **compliance pathway for all-electric residential buildings**.
- As mentioned in *Section 2.1.4*, the Reach Code Team coordinated with utilities to select tariffs for each prototype given the annual energy demand profile and the most prevalent rates in each utility territory. The Reach Code Team **did not compare a variety of tariffs** to determine their impact on cost-effectiveness although utility rate changes or updates can affect on-bill cost-effectiveness results.
- As a point of comparison, **mixed-fuel baseline** energy figures are provided in *Appendix 7.2*.
- The cost-effectiveness results for 2022 analysis differs from 2019 mainly in \$TDV savings, but also differs slightly in energy consumption which translates in minor difference in on-bill energy savings. The Reach Code Team has not reported the software outputs for 2022 EDR margins as the 2022 Title 24 Part 6 code is still being developed.

4.1 All-Electric Prescriptive Minimum Results

Table 7 shows results of the ADU all-electric prescriptive minimum compared to a mixed-fuel baseline using 2019 TDV, with heat pump water heater location as per Residential ACM manual (reference Table 6). With federal-minimum efficiencies for mechanical equipment, the all-electric prescriptive pathway is not cost effective in any climate zone using IOU rates with 2019 TDV. However, with relatively lower electric prices and higher gas prices of POUs, the package is on-bill cost effective in some climate zones.

Table 7. Cost-Effectiveness for ADU: All-Electric Prescriptive Minimum, 2019 TDV

CZ	Utility	Annual Elec Savings (kWh)	Annual Gas Savings (therms)	Annual GHG Reductions (mtons)	Total EDR Margin	Incremental Package Cost	Lifecycle Utility Cost Savings	Lifecycle \$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
CZ01	PG&E	(3,600)	259	0.1	0.00	(\$1,024)	(\$7,213)	(\$6,951)	0.1	0.1	(\$6,190)	(\$5,927)
CZ02	PG&E	(2,646)	198	0.3	0.00	(\$1,674)	(\$3,753)	(\$3,897)	0.4	0.4	(\$2,079)	(\$2,223)
CZ03	PG&E	(2,397)	174	0.3	0.00	(\$1,024)	(\$3,518)	(\$4,366)	0.3	0.2	(\$2,495)	(\$3,342)
CZ04	PG&E	(2,263)	170	0.3	0.00	(\$1,674)	(\$2,996)	(\$2,765)	0.6	0.6	(\$1,322)	(\$1,092)
CZ04-2	CPAU	(2,263)	170	0.3	0.00	(\$1,674)	\$1,389	(\$2,765)	>1	0.6	\$3,062	(\$1,092)
CZ05	PG&E	(2,524)	170	0.2	0.00	(\$1,024)	(\$4,969)	(\$4,883)	0.2	0.2	(\$3,945)	(\$3,860)
CZ05-2	SCG	(2,524)	170	0.2	0.00	(\$1,024)	(\$4,842)	(\$4,883)	0.2	0.2	(\$3,818)	(\$3,860)
CZ06	SCE	(1,853)	136	0.3	0.00	(\$1,024)	(\$2,943)	(\$3,154)	0.3	0.3	(\$1,920)	(\$2,131)
CZ06-2	LA	(1,853)	136	0.3	0.00	(\$1,024)	\$1,357	(\$3,154)	>1	0.3	\$2,381	(\$2,131)
CZ07	SDG&E	(1,604)	121	0.3	0.00	(\$1,024)	(\$3,993)	(\$3,035)	0.3	0.3	(\$2,970)	(\$2,012)
CZ08	SCE	(1,594)	122	0.4	0.00	(\$1,674)	(\$2,282)	(\$2,279)	0.7	0.7	(\$609)	(\$605)
CZ08-2	LA	(1,594)	122	0.4	0.00	(\$1,674)	\$1,477	(\$2,279)	>1	0.7	\$3,151	(\$605)
CZ09	SCE	(1,669)	128	0.6	0.00	(\$1,674)	(\$2,403)	(\$2,476)	0.7	0.7	(\$729)	(\$803)
CZ09-2	LA	(1,669)	128	0.6	0.00	(\$1,674)	\$1,509	(\$2,476)	>1	0.7	\$3,183	(\$803)
CZ10	SDG&E	(1,714)	130	0.5	0.00	(\$1,674)	(\$5,035)	(\$2,544)	0.3	0.7	(\$3,362)	(\$871)
CZ10-2	SCE	(1,714)	130	0.5	0.00	(\$1,674)	(\$2,549)	(\$2,544)	0.7	0.7	(\$876)	(\$871)
CZ11	PG&E	(2,333)	177	0.4	0.00	(\$1,674)	(\$3,533)	(\$3,676)	0.5	0.5	(\$1,859)	(\$2,003)
CZ12	PG&E	(2,319)	182	0.5	0.00	(\$1,674)	(\$2,695)	(\$3,257)	0.6	0.5	(\$1,022)	(\$1,584)
CZ12-2	SMUD	(2,319)	182	0.5	0.00	(\$1,674)	\$627	(\$3,257)	>1	0.5	\$2,301	(\$1,584)
CZ13	PG&E	(2,158)	167	0.3	0.00	(\$1,674)	(\$2,683)	(\$3,334)	0.6	0.5	(\$1,009)	(\$1,661)
CZ14	SDG&E	(2,388)	175	0.7	0.00	(\$1,674)	(\$7,894)	(\$3,378)	0.2	0.5	(\$6,220)	(\$1,705)
CZ14-2	SCE	(2,388)	175	0.7	0.00	(\$1,674)	(\$4,476)	(\$3,378)	0.4	0.5	(\$2,803)	(\$1,705)
CZ15	SCE	(1,330)	99	(0.2)	0.00	(\$1,674)	(\$1,766)	(\$2,398)	0.9	0.7	(\$92)	(\$724)
CZ16	PG&E	(3,439)	274	(0.3)	0.00	(\$1,674)	(\$5,558)	(\$6,187)	0.3	0.3	(\$3,885)	(\$4,514)
CZ16-2	LA	(3,439)	274	(0.3)	0.00	(\$1,674)	\$2,821	(\$6,187)	>1	0.3	\$4,495	(\$4,514)

As shown in Table 8 below, the all-electric prescriptive minimum detached ADU is cost effective on TDV basis in all climate zones except 1 and 16 when using 2022 TDV and weather files, in contrast with results using 2019 TDV.

Table 8. Cost-Effectiveness for ADU: All-Electric Prescriptive Minimum, 2022 TDV

CZ	Utility	Annual Elec Savings (kWh)	Annual Gas Savings (therms)	Annual GHG Reductions (mtons)	Total EDR Margin	Upfront Incremental Package Cost	Lifecycle Utility Cost Savings	Lifecycle \$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
CZ01	PG&E	(3,353)	242	0.7	0.00	(\$1,024)	(\$6,533)	(\$1,656)	0.2	0.6	(\$5,509)	(\$632)
CZ02	PG&E	(2,445)	180	0.7	0.00	(\$1,674)	(\$3,617)	\$219	0.5	>1	(\$1,944)	\$1,893
CZ03	PG&E	(2,111)	153	0.6	0.00	(\$1,024)	(\$3,192)	(\$7)	0.3	137.2	(\$2,168)	\$1,016
CZ04	PG&E	(1,880)	142	0.6	0.00	(\$1,674)	(\$2,437)	(\$167)	0.7	10.0	(\$763)	\$1,507
CZ04-2	CPAU	(1,880)	142	0.6	0.00	(\$1,674)	\$2,513	(\$167)	>1	10.0	\$4,186	\$1,507
CZ05	PG&E	(2,113)	145	0.6	0.00	(\$1,024)	(\$3,904)	(\$811)	0.3	1.3	(\$2,880)	\$212
CZ05-2	SCG	(2,113)	145	0.6	0.00	(\$1,024)	(\$3,564)	(\$811)	0.3	1.3	(\$2,541)	\$212
CZ06	SCE	(1,623)	121	0.4	0.00	(\$1,024)	(\$2,545)	\$62	0.4	>1	(\$1,521)	\$1,086
CZ06-2	LA	(1,623)	121	0.4	0.00	(\$1,024)	\$1,381	\$62	>1	>1	\$2,405	\$1,086
CZ07	SDG&E	(1,563)	117	0.4	0.00	(\$1,024)	(\$4,231)	\$98	0.2	>1	(\$3,207)	\$1,122
CZ08	SCE	(1,426)	114	0.4	0.00	(\$1,674)	(\$1,738)	\$606	1.0	>1	(\$64)	\$2,279
CZ08-2	LA	(1,426)	114	0.4	0.00	(\$1,674)	\$1,598	\$606	>1	>1	\$3,271	\$2,279
CZ09	SCE	(1,517)	119	0.4	0.00	(\$1,674)	(\$1,986)	\$239	0.8	>1	(\$312)	\$1,912
CZ09-2	LA	(1,517)	119	0.4	0.00	(\$1,674)	\$1,556	\$239	>1	>1	\$3,229	\$1,912
CZ10	SDG&E	(1,631)	125	0.4	0.00	(\$1,674)	(\$4,978)	\$537	0.3	>1	(\$3,304)	\$2,210
CZ10-2	SCE	(1,631)	125	0.4	0.00	(\$1,674)	(\$2,363)	\$537	0.7	>1	(\$689)	\$2,210
CZ11	PG&E	(2,155)	163	0.7	0.00	(\$1,674)	(\$3,472)	\$192	0.5	>1	(\$1,798)	\$1,865
CZ12	PG&E	(2,108)	163	0.7	0.00	(\$1,674)	(\$2,788)	\$244	0.6	>1	(\$1,114)	\$1,917
CZ12-2	SMUD	(2,108)	163	0.7	0.00	(\$1,674)	\$464	\$244	>1	>1	\$2,138	\$1,917
CZ13	PG&E	(1,887)	143	0.7	0.00	(\$1,674)	(\$2,765)	(\$93)	0.6	18.0	(\$1,092)	\$1,581
CZ14	SDG&E	(2,187)	158	0.4	0.00	(\$1,674)	(\$7,311)	(\$321)	0.2	5.2	(\$5,638)	\$1,353
CZ14-2	SCE	(2,187)	158	0.4	0.00	(\$1,674)	(\$4,058)	(\$321)	0.4	5.2	(\$2,385)	\$1,353
CZ15	SCE	(1,286)	97	0.5	0.00	(\$1,674)	(\$1,636)	(\$112)	1.0	15.0	\$38	\$1,562
CZ16	PG&E	(3,137)	249	0.5	0.00	(\$1,674)	(\$4,873)	(\$2,248)	0.3	0.7	(\$3,200)	(\$575)
CZ16-2	LA	(3,137)	249	0.5	0.00	(\$1,674)	\$2,502	(\$2,248)	>1	0.7	\$4,175	(\$575)

4.2 All Electric Plus Efficiency and PV Results

Table 9 shows results of the all-electric prescriptive minimum using 2019 TDV with 1) heat pump water heater location is outside in exterior closet in all climate zones except Climate Zones 14, 15, and 16, 2) energy efficiency measures, and 3) additional solar PV capacity. The all-electric detached ADU is cost effective using either the on-bill or TDV approach in several climate zones. Also, similar to the package above, it is always on-bill cost effective using POU rates.

Table 9. Cost-Effectiveness for ADU: All-Electric Energy Efficiency + Additional PV, 2019 TDV

CZ	Utility	Annual Elec Savings (kWh)	Annual Gas Savings (therms)	Annual GHG Reductions (mtons)	Total EDR Margin	Upfront Incremental Package Cost	Lifecycle Utility Cost Savings	Lifecycle \$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
CZ01	PG&E	(524)	259	0.8	29.30	\$5,794	\$4,323	\$4,123	0.7	0.7	(\$1,472)	(\$1,671)
CZ02	PG&E	(497)	198	0.8	18.70	\$3,207	\$2,159	\$3,333	0.7	1.0	(\$1,048)	\$126
CZ03	PG&E	(459)	174	0.8	19.00	\$2,363	\$2,331	\$2,348	1.0	1.0	(\$32)	(\$15)
CZ04	PG&E	(465)	170	0.7	16.10	\$2,314	\$1,934	\$2,635	0.8	1.1	(\$380)	\$320
CZ04-2	CPAU	(465)	170	0.7	16.10	\$2,314	\$5,434	\$2,635	2.3	1.1	\$3,120	\$320
CZ05	PG&E	(472)	170	0.7	20.00	\$2,339	\$2,538	\$2,206	1.1	0.9	\$199	(\$133)
CZ05-2	SCG	(472)	170	0.7	20.00	\$2,339	\$2,664	\$2,206	1.1	0.9	\$326	(\$133)
CZ06	SCE	(427)	136	0.6	16.10	\$1,512	\$1,836	\$1,898	1.2	1.3	\$324	\$386
CZ06-2	LA	(427)	136	0.6	16.10	\$1,512	\$4,487	\$1,898	3.0	1.3	\$2,975	\$386
CZ07	SDG&E	(404)	121	0.6	14.00	\$1,170	\$2,843	\$1,134	2.4	1.0	\$1,672	(\$36)
CZ08	SCE	(421)	122	0.6	12.20	\$1,244	\$1,503	\$1,618	1.2	1.3	\$260	\$375
CZ08-2	LA	(421)	122	0.6	12.20	\$1,244	\$4,058	\$1,618	3.3	1.3	\$2,814	\$375
CZ09	SCE	(439)	128	0.8	12.90	\$1,317	\$1,641	\$2,170	1.2	1.6	\$324	\$853
CZ09-2	LA	(439)	128	0.8	12.90	\$1,317	\$4,227	\$2,170	3.2	1.6	\$2,910	\$853
CZ10	SDG&E	(449)	130	0.8	12.20	\$1,680	\$2,168	\$2,065	1.3	1.2	\$488	\$385
CZ10-2	SCE	(449)	130	0.8	12.20	\$1,680	\$1,632	\$2,065	1.0	1.2	(\$49)	\$385
CZ11	PG&E	(535)	177	0.9	15.00	\$3,975	\$1,994	\$3,433	0.5	0.9	(\$1,980)	(\$542)
CZ12	PG&E	(494)	182	0.9	15.60	\$4,121	\$1,508	\$3,510	0.4	0.9	(\$2,613)	(\$611)
CZ12-2	SMUD	(494)	182	0.9	15.60	\$4,121	\$4,685	\$3,510	1.1	0.9	\$564	(\$611)
CZ13	PG&E	(525)	167	0.7	13.30	\$3,991	\$1,917	\$3,109	0.5	0.8	(\$2,074)	(\$881)
CZ14	SDG&E	(515)	175	1.1	15.90	\$3,316	\$3,257	\$3,874	1.0	1.2	(\$59)	\$558
CZ14-2	SCE	(515)	175	1.1	15.90	\$3,316	\$2,363	\$3,874	0.7	1.2	(\$953)	\$558
CZ15	SCE	(544)	99	0.2	7.40	\$1,744	\$1,630	\$1,534	0.9	0.9	(\$115)	(\$210)
CZ16	PG&E	(547)	274	0.4	23.10	\$4,091	\$3,785	\$3,801	0.9	0.9	(\$306)	(\$290)
CZ16-2	LA	(547)	274	0.4	23.10	\$4,091	\$9,042	\$3,801	2.2	0.9	\$4,951	(\$290)

Table 10 shows that All-Electric detached ADUs are TDV cost effective in all climate zones using 2022 TDV when including efficiency measures and additional solar PV. Note that the EDR margins have been removed since the 2022 Title 24 Part 6 code has not yet completed rulemaking at the time of the draft, but preliminary results indicate that all EDR margins will be positive.

Table 10. Cost-Effectiveness for ADU: All-Electric Energy Efficiency + Additional PV, 2022 TDV Results

CZ	Utility	Annual Elec Savings (kWh)	Annual Gas Savings (therms)	Annual GHG Reductions (mtons)	Total EDR Margin	Upfront Incremental Package Cost	Lifecycle Utility Cost Savings	Lifecycle \$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
CZ01	PG&E	(512)	242	0.3	>0	\$5,648	\$3,588	\$7,903	0.6	1.4	(\$2,060)	\$2,255
CZ02	PG&E	(479)	180	0.4	>0	\$3,012	\$1,936	\$6,490	0.6	2.2	(\$1,076)	\$3,478
CZ03	PG&E	(441)	153	0.3	>0	\$2,070	\$2,119	\$5,235	1.0	2.5	\$49	\$3,165
CZ04	PG&E	(444)	142	0.4	>0	\$1,875	\$1,780	\$4,473	0.9	2.4	(\$95)	\$2,597
CZ04-2	CPAU	(444)	142	0.4	>0	\$1,875	\$5,210	\$4,473	2.8	2.4	\$3,335	\$2,597
CZ05	PG&E	(443)	145	0.4	>0	\$1,949	\$2,121	\$4,416	1.1	2.3	\$173	\$2,468
CZ05-2	SCG	(443)	145	0.4	>0	\$1,949	\$2,461	\$4,416	1.3	2.3	\$513	\$2,468
CZ06	SCE	(413)	121	0.3	>0	\$1,049	\$1,550	\$4,256	1.5	4.1	\$501	\$3,208
CZ06-2	LA	(413)	121	0.3	>0	\$1,049	\$4,067	\$4,256	3.9	4.1	\$3,018	\$3,208
CZ07	SDG&E	(409)	117	0.3	>0	\$1,073	\$2,480	\$3,899	2.3	3.6	\$1,407	\$2,826
CZ08	SCE	(431)	114	0.3	>0	\$975	\$1,458	\$4,086	1.5	4.2	\$483	\$3,110
CZ08-2	LA	(431)	114	0.3	>0	\$975	\$3,825	\$4,086	3.9	4.2	\$2,850	\$3,110
CZ09	SCE	(434)	119	0.3	>0	\$1,049	\$1,608	\$4,002	1.5	3.8	\$560	\$2,954
CZ09-2	LA	(434)	119	0.3	>0	\$1,049	\$3,960	\$4,002	3.8	3.8	\$2,912	\$2,954
CZ10	SDG&E	(457)	125	0.3	>0	\$1,485	\$1,760	\$4,404	1.2	3.0	\$274	\$2,919
CZ10-2	SCE	(457)	125	0.3	>0	\$1,485	\$1,525	\$4,404	1.0	3.0	\$40	\$2,919
CZ11	PG&E	(524)	163	0.4	>0	\$3,853	\$1,517	\$5,752	0.4	1.5	(\$2,336)	\$1,899
CZ12	PG&E	(481)	163	0.4	>0	\$3,829	\$1,293	\$5,448	0.3	1.4	(\$2,535)	\$1,619
CZ12-2	SMUD	(481)	163	0.4	>0	\$3,829	\$4,066	\$5,448	1.1	1.4	\$237	\$1,619
CZ13	PG&E	(514)	143	0.4	>0	\$3,503	\$2,400	\$4,852	0.7	1.4	(\$1,103)	\$1,349
CZ14	SDG&E	(496)	158	0.3	>0	\$2,731	\$2,772	\$5,873	1.0	2.2	\$41	\$3,142
CZ14-2	SCE	(496)	158	0.3	>0	\$2,731	\$2,090	\$5,873	0.8	2.2	(\$641)	\$3,142
CZ15	SCE	(539)	97	0.5	>0	\$1,549	\$1,608	\$3,383	1.0	2.2	\$58	\$1,834
CZ16	PG&E	(526)	249	0.3	>0	\$3,871	\$3,173	\$6,689	0.8	1.7	(\$698)	\$2,818
CZ16-2	LA	(526)	249	0.8	>0	\$3,871	\$8,099	\$6,689	2.1	1.7	\$4,227	\$2,818

5 Summary

The Reach Codes Team developed packages of energy efficiency measures as well as packages combining energy efficiency with solar PV generation, simulated them in building modeling software, and gathered costs to determine the cost-effectiveness of multiple scenarios. The Reach Codes Team coordinated assumptions with multiple utilities, cities, and building community experts to develop a set of assumptions considered reasonable in the current market. Changing assumptions, such as the period of analysis, measure selection, cost assumptions, energy escalation rates, or utility tariffs are likely to change results.

Table 11 summarizes results for each prototype and depicts the compliance margins achieved for each climate zone and package. Because local reach codes must both exceed the Energy Commission performance budget (i.e., have a positive compliance margin) and be cost-effective, the Reach Code Team highlighted cells meeting these two requirements to help clarify the upper boundary for potential reach code policies:

- Cells highlighted in **green** depict a positive compliance margin and cost-effective results using both On-Bill and TDV approaches.
- Cells highlighted in **yellow** depict a positive compliance and cost-effective results using either the On-Bill or TDV approach.
- Cells **not highlighted** either depict a negative compliance margin or a package that was not cost effective using either the On-Bill or TDV approach.

The Reach Code Team found that all-electric detached ADUs can have positive compliance margins and are cost effective in all climate zones through either the utility bill or TDV metrics when compared to a mixed fuel baseline. This is true for either prescriptive minimum or efficiency + PV packages. To promote decarbonization, local jurisdictions may choose to include new construction detached ADUs in all-electric requirements.

Table 11. Detached ADU Summary of EDR Margin and Cost-Effectiveness

CZ	Utility	All Electric, 2019 EDR		All Electric, 2022 EDR	
		Code Minimum	EE+PV	Code Minimum	EE+PV
CZ01	PG&E	0.0	29.3	0.0	>0
CZ02	PG&E	0.0	18.7	0.0	>0
CZ03	PG&E	0.0	19.0	0.0	>0
CZ04	PG&E	0.0	16.1	0.0	>0
CZ04-2	CPAU	0.0	16.1	0.0	>0
CZ05	PG&E	0.0	20.0	0.0	>0
CZ05-2	SCG	0.0	20.0	0.0	>0
CZ06	SCE	0.0	16.1	0.0	>0
CZ06-2	LADWP	0.0	16.1	0.0	>0
CZ07	SDG&E	0.0	14.0	0.0	>0
CZ08	SCE	0.0	12.2	0.0	>0
CZ08-2	LADWP	0.0	12.2	0.0	>0
CZ09	SCE	0.0	12.9	0.0	>0
CZ09-2	LADWP	0.0	12.9	0.0	>0
CZ10	SDG&E	0.0	12.2	0.0	>0
CZ10-2	SCE	0.0	12.2	0.0	>0
CZ11	PG&E	0.0	15.0	0.0	>0
CZ12	PG&E	0.0	15.6	0.0	>0
CZ12-2	SMUD	0.0	15.6	0.0	>0
CZ13	PG&E	0.0	13.3	0.0	>0
CZ14	SDG&E	0.0	15.9	0.0	>0
CZ14-2	SCE	0.0	15.9	0.0	>0
CZ15	SCE	0.0	7.4	0.0	>0
CZ16	PG&E	0.0	23.1	0.0	>0
CZ16-2	LADWP	0.0	23.1	0.0	>0

6 References

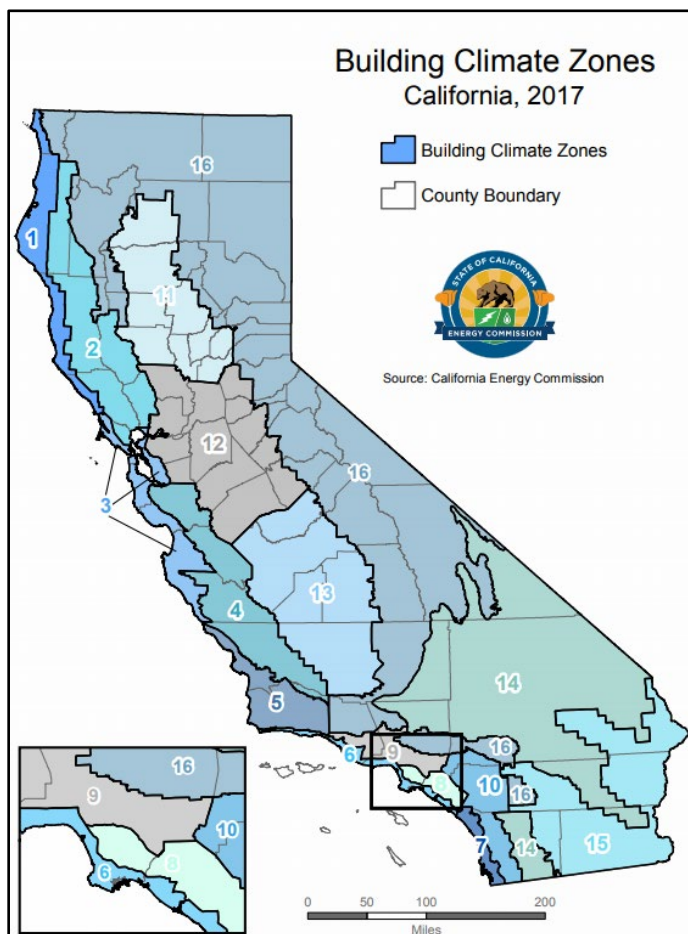
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7 Appendices

7.1 Map of California Climate Zones

Climate zone geographical boundaries are depicted in Figure 1. The map in Figure 1 along with a zip-code search directory is available at: https://ww2.energy.ca.gov/maps/renewable/building_climate_zones.html

Figure 1. Map of California climate zones.



7.2 Mixed Fuel Baseline Energy Figures

Table 12 show the annual electricity and natural gas consumption and on-bill cost, total EDR margin, and GHG emissions for each prototype under the mixed-fuel design baseline. The non-zero EDR margins are largely a result of compliance software complexities, and they are not expected to significantly impact the proposed case results or nature of recommendations. The annual kWh usage is 0 since code requires that PV offset 100 percent of kWh usage.

Table 12. Detached ADU Mixed Fuel Baseline

CZ	Utility	Annual Electricity Consumption (kWh)	Annual Natural Gas Consumption (Therms)	Annual Electricity Cost	Annual Natural Gas Cost	Total Annual Utility Cost	Annual GHG Emissions (mtons)
CZ01	PG&E	0	259	\$194	\$358	\$552	1.0
CZ02	PG&E	0	198	\$194	\$269	\$463	0.9
CZ03	PG&E	0	174	\$189	\$237	\$425	0.9
CZ04	PG&E	0	170	\$185	\$231	\$416	0.8
CZ04-2	CPAU	0	170	\$131	\$297	\$429	0.8
CZ05	PG&E	0	170	\$167	\$232	\$399	0.8
CZ05-2	SCG	0	170	\$167	\$237	\$404	0.8
CZ06	SCE	0	136	\$156	\$202	\$358	0.8
CZ06-2	LA	0	136	\$124	\$202	\$326	0.8
CZ07	SDG&E	0	121	\$160	\$200	\$359	0.8
CZ08	SCE	0	122	\$161	\$187	\$348	0.9
CZ08-2	LA	0	122	\$124	\$187	\$311	0.9
CZ09	SCE	0	128	\$172	\$193	\$366	1.1
CZ09-2	LA	0	128	\$125	\$193	\$318	1.1
CZ10	SDG&E	0	130	\$166	\$215	\$381	1.0
CZ10-2	SCE	0	130	\$183	\$195	\$379	1.0
CZ11	PG&E	0	177	\$205	\$244	\$450	1.0
CZ12	PG&E	0	182	\$197	\$250	\$447	1.0
CZ12-2	SMUD	0	182	\$293	\$250	\$542	1.0
CZ13	PG&E	0	167	\$224	\$231	\$454	0.9
CZ14	SDG&E	0	175	\$178	\$290	\$468	1.4
CZ14-2	SCE	0	175	\$212	\$243	\$455	1.4
CZ15	SCE	0	99	\$333	\$163	\$496	0.5
CZ16	PG&E	0	274	\$181	\$379	\$560	0.6
CZ16-2	LA	0	274	\$123	\$379	\$502	0.6

7.3 All-Electric Energy Efficiency Only Results

Table 13 and Table 14 show the cost-effectiveness results for the all-electric energy efficiency package without PV compared to the mixed-fuel baseline without PV, in scenarios where PV cannot be installed. Without PV, the efficiency packages selected are cost effective under 2022 TDV in most Climate Zones. It is likely that a different set of efficiency measures can improve cost effectiveness, given that the all-electric prescriptive minimum is TDV cost-effective (reference Table 8), though optimization of efficiency measure packages have not been examined in this study.

Note that the 2022 EDR margins have been removed since the 2022 Title 24 Part 6 code has not yet completed rulemaking at the time of the draft, but preliminary results indicate that all EDR margins will be positive.

Table 13. Cost-Effectiveness for ADU: All-Electric Energy Efficiency Without PV, 2019 TDV

CZ	Utility	Elec Savings (kWh)	Gas Savings (therms)	GHG Reductions (mtons)	Total EDR Margin	Incremental Package Cost	Lifecycle Utility Cost Savings	\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
CZ01	PG&E	(2,760)	259	0.8	9.30	\$1,698	(\$7,485)	(\$3,679)	-4.4	-2.2	(\$9,183)	(\$5,377)
CZ02	PG&E	(2,492)	198	0.6	1.00	\$135	(\$7,004)	(\$3,739)	-51.9	-27.7	(\$7,139)	(\$3,874)
CZ03	PG&E	(2,151)	174	0.5	2.80	(\$246)	(\$6,522)	(\$3,578)	0.0	0.1	(\$6,276)	(\$3,332)
CZ04	PG&E	(2,171)	170	0.5	0.30	(\$246)	(\$6,890)	(\$3,428)	0.0	0.1	(\$6,644)	(\$3,182)
CZ04-2	CPAU	(2,171)	170	0.5	0.30	(\$246)	(\$3,483)	(\$3,428)	0.1	0.1	(\$3,237)	(\$3,182)
CZ05	PG&E	(2,284)	170	0.5	2.70	(\$246)	(\$7,393)	(\$4,140)	0.0	0.1	(\$7,147)	(\$3,894)
CZ05-2	SCG	(2,284)	170	0.5	2.70	(\$246)	(\$7,266)	(\$4,140)	0.0	0.1	(\$7,021)	(\$3,894)
CZ06	SCE	(1,790)	136	0.4	1.70	(\$585)	(\$3,428)	(\$2,823)	0.2	0.2	(\$2,843)	(\$2,238)
CZ06-2	LA	(1,790)	136	0.4	1.70	(\$585)	\$1,475	(\$2,823)	>1	0.2	\$2,060	(\$2,238)
CZ07	SDG&E	(1,592)	121	0.4	0.70	(\$585)	(\$5,304)	(\$3,042)	0.1	0.2	(\$4,719)	(\$2,457)
CZ08	SCE	(1,622)	122	0.4	0	(\$585)	(\$2,987)	(\$2,644)	0.2	0.2	(\$2,402)	(\$2,059)
CZ08-2	LA	(1,622)	122	0.4	0	(\$585)	\$1,405	(\$2,644)	>1	0.2	\$1,990	(\$2,059)
CZ09	SCE	(1,685)	128	0.4	1.50	(\$512)	(\$2,763)	(\$2,198)	0.2	0.2	(\$2,251)	(\$1,686)
CZ09-2	LA	(1,685)	128	0.4	1.50	(\$512)	\$1,481	(\$2,198)	>1	0.2	\$1,993	(\$1,686)
CZ10	SDG&E	(1,714)	130	0.4	1.60	(\$173)	(\$6,070)	(\$2,211)	0.0	0.1	(\$5,897)	(\$2,038)
CZ10-2	SCE	(1,714)	130	0.4	1.60	(\$173)	(\$2,821)	(\$2,211)	0.1	0.1	(\$2,649)	(\$2,038)
CZ11	PG&E	(2,255)	177	0.5	2.60	\$1,390	(\$5,976)	(\$2,879)	-4.3	-2.1	(\$7,366)	(\$4,270)
CZ12	PG&E	(2,282)	182	0.5	1.20	\$1,390	(\$6,151)	(\$3,012)	-4.4	-2.2	(\$7,541)	(\$4,403)
CZ12-2	SMUD	(2,282)	182	0.5	1.20	\$1,390	\$730	(\$3,012)	0.5	-2.2	(\$661)	(\$4,403)
CZ13	PG&E	(2,084)	167	0.5	2.40	\$1,577	(\$5,407)	(\$2,465)	-3.4	-1.6	(\$6,983)	(\$4,041)
CZ14	SDG&E	(2,066)	175	0.6	4.50	\$927	(\$5,783)	(\$1,635)	-6.2	-1.8	(\$6,710)	(\$2,562)
CZ14-2	SCE	(2,066)	175	0.6	4.50	\$927	(\$3,804)	(\$1,635)	-4.1	-1.8	(\$4,731)	(\$2,562)
CZ15	SCE	(949)	99	0.4	4.80	\$1,013	(\$413)	(\$10)	-0.4	0.0	(\$1,426)	(\$1,023)
CZ16	PG&E	(2,872)	274	0.9	5.10	\$799	(\$6,367)	(\$4,021)	-8.0	-5.0	(\$7,166)	(\$4,820)
CZ16-2	LA	(2,872)	274	0.9	5.10	\$799	\$3,889	(\$4,021)	4.9	-5.0	\$3,090	(\$4,820)

Table 14. Cost-Effectiveness for ADU: All-Electric Energy Efficiency Without PV, 2022 TDV

CZ	Utility	Elec Savings (kWh)	Gas Savings (therms)	GHG Reductions (mtons)	Total EDR Margin	Incremental Package Cost	Lifecycle Utility Cost Savings	\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
CZ01	PG&E	(2,629)	242	0.7	>0	\$1,698	(\$7,361)	\$1,769	-4.3	1.0	(\$9,059)	\$71
CZ02	PG&E	(2,279)	180	0.5	>0	\$135	(\$6,500)	\$1,060	-48.2	7.9	(\$6,635)	\$925
CZ03	PG&E	(1,958)	153	0.4	>0	(\$246)	(\$6,269)	\$764	0.0	>1	(\$6,023)	\$1,009
CZ04	PG&E	(1,852)	142	0.4	>0	(\$246)	(\$6,124)	\$57	0.0	>1	(\$5,879)	\$303
CZ04-2	CPAU	(1,852)	142	0.4	>0	(\$246)	(\$3,703)	\$57	0.1	>1	(\$3,457)	\$303
CZ05	PG&E	(1,984)	145	0.4	>0	(\$246)	(\$6,680)	(\$167)	0.0	1.5	(\$6,434)	\$78
CZ05-2	SCG	(1,984)	145	0.4	>0	(\$246)	(\$6,340)	(\$167)	0.0	1.5	(\$6,095)	\$78
CZ06	SCE	(1,585)	121	0.4	>0	(\$585)	(\$2,706)	\$615	0.2	>1	(\$2,121)	\$1,200
CZ06-2	LA	(1,585)	121	0.4	>0	(\$585)	\$1,466	\$615	>1	>1	\$2,051	\$1,200
CZ07	SDG&E	(1,520)	117	0.4	>0	(\$585)	(\$5,017)	\$528	0.1	>1	(\$4,432)	\$1,113
CZ08	SCE	(1,499)	114	0.3	>0	(\$585)	(\$2,627)	\$493	0.2	>1	(\$2,042)	\$1,078
CZ08-2	LA	(1,499)	114	0.3	>0	(\$585)	\$1,456	\$493	>1	>1	\$2,041	\$1,078
CZ09	SCE	(1,545)	119	0.3	>0	(\$512)	(\$2,351)	\$421	0.2	>1	(\$1,839)	\$933
CZ09-2	LA	(1,545)	119	0.3	>0	(\$512)	\$1,511	\$421	>1	>1	\$2,023	\$933
CZ10	SDG&E	(1,641)	125	0.4	>0	(\$173)	(\$5,824)	\$674	0.0	>1	(\$5,651)	\$847
CZ10-2	SCE	(1,641)	125	0.4	>0	(\$173)	(\$2,814)	\$674	0.1	>1	(\$2,641)	\$847
CZ11	PG&E	(2,087)	163	0.4	>0	\$1,390	(\$5,602)	\$1,063	-4.0	0.8	(\$6,993)	(\$328)
CZ12	PG&E	(2,094)	163	0.4	>0	\$1,390	(\$5,856)	\$634	-4.2	0.5	(\$7,246)	(\$757)
CZ12-2	SMUD	(2,094)	163	0.4	>0	\$1,390	\$500	\$634	0.4	0.5	(\$890)	(\$757)
CZ13	PG&E	(1,786)	143	0.4	>0	\$1,577	(\$4,659)	\$995	-3.0	0.6	(\$6,236)	(\$582)
CZ14	SDG&E	(1,887)	158	0.5	>0	\$927	(\$5,466)	\$1,460	-5.9	1.6	(\$6,393)	\$534
CZ14-2	SCE	(1,887)	158	0.5	>0	\$927	(\$3,266)	\$1,460	-3.5	1.6	(\$4,193)	\$534
CZ15	SCE	(917)	97	0.3	>0	\$1,013	(\$361)	\$2,200	-0.4	2.2	(\$1,374)	\$1,187
CZ16	PG&E	(2,642)	249	0.8	>0	\$799	(\$6,054)	\$354	-7.6	0.4	(\$6,853)	(\$445)
CZ16-2	LA	(2,642)	249	0.8	>0	\$799	\$3,419	\$354	4.3	0.4	\$2,620	(\$445)

7.4 Utility Rate Schedules

The Reach Codes Team used the CA IOU and POU rate tariffs detailed below to determine the On-Bill savings for each package.

7.4.1 Pacific Gas & Electric

ELECTRIC SCHEDULE E-TOU-C				Sheet 2	
RESIDENTIAL TIME-OF-USE (PEAK PRICING 4 - 9 p.m. EVERY DAY)					
RATES: (Cont'd.)		E-TOU-C TOTAL RATES			
Total Energy Rates (\$ per kWh)		PEAK		OFF-PEAK	
<i>Summer</i>					
Total Usage		\$0.41333	(I)	\$0.34989	(I)
Baseline Credit (Applied to Baseline Usage Only)		(\$0.08633)	(R)	(\$0.08633)	(R)
<i>Winter</i>					
Total Usage		\$0.31624	(I)	\$0.29891	(I)
Baseline Credit (Applied to Baseline Usage Only)		(\$0.08633)	(R)	(\$0.08633)	(R)
Delivery Minimum Bill Amount (\$ per meter per day)		\$0.32854			
California Climate Credit (per household, per semi-annual payment occurring in the April and October bill cycles) [†]		(\$35.73)			

ELECTRIC SCHEDULE E-TOU-C
 RESIDENTIAL TIME-OF-USE (PEAK PRICING 4 - 9 p.m. EVERY DAY)

Sheet 4

- SPECIAL CONDITIONS:** 1. **BASELINE (TIER 1) QUANTITIES:** The following quantities of electricity are to be used to define usage eligible for the baseline credit (also see Rule 19 for additional allowances for medical needs):

BASELINE QUANTITIES (kWh PER DAY)				
Baseline Territory*	Code B - Basic Quantities		Code H - All-Electric Quantities	
	Summer	Winter	Summer	Winter
	Tier I	Tier I	Tier I	Tier I
P	14.2	12.0	16.0	27.4
Q	10.3	12.0	8.9	27.4
R	18.6	11.3	20.9	28.1
S	15.8	11.1	18.7	24.9
T	6.8	8.2	7.5	13.6
V	7.5	8.8	10.9	16.9
W	20.2	10.7	23.6	20.0
X	10.3	10.5	8.9	15.4
Y	11.0	12.1	12.6	25.3
Z	6.2	8.1	7.0	16.5

2. **TIME PERIODS FOR E-TOU-C:** Times of the year and times of the day are defined as follows:

Summer (service from June 1 through September 30):

Peak: 4:00 p.m. to 9:00 p.m. All days

Off-Peak: All other times

Winter (service from October 1 through May 31):

Peak: 4:00 p.m. to 9:00 p.m. All days

Off-Peak: All other times



**Pacific Gas and
Electric Company®**

U 39

San Francisco, California

Cancelling Revised
Revised

Cal. P.U.C. Sheet No. 35808-G
Cal. P.U.C. Sheet No. 35753-G

**GAS SCHEDULE G-1
RESIDENTIAL SERVICE**

Sheet 1

APPLICABILITY: This rate schedule¹ applies to natural gas service to Core End-Use Customers on PG&E's Transmission and/or Distribution Systems. To qualify, service must be to individually-metered single family premises for residential use, including those in a multifamily complex, and to separately-metered common areas in a multifamily complex where Schedules GM, GS, or GT are not applicable. Common area accounts that are separately metered by PG&E have an option of switching to a core commercial rate schedule. Common area accounts are those accounts that provide gas service to common use areas as defined in Rule 1.

Per D.15-10-032 and D.18-03-017, transportation rates include GHG Compliance Cost for non-covered entities. Customers who are directly billed by the Air Resources Board (ARB), i.e., covered entities, are exempt from paying AB 32 GHG Compliance Costs through PG&E's rates.² A "Cap-and-Trade Cost Exemption" credit for these costs will be shown as a line item on exempt customers' bills.^{3, 4}

TERRITORY: Schedule G-1 applies everywhere within PG&E's natural gas Service Territory.

RATES: Customers on this schedule pay a Procurement Charge and a Transportation Charge, per meter, as shown below. The Transportation Charge will be no less than the Minimum Transportation Charge, as follows:

Minimum Transportation Charge:⁵

	<u>Per Day</u>	
	\$0.13151	
	<u>Per Therm</u>	
	<u>Baseline</u>	<u>Excess</u>
<u>Procurement:</u>	\$0.23187 (R)	\$0.23187 (R)
<u>Transportation Charge:</u>	\$1.13126	\$1.64861
Total:	\$1.36313 (R)	\$1.88048 (R)
California Natural Gas Climate Credit (per Household, annual payment occurring in the April bill cycle)	(\$27.18)	

GAS SCHEDULE G-1
RESIDENTIAL SERVICE

Sheet 2

**BASELINE
QUANTITIES:**

The delivered quantities of gas shown below are billed at the rates for baseline use.


<u>Baseline Territories</u>	BASELINE QUANTITIES (Therms Per Day Per Dwelling Unit)					
	Summer (April-October)		Winter Off-Peak (Nov, Feb, Mar)		Winter On-Peak (Dec, Jan)	
	Effective Apr. 1, 2020		Effective Nov. 1, 2019		Effective Dec. 1, 2019	

P	0.39	(R)	1.88	(R)	2.16	(I)
Q	0.59	(R)	1.55	(R)	2.16	(I)
R	0.36	(R)	1.28	(R)	1.97	(I)
S	0.39	(R)	1.38	(R)	2.06	(I)
T	0.59	(R)	1.38	(R)	1.81	(I)
V	0.62	(R)	1.51	(R)	1.84	(I)
W	0.39	(R)	1.18	(R)	1.84	(I)
X	0.49	(R)	1.55	(R)	2.16	(I)
Y	0.69	(R)	2.15	(R)	2.65	(I)

**SEASONAL
CHANGES:**

The summer season is April-October, the winter off-peak season is November, February and March, and the winter on-peak season is December and January. Baseline quantities for bills that include the April 1, November 1 and December 1 seasonal changeover dates will be calculated by multiplying the applicable daily baseline quantity for each season by the number of days in each season for the billing period.

7.4.2 Southern California Edison

		Southern California Edison Rosemead, California (U 338-E)		Revised Cancelling	Cal. PUC Sheet No. 68632-E Cal. PUC Sheet No. 68640-E
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Schedule TOU-D TIME-OF-USE DOMESTIC (Continued)		Sheet 2
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RATES

Customers receiving service under this Schedule will be charged the applicable rates under Option 4-9 PM, Option 4-9 PM-CPP, Option 5-8 PM, Option 5-8 PM-CPP, Option PRIME, Option PRIME-CPP Option A, Option A-CPP, Option B, or Option B-CPP, as listed below. CPP Event Charges will apply to all energy usage during CPP Event Energy Charge periods and CPP Non-Event Energy Credits will apply as a reduction on CPP Non-Event Energy Credit Periods during Summer Season weekdays, 4:00 p.m. to 9:00 p.m., as described in Special Conditions 1 and 3, below:

		Delivery Service		
		Total*	UG***	DWRREC ⁴
Option 4-9 PM / Option 4-9 PM-CPP				
Energy Charge - \$/kWh				
	Summer Season - On-Peak	0.21574 (I)	0.17870 (I)	(0.00007)
	Mid-Peak	0.21574 (I)	0.10434 (R)	(0.00007)
	Off-Peak	0.17099 (I)	0.07584 (R)	(0.00007)
	Winter Season - Mid-Peak	0.21574 (I)	0.12676 (R)	(0.00007)
	Off-Peak	0.17099 (I)	0.08874 (R)	(0.00007)
	Super-Off-Peak	0.16567 (I)	0.07025 (R)	(0.00007)
Baseline Credit**** - \$/kWh		(0.07456) (R)	0.00000	
Basic Charge - \$/day				
	Single-Family Residence	0.031		
	Multi-Family Residence	0.024		
Minimum Charge** - \$/day				
	Single Family Residence	0.346		
	Multi-Family Residence	0.346		
Minimum Charge (Medical Baseline)** - \$/day				
	Single Family Residence	0.173		
	Multi-Family Residence	0.173		
California Climate Credit ⁴		(37.00) (I)		
California Alternate Rates for				
	Energy Discount - %	100.00*		
	Family Electric Rate Assistance Discount - %	100.00		
Option 4-9 PM-CPP				
	CPP Event Energy Charge - \$/kWh		0.80000	
	Summer CPP Non-Event Credit			
	On-Peak Energy Credit - \$/kWh		(0.15170)	
	Maximum Available Credit - \$/kWh*****			
	Summer Season		(0.58504) (R)	

* Represents 100% of the discount percentage as shown in the applicable Special Condition of this Schedule.

** The Minimum Charge is applicable when the Delivery Service Energy Charge, plus the applicable Basic Charge is less than the Minimum Charge.

*** The ongoing Competition Transition Charge CTC of \$0.00089 per kWh is recovered in the UG component of Generation. (I)

**** The Baseline Credit applies up to 100% of the Baseline Allocation, regardless of Time of Use. The Baseline Allocation is set forth in Preliminary Statement, Part H.

*****The Maximum Available Credit is the capped credit amount for CPP Customers dual participating in other demand response programs.

1 Total - Total Delivery Service rates are applicable to Bundled Service, Direct Access (DA) and Community Choice Aggregation Service (CCA Service) Customers, except DA and CCA Service Customers are not subject to the DWRBC rate component of this Schedule but instead pay the DWRBC as provided by Schedule DA-CRS or Schedule CCA-CRS.

2 Generation - The Gen rates are applicable only to Bundled Service Customers.

3 DWRREC - Department of Water Resources (DWR) Energy Credit - For more information on the DWR Energy Credit, see the Billing Calculation Special Condition of this Schedule.

4 Applied on an equal basis, per household, semi-annually. See the Special Conditions of this Schedule for more information.

(Continued)

(To be inserted by utility)		Issued by		(To be inserted by Cal. PUC)	
Advice	4172-E-A	Carla Peterman		Date Submitted	Mar 13, 2020
Decision		Senior Vice President		Effective	Apr 13, 2020
2012				Resolution	

Schedule TOU-D
 TIME-OF-USE
 DOMESTIC
 (Continued)

Sheet 12

SPECIAL CONDITIONS

- Applicable rate time periods are defined as follows:

Option 4-9 PM, Option 4-9 PM-CPP, Option PRIME, Option PRIME-CPP :

TOU Period	Weekdays		Weekends and Holidays	
	Summer	Winter	Summer	Winter
On-Peak	4 p.m. - 9 p.m.	N/A	N/A	N/A
Mid-Peak	N/A	4 p.m. - 9 p.m.	4 p.m. - 9 p.m.	4 p.m. - 9 p.m.
Off-Peak	All other hours	9 p.m. - 8 a.m.	All other hours	9 p.m. - 8 a.m.
Super-Off-Peak	N/A	8 a.m. - 4 p.m.	N/A	8 a.m. - 4 p.m.
CPP Event Period	4 p.m. - 9 p.m.	4 p.m. - 9 p.m.	N/A	N/A

7.4.3 Southern California Gas

SOUTHERN CALIFORNIA GAS COMPANY LOS ANGELES, CALIFORNIA CANCELING		Revised Revised	CAL. P.U.C. SHEET NO. 57658-G CAL. P.U.C. SHEET NO. 57573-G
Schedule No. GM MULTI-FAMILY SERVICE (Includes GM-E, GM-C, GM-EC, GM-CC, GT-ME, GT-MC and all GMB Rates) (Continued)			Sheet 2
APPLICABILITY (Continued)			
Multi-family Accommodations built prior to December 15, 1981 and currently served under this schedule may also be eligible for service under Schedule No. GS. If an eligible Multi-family Accommodation served under this schedule converts to an applicable submetered tariff, the tenant rental charges shall be revised for the duration of the lease to reflect removal of the energy related charges.			
Eligibility for service hereunder is subject to verification by the Utility.			
TERRITORY			
Applicable throughout the service territory.			
RATES			
Customer Charge, per meter, per day:	<u>GM/GT-M</u> 16.438¢	<u>GMB/GT-MB</u> \$16.357	
For "Space Heating Only" customers, a daily Customer Charge applies during the winter period from November 1 through April 30 ^{1/} : 33.149¢			
GM			
Baseline Rate, per therm (baseline usage defined per Special Conditions 3 and 4):	<u>GM-E</u>	<u>GM-EC^{1/}</u>	<u>GT-ME</u>
Procurement Charge: ^{2/}	27.580¢	25.654¢	N/A
Transmission Charge:	77.909¢	77.909¢	77.909¢
Total Baseline Charge (all usage):	105.489¢	103.563¢	77.909¢
Non-Baseline Rate, per therm (usage in excess of baseline usage):			
Procurement Charge: ^{2/}	27.580¢	25.654¢	N/A
Transmission Charge:	114.709¢	114.709¢	114.709¢
Total Non Baseline Charge (all usage):	142.289¢	140.363¢	114.709¢
GM-C			
Non-Baseline Rate, per therm (usage in excess of baseline usage):	<u>GM-CC^{1/}</u>	<u>GT-MC</u>	
Procurement Charge: ^{2/}	27.580¢	25.654¢	N/A
Transmission Charge:	114.709¢	114.709¢	114.709¢
Total Non Baseline Charge (all usage):	142.289¢	140.363¢	114.709¢
^{1/} For the summer period beginning May 1 through October 31, with some exceptions, usage will be accumulated to at least 20 Ccf (100 cubic feet) before billing, or it will be included with the first bill of the heating season which may cover the entire duration since a last bill was generated for the current calendar year. (Footnotes continue next page.)			
(Continued)			
(TO BE INSERTED BY UTILITY) ADVICE LETTER NO. 5636 DECISION NO. 98-07-068 <small>208</small>		ISSUED BY Dan Skopec Vice President Regulatory Affairs	
		(TO BE INSERTED BY CAL. PUC) SUBMITTED May 29, 2020 EFFECTIVE Jun 1, 2020 RESOLUTION NO.	

3. Baseline Usage: The following usage is to be billed at the Baseline rate for Multi-family Accommodation units. Usage in excess of applicable Baseline allowances will be billed at the Non-Baseline rate.

<u>Per Residence</u>	<u>Daily Therm Allowance for Climate Zones*</u>		
	<u>1</u>	<u>2</u>	<u>3</u>
Summer (May 1-Oct.31)	0.473	0.473	0.473
Winter (Nov. 1-Apr.30)	1.691	1.823	2.950

* Climate Zones are described in the Preliminary Statement.

7.4.4 San Diego Gas & Electric

SCHEDULE TOU-DR1 **RESIDENTIAL TIME-OF-USE**

RATES

Total Rates:

Description – TOU DR1	UDC Total Rate	DWR-BC Rate	EECC Rate + DWR Credit	Total Rate
Summer:				
On-Peak	0.20577	0.00580	0.29042	0.50199
Off-Peak	0.20577	0.00580	0.09305	0.30462
Super Off-Peak	0.20577	0.00580	0.04743	0.25900
Winter:				
On-Peak	0.27206	0.00580	0.07844	0.35630
Off-Peak	0.27206	0.00580	0.06961	0.34747
Super Off-Peak	0.27206	0.00580	0.05981	0.33767
Summer Baseline Adjustment Credit up to 130% of Baseline	(0.07136)			(0.07136)
Winter Baseline Adjustment Credit up to 130% of Baseline	(0.07136)			(0.07136)
Minimum Bill (\$/day)	0.338			0.338



San Diego Gas & Electric Company
San Diego, California

Revised Cal. P.U.C. Sheet No. 24762-G
Canceling Revised Cal. P.U.C. Sheet No. 24749-G

SCHEDULE GM

Sheet 2

MULTI-FAMILY NATURAL GAS SERVICE (Includes Rates for GM, GM-C and GTC/GTCA)

RATES

	GM	GM-C	GTC/GTCA ¹
Baseline Rate, per therm (baseline usage defined in Special Condition 4)			
Procurement Charge ²	\$0.26263	\$0.26263	R N/A
Transmission Charge.....	\$1.39202	\$1.39202	\$1.40414
Total Baseline Charge.....	\$1.65465	\$1.65465	R \$1.40414
Non-Baseline Rate (usage in excess of baseline usage)			
Procurement Charge ²	\$0.26263	\$0.26263	R N/A
Transmission Charge.....	\$1.62888	\$1.62888	\$1.64100
Total Non-Baseline Charge.....	\$1.89151	\$1.89151	R \$1.64100
Minimum Bill, per day³			
Non-CARE customers.....	\$0.13151	\$0.13151	\$0.13151
CARE customers.....	\$0.10521	\$0.10521	\$0.10521

Franchise Fee Differential:

A Franchise Fee Differential of 1.03% will be applied to the monthly billings calculated under this schedule for all customers within the corporate limits of the City of San Diego. Such Franchise Fee Differential shall be so indicated and added as a separate item to bills rendered to such customers.

Additional Charges

Rates may be adjusted to reflect any applicable taxes, franchise fees or other fees, regulatory surcharges, and interstate or intrastate pipeline charges that may occur.

SPECIAL CONDITIONS


- Definitions.** The definitions of principal terms used in this schedule are found either herein or in Rule 1, Definitions.
- Number of Therms.** The number of therms to be billed shall be determined in accordance with Rule 2. The daily therm allowance in the Baseline Usage, shown in Special Condition 4, shall be multiplied by the number of qualified residential units. It is the responsibility of the customer to advise the Utility within 15 days following any change in the submetering arrangements or the number of dwelling units or Mobilehome Park spaces provided gas service. The number of qualifying units is subject to verification by the Utility.
- Exclusions.** Gas service for non-domestic enterprises such as rooming houses, boarding houses, dormitories, rest homes, military barracks, transient trailer parks, stores, restaurants, service stations, and other similar establishments will be separately metered and billed under the applicable schedules.

¹ The rates for core transportation-only customers, with the exception of customers taking service under Schedule GT-NGV, include any FERC Settlement Proceeds Memorandum Account (FSPMA) credit adjustments.
² This charge is applicable to Utility Procurement Customers and includes the GPC and GPC-A Procurement Charges shown in Schedule GPC which are subject to change monthly as set forth in Special Condition 7.
³ Effective starting May 1, 2020, the minimum bill is calculated as the minimum bill charge of \$0.13151 per day times the number of days in the billing cycle (approximately \$4 per month) with a 20% discount applied for CARE customer resulting in a minimum bill charge of \$0.10521 per day (approximately \$3.20 per month).

(Continued)

2C6 Issued by Submitted Aug 7, 2020
Advice Ltr. No. 2889-G Dan Skopec Effective Aug 10, 2020
Decision No. Vice President
Regulatory Affairs Resolution No.

7.4.5 City of Palo Alto Utilities

RESIDENTIAL ELECTRIC SERVICE				
UTILITY RATE SCHEDULE E-1				
A. APPLICABILITY:				
This Rate Schedule applies to separately metered single-family residential dwellings receiving Electric Service from the City of Palo Alto Utilities.				
B. TERRITORY:				
This rate schedule applies everywhere the City of Palo Alto provides Electric Service.				
C. UNBUNDLED RATES:				
<u>Per kilowatt-hour (kWh)</u>	<u>Commodity</u>	<u>Distribution</u>	<u>Public Benefits</u>	<u>Total</u>
Tier 1 usage	\$0.08339	\$0.04971	\$0.00447	\$0.13757
Tier 2 usage Any usage over Tier 1	0.11569	0.07351	0.00447	0.19367
<u>Minimum Bill (\$/day)</u>				0.3283
D. SPECIAL NOTES:				
1. Calculation of Cost Components				
The actual bill amount is calculated based on the applicable rates in Section C above and adjusted for any applicable discounts, surcharges and/or taxes. On a Customer's bill statement, the bill amount may be broken down into appropriate components as calculated under Section C.				
2. Calculation of Usage Tiers				
Tier 1 Electricity usage shall be calculated and billed based upon a level of 11 kWh per day, prorated by Meter reading days of Service. As an example, for a 30-day bill, the Tier 1 level would be 330 kWh. For further discussion of bill calculation and proration, refer to Rule and Regulation 11.				
<i>{End}</i>				
CITY OF PALO ALTO UTILITIES				
Issued by the City Council				
Supersedes Sheet No E-1-1 dated 7-1-2018		 CITY OF PALO ALTO UTILITIES		Sheet No E-1-1 Effective 7-1-2019

RESIDENTIAL GAS SERVICE

UTILITY RATE SCHEDULE G-1

A. APPLICABILITY:

This schedule applies to the following Customers receiving Gas Service from City of Palo Alto Utilities:

1. Separately-metered single-family residential Customers.
2. Separately-metered multi-family residential Customers in multi-family residential facilities.

B. TERRITORY:

This schedule applies anywhere the City of Palo Alto provides Gas Service.

C. UNBUNDLED RATES:

Per Service

Monthly Service Charge:\$10.37

Tier 1 Rates:

Per Therm

Supply Charges:

- | | |
|--|---------------|
| 1. Commodity (Monthly Market Based)..... | \$0.10-\$2.00 |
| 2. Cap and Trade Compliance Charge | \$0.00-\$0.25 |
| 3. Transportation Charge | \$0.00-\$0.15 |
| 4. Carbon Offset Charge | \$0.00-\$0.10 |

Distribution Charge:..... \$0.5038

Tier 2 Rates: (All usage over 100% of Tier 1)

Supply Charges:

- | | |
|--|---------------|
| 1. Commodity (Monthly Market Based)..... | \$0.10-2.00 |
| 2. Cap and Trade Compliance Charge | \$0.00-\$0.25 |
| 3. Transportation Charge | \$0.00-\$0.15 |
| 4. Carbon Offset Charge | \$0.00-\$0.10 |

Distribution Charge:..... \$1.2882

D. SPECIAL NOTES:

1. Calculation of Cost Components

CITY OF PALO ALTO UTILITIES

Issued by the City Council

Supersedes Sheet No G-1-1
 dated 7-1-2019



CITY OF
PALO ALTO
 UTILITIES

Sheet No G-1-1
 Effective 7-1-2020

The ‘Commodity and Volumetric Rates’ are selected for the latest available month of December 2020.³

7.4.6 Sacramento Municipal Utilities District (Electric Only)

Residential Time-of-Day Service Rate Schedule R-TOD

Applicability

This Rate Schedule R-TOD applies to single- and three-phase service for the following types of residential premises:

1. Individual or dual metered residences with digital communicating meter installed, including single-family homes, duplexes, apartments, and condominiums; and
2. General farm service where the meter also serves the residence or additional meters on a farm where the electricity consumed is solely for domestic purposes.

Master-metered service to a qualifying multifamily accommodation or mobile home parks are not eligible for Time-of-Day rates under rate schedule R-TOD.

For the purposes of this schedule a “month” is considered to be a single billing period of 27 to 34 days.

A. Time-of-Day (5-8 p.m.) Rate (rate category RT02)

1. The TOD (5-8 p.m.) Rate is the standard rate for SMUD’s residential customers. Eligible customers can elect the Fixed Rate under Rate Schedule R as an alternative rate.
2. Customers who have an eligible renewable electrical generation facility under Rate Schedule NEM1 that was approved for installation by SMUD after December 31, 2017, must be on the TOD (5-8 p.m.) Rate.
3. Customers who have an eligible renewable electrical generation facility under Rate Schedule NEM2 must be on the TOD (5-8 p.m.) Rate.
4. This rate has five kilowatt-hour (kWh) prices, depending on the time-of-day and season as shown below. Holidays are detailed in Section V. Conditions of Service.

Summer (Jun 1 - Sept 30)	Peak	Weekdays between 5:00 p.m. and 8:00 p.m.
	Mid-Peak	Weekdays between noon and midnight except during the Peak hours.
	Off-Peak	All other hours, including weekends and holidays ¹ .
Non-Summer (Oct 1 - May 31)	Peak	Weekdays between 5:00 p.m. and 8:00 p.m.
	Off-Peak	All other hours, including weekends and holidays ¹ .

¹ See Section V. Conditions of Service

³ <https://www.cityofpaloalto.org/civicax/filebank/documents/30399>

II. Firm Service Rates		
A. Time-of-Day (5-8 p.m.) Rate		Rate Category RT02
Non-Summer Prices* – January 1 through May 31		
System Infrastructure Fixed Charge per month		\$21.05
Electricity Usage Charge		
Peak \$/kWh		\$0.1388
Off-Peak \$/kWh		\$0.1006
Summer Prices – June 1 through September 30		
System Infrastructure Fixed Charge per month		\$21.05
Electricity Usage Charge		
Peak \$/kWh		\$0.2941
Mid-Peak \$/kWh		\$0.1671
Off-Peak \$/kWh		\$0.1209
Non-Summer Prices* – October 1 through December 31		
System Infrastructure Fixed Charge per month		\$21.70
Electricity Usage Charge		
Peak \$/kWh		\$0.1430
Off-Peak \$/kWh		\$0.1035
* Non-Summer Season includes Fall (Oct 1 – Nov 30), Winter (Dec 1 – Mar 31) and Spring (Apr 1 – May 31) periods.		

7.4.7 Los Angeles Department of Water and Power (Electric Only)

Residential Service Rate Summary Time of Use R-1(B)

Eligibility

Applicable to service to single-family, single-family with guest house, individually metered accommodations, as well as to separately metered common areas of condominiums and cooperatives devoted primarily to residential uses and whose energy and capacity requirements do not exceed those for Small General Service Schedule A-1. Battery chargers, motors and appliances, which conform in capacities to applicable electrical codes, and meet requirements of the Department's Rules, may be served under this schedule. Not applicable to single-family residential customers with an on-site transformer dedicated solely to that individual customer.

The Department requires mandatory service under Rate B for customers whose annual monthly average consumption reach or exceed 3000 kWh during the preceding 12 month period. If a customer's annual monthly average consumption does not reach or exceed 3,000 kWh in a year's period, a customer may choose to receive service either under Rate A or B. However, when a customer served under Rate B requests a change to Rate A, that customer may not revert to Rate B before 12 months have elapsed.

Monthly rates beginning July 1, 2019	High Season June - Sep.			Low Season Oct. - May		
	Capped	Incremental	Total	Capped	Incremental	Total
Residential R-1(B)						
Rate B - Time of Use						
Service Charge \$ per month	\$8.00	\$4.00	\$12.00	\$8.00	\$4.00	\$12.00
Energy Charge - \$ per kWh						
High Peak Period	\$0.16061	-\$0.00203	\$0.15858	\$0.06515	\$0.03503	\$0.10018
Low Peak Period	\$0.08144	\$0.01874	\$0.10018	\$0.06515	\$0.03503	\$0.10018
Base Period	\$0.04655	\$0.02619	\$0.07274	\$0.05045	\$0.02619	\$0.07664
Electric Vehicle Discount \$ (1)	-\$0.02500	\$0.00000	-\$0.02500	-\$0.02500	\$0.00000	-\$0.02500
Rates below are in addition to above Charges						
Elements Only in Capped Ordinance						
ECA - per kWh	\$0.05690	\$0.00000	\$0.05690	\$0.05690	\$0.00000	\$0.05690
ESA - per kWh	\$0.00147	\$0.00000	\$0.00147	\$0.00147	\$0.00000	\$0.00147
RCA - per kWh	\$0.00300	\$0.00000	\$0.00300	\$0.00300	\$0.00000	\$0.00300
Elements Only in Incremental Ordinance						
VEA - per kWh*	Refer to www.LADWP.com >About Us >Power Rates >Variable Energy Factors and Reliability Cost Adjustment Factor for current Quarterly Electric Adjustment Factors					
CRPSEA - per kWh*						
VRPSEA - per kWh*						
IRCA - per kWh						

ECA- Energy Cost Adjustment

ESA - Electric Subsidy Adjustment

RCA - Reliability Cost Adjustment

VEA - Variable Energy Adjustment

CRPSEA - Capped Renewable Portfolio Standard Energy Adjustment

VRPSEA - Variable Renewable Portfolio Standard Energy Adjustment

IRCA - Incremental Reliability Cost Adjustment

High Peak Period : 1:00 p.m. – 5:00 p.m., Monday through Friday

Low Peak Period: 10:00 a.m. – 1:00 p.m., Monday through Friday, and 5:00 p.m. – 8:00 p.m., Monday through Friday.

Base Period: 8:00 p.m. – 10:00 a.m., Monday through Friday, all day Saturday and Sunday.

(1) Conditions for this element set in the capped ordinance.

*This value will be computed quarterly in accordance with the incremental electric rate ordinance.

7.4.8 Fuel Escalation Rates

Escalation of natural gas rates between 2020 and 2022 is based on the currently filed General Rate Cases for PG&E, SoCalGas, and SDG&E. From 2023 through 2025, gas rates are assumed to escalate at 4 percent per year above inflation, which reflects historical rate increases between 2013 and 2018. Escalation of electricity rates from 2020 through 2025 is assumed to be 2 percent per year above inflation, based on electric utility estimates. After 2025, escalation rates for both natural gas and electric rates are assumed to drop to a more conservative 1 percent escalation per year above inflation for long-term rate trajectories beginning in 2026 through 2050.

Table 15 below demonstrate the escalation rates used for residential (detached ADU) buildings.

Table 15. Real Utility Rate Escalation Rate Assumptions

	Statewide Electric Residential Average Rate (%/year, real)	Natural Gas Residential Core Rate (%/yr escalation, real)		
		<u>PG&E</u>	<u>SoCalGas</u>	<u>SDG&E</u>
2020	2.0%	1.48%	6.37%	5.00%
2021	2.0%	5.69%	4.12%	3.14%
2022	2.0%	1.11%	4.12%	2.94%
2023	2.0%	4.0%	4.0%	4.0%
2024	2.0%	4.0%	4.0%	4.0%
2025	2.0%	4.0%	4.0%	4.0%
2026	1.0%	1.0%	1.0%	1.0%
2027	1.0%	1.0%	1.0%	1.0%
2028	1.0%	1.0%	1.0%	1.0%
2029	1.0%	1.0%	1.0%	1.0%
2030	1.0%	1.0%	1.0%	1.0%
2031	1.0%	1.0%	1.0%	1.0%
2032	1.0%	1.0%	1.0%	1.0%
2033	1.0%	1.0%	1.0%	1.0%
2034	1.0%	1.0%	1.0%	1.0%
2035	1.0%	1.0%	1.0%	1.0%
2036	1.0%	1.0%	1.0%	1.0%
2037	1.0%	1.0%	1.0%	1.0%
2038	1.0%	1.0%	1.0%	1.0%
2039	1.0%	1.0%	1.0%	1.0%
2040	1.0%	1.0%	1.0%	1.0%
2041	1.0%	1.0%	1.0%	1.0%
2042	1.0%	1.0%	1.0%	1.0%
2043	1.0%	1.0%	1.0%	1.0%
2044	1.0%	1.0%	1.0%	1.0%
2045	1.0%	1.0%	1.0%	1.0%
2046	1.0%	1.0%	1.0%	1.0%
2047	1.0%	1.0%	1.0%	1.0%
2048	1.0%	1.0%	1.0%	1.0%
2049	1.0%	1.0%	1.0%	1.0%

Source: Energy & Environmental Economics, 2019, Reach Code Team

Get In Touch

The adoption of reach codes can differentiate jurisdictions as efficiency leaders and help accelerate the adoption of new equipment, technologies, code compliance, and energy savings strategies.

As part of the Statewide Codes & Standards Program, the Reach Codes Subprogram is a resource available to any local jurisdiction located throughout the state of California.

Our experts develop robust toolkits as well as provide specific technical assistance to local jurisdictions (cities and counties) considering adopting energy reach codes. These include cost-effectiveness research and analysis, model ordinance language and other code development and implementation tools, and specific technical assistance throughout the code adoption process.

If you are interested in finding out more about local energy reach codes, the Reach Codes Team stands ready to assist jurisdictions at any stage of a reach code project.



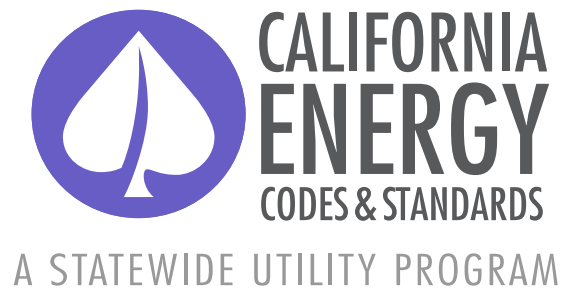
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Title 24, Parts 6 and 11
Local Energy Efficiency Ordinances

2019 Mid-Rise New Construction Reach Code Cost-Effectiveness Study

Prepared for:
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Codes and Standards Program
Pacific Gas and Electric Company

Prepared by:
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Misti Bruceri & Associates, LLC
EnergySoft

Last Modified: June 22, 2020

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Acronyms

2020 PV\$	Present value costs in 2020
ACM	Alternative Calculation Method
B/C	Lifecycle Benefit-to-Cost Ratio
BSC	Building Standards Commission
CBECC-Com	Computer program developed by the California Energy Commission for use in demonstrating compliance with the California Residential Building Energy Efficiency Standards
CFI	California Flexible Installation
CFM	Cubic Feet per Minute
CPC	California Plumbing Code
CZ	California Climate Zone
DHW	Domestic Hot Water
DOE	Department of Energy
DWHR	Drain Water Heat Recovery
EDR	Energy Design Rating
EER	Energy Efficiency Ratio
EF	Energy Factor
EPS	Expanded Polystyrene
HERS Rater	Home Energy Rating System Rater
HPWH	Heat Pump Water Heater
HVAC	Heating, Ventilation, and Air Conditioning
IOU	Investor Owned Utility
kBtu	kilo-British thermal unit
kWh	Kilowatt Hour
kW _{DC}	Kilowatt Direct Current. Nominal rated power of a photovoltaic system
LBNL	Lawrence Berkeley National Laboratory
LCC	Lifecycle Cost
MF	Multifamily
NAECA	National Appliance Energy Conservation Act
NEM	Net Energy Metering
NPV	Net Present Value
PG&E	Pacific Gas and Electric Company
PV	Photovoltaic
SCE	Southern California Edison

SDG&E	San Diego Gas and Electric
SF	Solar Fraction
SHGC	Solar Heat Gain Coefficient
SMUD	Sacramento Municipal Utility District
CASE	Codes and Standards Enhancement
TDV	Time Dependent Valuation
Therm	Unit for quantity of heat that equals 100,000 British thermal units
Title 24	Title 24, Part 6
TOU	Time-Of-Use
UEF	Uniform Energy Factor
W	Watts

1 Introduction

The California Building Energy Efficiency Standards Title 24, Part 6 (Title 24) (California Energy Commission, 2018b) is maintained and updated every three years by two state agencies, the California Energy Commission (Energy Commission) and the Building Standards Commission (BSC). In addition to enforcing the code, local jurisdictions have the authority to adopt local energy efficiency ordinances, or reach codes, that exceed the minimum standards defined by Title 24 (as established by Public Resources Code Section 25402.1(h)2 and Section 10-106 of the Building Energy Efficiency Standards). Local jurisdictions must demonstrate that the requirements of the proposed ordinance are cost-effective and do not result in buildings consuming more energy than is permitted by Title 24. In addition, the jurisdiction must obtain approval from the Energy Commission and file the ordinance with the BSC for the ordinance to be legally enforceable.

This report documents cost-effective combinations of measures that exceed the minimum state requirements, the 2019 Building Energy Efficiency Standards, effective January 1, 2020, for new mid-rise (four- to seven-story) multifamily residential construction. The analysis includes evaluation of both mixed-fuel and all-electric residential construction, documenting that the performance requirements can be met by either type of building design. Compliance package options and cost-effectiveness analysis in all 16 California climate zones (CZs) are presented (see Appendix A – California Climate Zone Map for a graphical depiction of Climate Zone locations).

2 Methodology and Assumptions

This analysis uses two different metrics to assess cost-effectiveness. Both methodologies require estimating and quantifying the incremental costs and energy savings associated with energy efficiency measures. The main difference between the methodologies is the manner in which they value energy and thus the cost savings of reduced or avoided energy use:

- **Utility Bill Impacts (On-Bill):** Customer-based Lifecycle Cost (LCC) approach that values energy based upon estimated site energy usage and customer on-bill savings using electricity and natural gas utility rate schedules over a 30-year duration accounting for discount rate and energy cost inflation.
- **Time Dependent Valuation (TDV):** Energy Commission LCC methodology, which is intended to capture the “societal value or cost” of energy use including long-term projected costs, such as the cost of providing energy during peak periods of demand and other societal costs, such as projected costs for carbon emissions, as well as grid transmission and distribution impacts. This metric values energy use differently depending on the fuel source (gas, electricity, and propane), time of day, and season. Electricity used (or saved) during peak periods has a much higher value than electricity used (or saved) during off-peak periods (Horii et al., 2014). This is the methodology used by the Energy Commission in evaluating cost-effectiveness for efficiency measures in Title 24, Part 6.

2.1 Building Prototypes

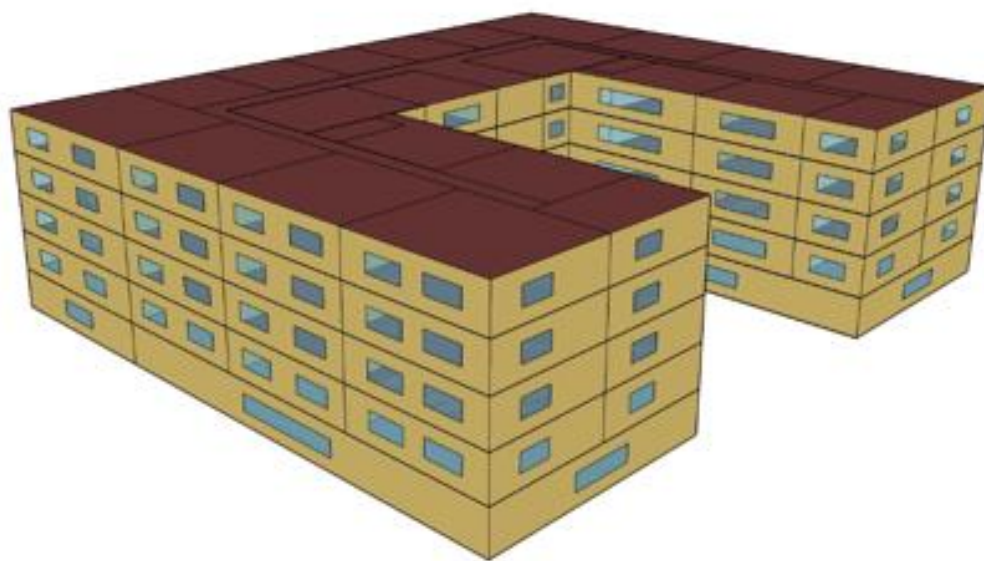
The Energy Commission defines building prototypes which it uses to evaluate the cost-effectiveness of proposed changes to Title 24 requirements. The CEC recently developed new prototype designs for multifamily buildings to more closely reflect typical designs for new multifamily buildings across the state. The new prototypes include two low-rise residential designs, a mid-rise, and a high-rise design. At the time that this report was written, there was one mid-rise multifamily prototype, which is used in this analysis in development of the above-code packages (TRC, 2019). The midrise prototype is a 6-story building with one below-grade parking level, ground floor commercial space, and four stories of residential space. Table 1 describes the basic characteristics of the mid-rise prototype and Figure 1 shows a depiction of the building.



Table 1: Prototype Characteristics

Characteristic	Multifamily 5-Story Mid-Rise
Conditioned Floor Area	113,100 ft ² Total: 33,660 ft ² Nonresidential & 79,440 ft ² Residential
Number of Stories	6 Stories Total: 1 Story Parking Garage (below grade) 1 Story of Nonresidential Space 4 Stories of Residential Space
Number of Dwelling Units / Bedrooms	(8) studios, (40) 1-bed units, (32) 2-bed units, & (8) 3-bed units
Foundation	Concrete podium with underground parking
Wall Assembly	Wood frame over a first-floor concrete podium
Roof Assembly	Flat roof
Window-to-Wall Area Ratio	22.5%
HVAC System	Ducted split heat pumps at each apartment
Domestic Hot Water System	Gas central boiler with solar thermal sized to meet the prescriptive requirements by climate zone

Source: TRC 2019



Source: TRC 2019

Figure 1: 5-story mid-rise multifamily prototype depiction.

The methodology used in the analyses for the prototypical building type begins with a design that meets the minimum 2019 Title 24 prescriptive requirements (zero compliance margin). Table 140.3-B and 140.3-C in the 2019 Title 24 (California Energy Commission, 2018a) lists the prescriptive measures that determine the baseline design in each climate zone for the nonresidential and high-rise residential spaces, respectively. Other features are consistent with the Standard Design in the Nonresidential ACM Reference Manual (California Energy Commission, 2019a) with one exception. The apartments use split system heat pumps instead of a split furnace

and air conditioner that is prescribed in Table 2 of the Nonresidential ACM Reference Manual. This modeling choice was made to better reflect current market data, which shows heat pumps to be the most common system type and a very low prevalence of gas furnaces for multifamily buildings four stories and greater. This is based on a report completed by TRC (TRC, 2019) and validated by analysis of CA HERS Registry Data by SCE that showed 47% of low-rise multifamily new construction in the 2013 and 2016 code cycles had electric space heating. The analysis also assumed electric cooking in the apartment units to reflect current market data. Laundry was not addressed in this study. The building prototype assumes central laundry facilities and no laundry in the units.

2.2 Measure Analysis

EnergyPro 8.1, which uses the California Building Energy Code Compliance simulation tool, CBECC-Com 2019.1.2, as the simulation engine, was used to evaluate energy impacts using the 2019 Title 24 prescriptive standards as the benchmark, and the 2019 TDV values. CBECC-Com was used for this analysis to evaluate the mid-rise building for code compliance under the 2019 non-residential standards. TDV is the energy metric used by the Energy Commission since the 2005 Title 24 energy code to evaluate compliance with the Title 24 Standards.

Using the 2019 baseline as the starting point, prospective energy efficiency measures were identified and modeled to determine the projected site energy (Therm and kWh) and compliance impacts. Annual utility costs were calculated using hourly data output from CBECC-Com, and electricity and natural gas tariffs for each of the investor owned utilities (IOUs).

This analysis focused on the residential apartments only. A prior study and report demonstrated the cost-effectiveness of above code packages for nonresidential buildings (Statewide Reach Code Team, 2019a). The Statewide Reach Code Team selected measures for evaluation based on the residential and nonresidential 2019 reach code analysis ((Statewide Reach Code Team, 2019a), (Statewide Reach Code Team, 2019b)) as well as experience with and outreach to architects, builders, and engineers along with general knowledge of the relative acceptance of many measures. Efficiency measure packages found to be cost-effective in the nonresidential building reach code analysis were applied to the nonresidential spaces for evaluating performance relative to compliance, but the incremental costs and energy impacts of these measures on the nonresidential spaces were not included in this analysis. Refer to the nonresidential reach code study for more details (Statewide Reach Code Team, 2019a).

2.2.1 Federal Preemption

The Department of Energy (DOE) sets minimum efficiency standards for equipment and appliances that are federally regulated under the National Appliance Energy Conservation Act (NAECA), including heating, cooling, and water heating equipment. Since state and local governments are prohibited from adopting policies that mandate higher minimum efficiencies than the federal standards require, the focus of this study is to identify and evaluate cost-effective packages that do not include high efficiency equipment. While this study is limited by federal preemption, in practice builders may use any package of compliant measures to achieve the performance goals, including high efficiency appliances. Often, these measures are the simplest and most affordable measures to increase energy performance.

2.2.2 Energy Efficiency Measures

Following are descriptions of each of the efficiency measures evaluated for the residential spaces under this analysis. Because not all of the measures described below were found to be cost-effective, and cost-effectiveness varied by climate zone, not all measures are included in all packages and some of the measures listed are not included in any final package.

Improved Fenestration – Lower U-factor: Reduce window U-factor to 0.25 Btu/hr-ft²-°F. The prescriptive maximum U-factor is 0.36 in all climates. This measure is applied to all windows on floors two through five.



Improved Fenestration – Lower SHGC: Reduce window solar heat gain coefficient (SHGC) to 0.22. The prescriptive maximum SHGC is 0.25 for fixed windows in all climates. The Statewide Reach Code Team evaluated increased SHGC in heating dominated climates (Climate Zone 1, 3, 5, and 16) but results were better with a lower SHGC. This measure is applied to all windows on floors two through five.

Exterior Wall Insulation: Add one inch of R-4 exterior continuous insulation. To meet the prescriptive wall requirements, it's assumed that exterior wall insulation is used in the basecase, therefore this measure adds additional R-value to existing exterior insulation. This measure is applied to all walls on floors two through five.

HERS Verification of Hot Water Pipe Insulation: The California Plumbing Code (CPC) requires pipe insulation on all hot water lines. This measure provides credit for HERS Rater verification of pipe insulation requirements according to the procedures outlined in the 2019 Reference Appendices RA3.6.3. (California Energy Commission, 2018b).

Low Pressure Drop Ducts: Upgrade the duct distribution system to reduce external static pressure and meet a maximum fan efficacy of 0.25 watts per cfm operating at full speed. This may involve upsizing ductwork, reducing the total effective length of ducts, and/or selecting low pressure drop components, such as filters. This measure is applied to the ducted split heat pumps serving the apartments.

Solar Thermal: Prescriptively, central water heating systems require a solar thermal system with a 20% solar fraction in Climates Zones 1 through 9 and 35% solar fraction in Climate Zones 10 through 16. This measure upgrades the prescriptive solar thermal system to meet a 50% solar fraction in all climates, assuming there is available roof space for the additional collectors.

Drain Water Heat Recovery: Add drain water heat recovery with a 50% effectiveness to serve all the apartments. The assumption is for an unequal flow design where the output of the heat exchanger feeds only the cold water inlets to the apartment showers, not the water heater cold water makeup.

Efficiency measures were applied to the nonresidential spaces based on the 2019 Nonresidential Reach Code Cost-Effectiveness Study (Statewide Reach Code Team, 2019a).

2.2.3 All Electric Measures

This analysis assumes that the basecase prototype model uses individual heat pumps for space heating and all electric appliances in the apartments. Therefore, the domestic hot water system is the only equipment serving the apartment spaces to electrify in the all-electric design. The Statewide Reach Code Team evaluated two configurations for electric heat pump water heaters (HPWHs) described below.

Clustered Heat Pump Water Heater: This clustered design uses residential integrated storage HPWHs to serve more than one apartment; 4 to 5 bedrooms on average for a total of 32 HPWHs in the 88-unit building. The water heaters are located in interior closets throughout the building and designed for short plumbing runs without using a hot water recirculation loop. A minimum efficiency 2.0 UEF HPWH was used for this analysis (to avoid federal preemption). This approach has been selectively used in multifamily projects because of its reliance on lower cost small capacity HPWH products. Since it uses residential equipment with each HPWH serving fewer than 8 apartments the CBECC-Com compliance software had the capability to evaluate this design strategy, even before central HPWH recirculation options were incorporated into the software. The clustered strategy is not a prescriptive option but is allowed in the performance path if the water heater serves no more than 8 units and has no recirculation control. The standard design assumes solar thermal, so the proposed design is penalized in compliance for no solar thermal and made up with other efficiency measures.



Prescriptive Central Heat Pump Water Heater: Per Section 150.1(c)8C of the 2019 Standards, the Energy Commission made an executive determination outlining requirements of a prescriptive approach for central heat pump water heating systems in December 2019 (California Energy Commission, 2019b). Key aspects of the prescriptive approach are described below:

- The system must be configured with a design similar to what is presented in the schematic in Figure 2 of the executive determination document.
- HPWH must be single-pass split system with the compressor located outdoors and be able to operate down to -20°F. In CBECC-Com 2019.1.2, the current version at the time of writing this report, the software only has the capability of modeling Sanden HPWHs.
- The system must include either a solar thermal water heating system that meets the current prescriptive requirements or 0.1 kW_{DC} of photovoltaic system capacity per apartment/dwelling unit.

For this configuration the Statewide Reach Code Team evaluated costs for a central HPWH system using Sanden compressors that met these prescriptive requirements. Based on the system sizing requirements, 15 Sanden units and 1,200 gallons of primary storage capacity are required for the 88-unit building. At the time that cost-effectiveness was initially compared for the two HPWH configurations, the latest CBECC-Com software with the ability to model central HPWH systems was not yet available. To estimate the energy use for the central configuration, the water heating energy use for the clustered configuration was used. It is expected that the energy use of the central system will be higher than the clustered approach primarily as a result of recirculation pump energy and losses.

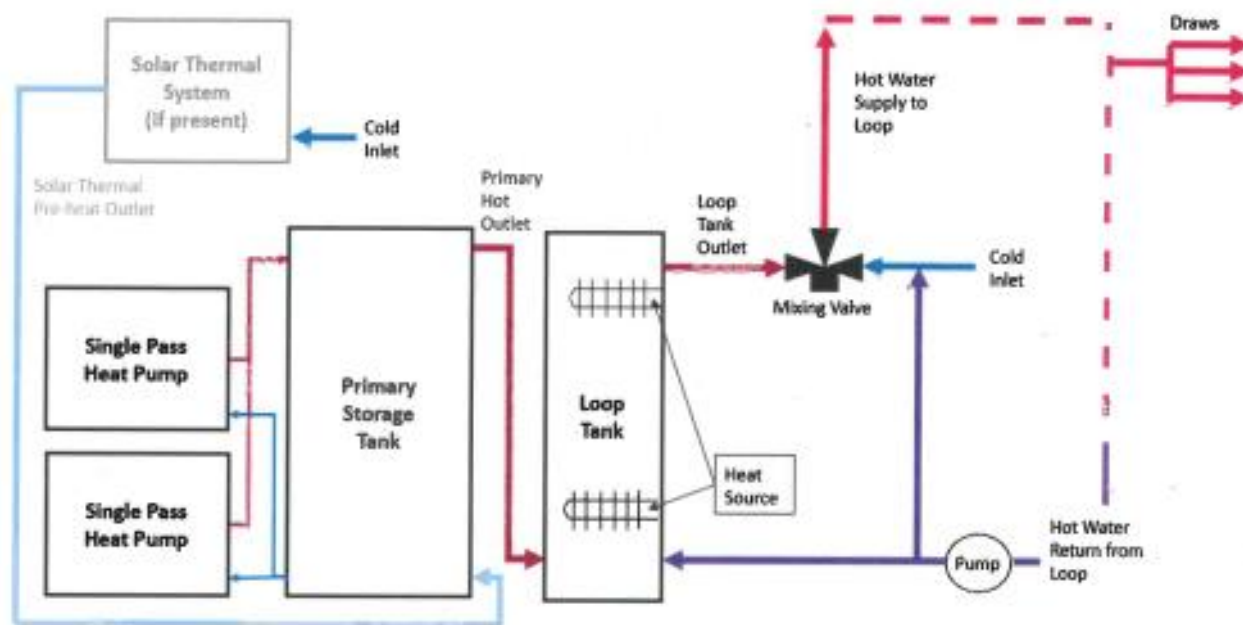


Figure 2: Prescriptive central heat pump water heater system schematic.

All-electric measures were applied to the nonresidential spaces based on the 2019 Nonresidential Reach Code Cost-Effectiveness Study (Statewide Reach Code Team, 2019a).

2.2.4 Renewable Energy

Solar Photovoltaic (PV): There is no existing requirement for PV in the 2019 Title 24 nonresidential code for high-rise residential buildings (four or more stories). The PV sizing methodology was developed to offset a portion of annual residential electricity use and avoid oversizing which would violate net energy metering (NEM)

rules. In all cases, PV is evaluated using the PV simulations within CBECC-Com using a Standard module type, 180 degree azimuth, and 22 degree .tilt. The analysis evaluated PV system capacities equal to 0.1, 0.2, 0.3, and 1 kW_{DC} per apartment. The PV system offsets approximately XX4%, XX8%, XX13%, and 42%, of the apartment electricity usage, respectively. Assuming 15 Watts per square foot for a typical commercial PV system, 1 kW_{DC} per apartment, or 88 kW_{DC} total, would take up about 25% of the total roof area.

2.3 Package Development

Four packages were evaluated for each climate zone, as described below.

- 1) **Efficiency – Mixed-fuel:** This package applies efficiency measures that don't trigger federal preemption including envelope, water heating distribution, and duct distribution efficiency measures.
- 2) **Efficiency – All Electric:** This package applies efficiency measures that don't trigger federal preemption in addition to converting any natural gas appliances to electric appliances. For the residential spaces, only water heating is converted from natural gas to electric.
- 3) **Efficiency & PV – Mixed-fuel:** Beginning with the Efficiency Package , PV was added to offset a portion of the apartment estimated electricity use.
- 4) **Efficiency & PV – All Electric:** Beginning with the Efficiency Package, PV was added to offset a portion of the apartment estimated electricity use.

2.4 Incremental Costs

2.4.1 Energy Efficiency Measure Costs

Table 22 summarizes the incremental cost assumptions for measures evaluated in this study relative to the residential parts of the building. Incremental costs represent the equipment, installation, replacement, and maintenance costs of the proposed measures relative to the base case. Replacement costs are applied to PV inverters and battery systems over the 30-year evaluation period. There is no assumed maintenance on the envelope, HVAC, or DHW measures. Costs were estimated to reflect costs to the building owner. When costs were obtained from a source that did not already include builder overhead and profit, a markup of 10% was added. All costs are provided as present value in 2020 (2020 PV\$). Costs due to variations in furnace, air conditioner, and heat pump capacity by climate zone were not accounted for in the analysis.



Table 2: Incremental Cost Assumptions

Measure	Performance Level	Incremental Cost (2020 PV\$)	Source & Notes
Non-Preempted Measures			
Window U-factor	0.25 vs 0.36	\$28,301	\$6.95/ft ² window area based on analysis conducted for the 2019 and 2022 Title 24 code cycles (Statewide CASE Team, 2018).
Window SHGC	0.22 vs 0.25	\$0	Data from CASE Report along with direct feedback from Statewide CASE Team that higher SHGC does not necessarily have any incremental cost impact (Statewide CASE Team, 2017b).
Exterior Wall Insulation	Add 1-inch	\$14,058	\$0.86/ft ² based on adding 1" of exterior insulation on a wall with some level of existing exterior insulation. Costs are averaged from two sources ((Statewide CASE Team, 2014), (Statewide CASE Team, 2017a)) and for expanded polystyrene (EPS) and polyisocyanurate products with a 10% mark-up added to account for cost increases over time.
HERS Verified Pipe Insulation	HERS verified pipe insulation vs no verification	\$7,260	\$83 per apartment for a HERS Rater to conduct verification of pipe insulation based on feedback from HERS Raters.
Low Pressure Drop Ducts	0.25 W/cfm vs 0.35 W/cfm	\$12,654	\$144 per apartment. Costs assume 1.5 hourshrs labor per multifamily apartment. Labor rate of \$96 per hour is from 2019 RSMeans for sheet metal workers and includes an average City Cost Index for labor for California cities.
Solar Thermal	50% solar fraction vs prescriptive 20%-35%	\$79,560	Costs based on 2022 multifamily solar thermal measure CASE proposal (Statewide CASE Team, 2020) and include first cost of \$70,727 and \$8,834 present value for replacement/maintenance costs.
Drain Water Heat Recovery	50% effectiveness, flows to shower	\$16,984	Costs from 2019 DWHR CASE Report which assumes 1 heat exchanger per 4 units (Statewide CASE Team, 2017c). Costs do not include additional cost of water meters at each apartment (per SB7), which would add approx. \$175 per dwelling unit.
Renewable Energy (PV)			
PV System	System size varies	\$3.17/W _{DC}	First costs are from LBNL's Tracking the Sun 2018 costs (Barbose et al., 2018) and represent costs for the first half of 2018 of \$2.90/W _{DC} for nonresidential systems ≤500 kW _{DC} . These costs were reduced by 16% for the solar investment tax credit, which is the average credit over years 2020-2022. Inverter replacement cost of \$0.14/W _{DC} present value includes replacements at year 11 at \$0.15/W _{DC} (nominal) and at year 21 at \$0.12/W _{DC} (nominal) per the 2019 PV CASE Report (California Energy Commission, 2017). System maintenance costs of \$0.31/W _{DC} present value assumes additional \$0.02/W _{DC} (nominal) annually per the 2019 PV CASE Report (California Energy Commission, 2017). 10% overhead and profit added to all costs.



2.4.2 All Electric Measure Costs

The Statewide Reach Code Team reached out to stakeholders to collect project cost information for central gas boilers and both clustered and central HPWH designs. Project data sources included Association for Energy Affordability (AEA), Redwood Energy, Mithun, Ecotope, and the All-Electric Multifamily Compliance Pathway 2022 Draft CASE Report (Statewide CASE Team, 2020). Costs are presented in Table 3.

Table 3: Costs for Gas versus Electric Water Heating Equipment over 30-Year Period of Analysis

	Central Gas Boiler (CZs 1-9)	Central Gas Boiler (CZs 10-16)	Clustered HPWH	Central HPWH
System Quantity/Description	1 boiler recirc		32 units 80 gal. each no recirc	15 units .1,200-gal total recirc
Total Equipment Cost	\$98,733		\$126,778	\$213,364
Solar Thermal	(20% SF) 110,096	(35% SF) \$131,817	-	-
Solar PV	-	-	-	\$23,580 (8.8 kW _{DC})
Total First Cost	\$202,920	\$224,641	\$126,778	\$236,944
Maintenance/Replacement Cost (NPV)	\$69,283	\$69,283	\$81,374	\$120,683
Total Cost (NPV)	\$272,203	\$293,924	\$208,152	\$357,627
Incremental Cost CZ 1-9 (NPV)			(\$64,051)	\$85,424
Incremental Cost CZ 10-16 (NPV)			(\$85,772)	\$63,703

Typical costs for the water heating systems are based on the following assumptions:

Central Gas Boiler: Based on the average of total estimated project costs from contractors for four multi-family projects ranging from 32 to 340 apartments and cost estimates for mid-rise and high-rise buildings from the All-Electric Multifamily Compliance Pathway 2022 Draft CASE Report (Statewide CASE Team, 2020). The cost per dwelling unit ranged from \$547 to \$2,089 and the average cost applied in this analysis was \$1,122 per dwelling unit. Costs include installation of gas piping from the building meter to the water heater. Water heater lifetime is assumed to be 15 years and the net present value replacement cost at year 15 is \$63,373.

Clustered HPWH: Based on costs from one project with RHEEM HPWHs used in a clustered design. Costs include water heater interior closet, electrical outlets, and increased breaker size and sub feed. Water heater based on 2.0 UEF 80-gallon appliance with 32 total HPWHs serving the building (1 per 4 to 5 bedrooms). Water heater lifetime is assumed to be 15 years and the net present value replacement cost at year 15 is \$81,374. This design assumes 8 water heater closets per floor, at approximately 15 square feet per closet. While this has an impact on leasable floor area, the design impacts have been found to be minimal when addressed early in design.

Central HPWH: Based on average total installed project costs from four multi-family projects with Sanden HPWHs ranging from 4 to 16 Sanden units per project. The cost per Sanden HPWH ranged from \$13,094 to \$15,766 and the average cost applied in this analysis was \$14,224 per HPWH. Based on the prescriptive system sizing requirements, 15 Sanden units are required for the 88-unit building, resulting in a total first cost of \$213,364. Water heater lifetime is assumed to be 15 years. Because Sanden HPWHs are an emerging technology in the United States, it is expected that over time their costs will decrease and for replacement at year 15 the costs are assumed to have decreased by 15%.



Solar Thermal: Based on system costs provided in the All-Electric Multifamily Compliance Pathway 2022 Draft CASE Report (Statewide CASE Team, 2020). First costs reflect the material, labor, and markup costs presented in the Draft CASE Report for the mid-rise prototype. Replacement and maintenance costs assume replacement of the solar thermal tank at year 15 at \$6,110 and glycol replacement of \$1,300 each time at years 9, 18, and 27. The cost of the remaining useful life of the glycol at year 30 is deducted from the final cost. The Draft CASE Report included costs for replacing the solar collectors at year 20. Collectors can have longer lifetimes up to 30 years if well maintained, therefore this analysis does not assume any replacement of the collectors over the 30 year analysis period.

Table 4: Solar Thermal Detailed Costs over 30-Year Period of Analysis

Solar Fraction	20%	35%
Materials	\$33,975	\$48,975
Labor	\$47,740	\$49,776
Markup	27.5%	27.5%
First Cost	\$104,187	\$125,908
Replacement/Maintenance (PV)	\$5,910	\$5,910
Total PV Cost	\$110,096	\$131,817

2.4.3 Natural Gas Infrastructure Costs

This analysis assumes that in an all-electric new construction project, natural gas would not be supplied to the building. Eliminating natural gas to the building would save costs associated with connecting a service line from the street main to the building, piping distribution within the building, and monthly meter connection charges from the utility. Incremental costs for natural gas infrastructure in the mixed-fuel building are presented in Table 5. Cost data for the plan review and service extension was estimated on a per building basis and then apportioned to the residential and nonresidential portions of the buildings based on annual gas consumption. For the basecase prototype building 49% to 93% of estimated building annual gas use is attributed to the residential water heating system across all climate zones. A statewide average of 80% was calculated and applied to the costs in Table 5 based on housing starts provided by the California Energy Commission for the 2019 Title 24 code development process. The meter costs were based on the service provided to the residential and nonresidential portion of the building separately. Following the table are descriptions of assumptions for each of the cost components. Costs for gas piping from the meter to the gas boilers are included in the central gas boiler costs above. Gas piping distribution costs were typically included in total project costs and could not be broken out in all cases.

Table 5: Natural Gas Infrastructure Cost Savings for All-Electric Building

Item	Total	NonResidential Portion	Residential Portion
Natural Gas Plan Review	\$2,316	\$452	\$1,864
Service Extension ¹	\$4,600	\$898	\$3,702
Meter	\$7,200	\$3,600	\$3,600
Total First Cost	\$14,116	\$4,950	\$9,166

¹Service extension costs include 50% reduction assuming portion of the costs are passed on to gas customers.

Natural Gas Plan Review: Total costs are based on TRC's 2019 reach code analysis for Palo Alto (TRC, 2019) and then split between the residential and nonresidential spaces in the building proportionately according to annual gas consumption with 80% of the annual load is attributed to residential units on a statewide basis.

Service Extension: Service extension costs to the building were taken from PG&E memo dated December 5, 2019, to Energy Commission staff, include costs for trenching, and assume non-residential new construction within a developed area (see Appendix C – PG&E Gas Infrastructure Cost Memo, PG&E, 2019). The total cost of



\$9,200 from the memo is reduced by 50% to account for the portion of the costs paid for by all customers due to application of Utility Gas Main Extensions rules¹. The resultant cost is apportioned between the residential and nonresidential spaces in the building based on annual gas consumption of residential and nonresidential uses, with 80% of the annual load natural gas use attributed to residential units on a statewide basis.

Meter: Cost per meter provided by PG&E for commercial meters. Assume one meter for nonresidential boilers serving space heating and service water heating, and another for residential boilers serving domestic hot water.

2.5 Cost-effectiveness

Cost-effectiveness was evaluated for all 16 California climate zones and is presented based on both TDV energy, using the Energy Commission's LCC methodology, and an On-Bill approach using residential customer utility rates. Both methodologies require estimating and quantifying the value of the energy impact associated with energy efficiency measures over the life of the measures (30 years) as compared to the prescriptive Title 24 requirements.

Cost-effectiveness is presented using both lifecycle net present value (NPV) savings and benefit-to-cost (B/C) ratio metrics, which represent the cost-effectiveness of a measure over a 30-year lifetime taking into account discounting of future savings and costs.

- **Net Present Value (NPV) Savings:** NPV benefits minus NPV costs is reported as a cost effectiveness metric. If the net savings of a measure or package is positive, it is considered cost effective. Negative savings represent net costs. A measure that has negative energy cost benefits (energy cost increase) can still be cost effective if the costs to implement the measure are more negative (i.e., material and maintenance cost savings).
- **Benefit-to-Cost (B/C) Ratio:** Ratio of the present value of all benefits to the present value of all costs over 30 years (NPV benefits divided by NPV costs). The criteria for cost effectiveness is a B/C greater than 1.0. A value of one indicates the NPV of the savings over the life of the measure is equivalent to the NPV of the lifetime incremental cost of that measure. A value greater than one represents a positive return on investment. The B/C ratio is calculated according to Equation 1.

Equation 1

$$\text{Benefit-to-Cost Ratio} = \frac{\text{NPV of lifetime benefit}}{\text{NPV of lifetime cost}}$$

Improving the efficiency of a project often requires an initial incremental investment. In most cases the benefit is represented by annual "On-Bill" utility or TDV savings, and the cost by incremental first cost and replacement costs. However, some packages result in initial construction cost savings (negative incremental cost), and either energy cost savings (positive benefits), or increased energy costs (negative benefits). In cases where both construction costs and energy-related savings are negative, the construction cost savings are treated as the 'benefit' while the increased energy costs are the 'cost.' In cases where a measure or package is cost-effective immediately (i.e. upfront construction cost savings and lifetime energy cost savings), B/C ratio cost-effectiveness is represented by ">1". Because of these situations, NPV savings are also reported, which, in these cases, are positive values.

¹ PG&E Rule 15: https://www.pge.com/tariffs/tm2/pdf/GAS_RULES_15.pdf

SoCalGas Rule 20: <https://www.socalgas.com/regulatory/tariffs/tm2/pdf/20.pdf>

SDG&E Rule 15: http://regarchive.sdge.com/tm2/pdf/GAS_RULES_GRULE15.pdf



The lifetime costs or benefits are calculated according to Equation 2.

Equation 2

$$PV \text{ of lifetime cost/benefit} = \sum_{t=1}^n \text{Annual cost/benefit}_t * (1 + r)^t$$

Where:

- n = analysis term
- r = real discount rate
- t = year at which cost/benefit is incurred

The following summarizes the assumptions applied in this analysis to both methodologies.

- Analysis term of 30 years
- Real discount rate of 3% (does not include inflation)

2.5.1 On-Bill Customer Lifecycle Cost

Residential utility rates were used to calculate utility costs for all cases and determine On-Bill customer cost-effectiveness for the proposed packages. Utility costs of the nonresidential spaces were not evaluated in this study, only apartment and water heating energy use. The Statewide Reach Code Team obtained the recommended utility rates from each IOU based on the assumption that the reach codes go into effect in 2020. Annual utility costs were calculated using hourly electricity and gas output from CBECC-Com, and applying the utility tariffs summarized in Table 6. Appendix B – Utility Tariff Details includes details on the utility rate schedules used for this study. The applicable residential time-of-use (TOU) rate was applied to all cases. For cases with PV generation, the approved NEM2 tariffs were applied along with minimum daily use billing and mandatory non-bypassable charges. For the PV cases annual electric production was always less than annual electricity consumption; and therefore, no credits for surplus generation were necessary. Future changes to the NEM tariffs are likely; however, there is a lot of uncertainty about what those changes will be and if they will become effective during the 2019 Title 24 code cycle (2020-2022).

Based on guidance from the IOUs, the residential electric TOU tariffs that apply to individually metered residential apartments were also used to calculate electricity costs for the central water heating systems. Where baseline allowances are included in the tariffs (SCE TOU-D and SDG&E TOU-DR1) the allowances were applied on a per unit basis for all-electric service.

Based on guidance from the IOUs, master metered multifamily service gas tariffs were used to calculate gas costs for the central water heating systems. The baseline quantities were applied on a per unit basis, as is defined in the schedules, and when available water heating only baseline values were used.

Utility rates were applied to each climate zone based on the predominant IOU serving the population of each zone according to Table 6. Climate Zones 10 and 14 are evaluated with both SCE/SoCalGas and SDG&E tariffs since each utility has customers within these climate zones. Climate Zone 5 is evaluated under both PG&E and SoCalGas natural gas rates. Two municipal utility rates were also evaluated, Sacramento Municipal Utility District (SMUD) in Climate Zone 12 and City of Palo Alto Utilities (CPAU) in Climate Zone 4.



Table 6: IOU Utility Tariffs Applied Based on Climate Zone

Climate Zones	Electric/Gas Utility	Electricity (Apartment Use)	Electricity (Central Water Heating)	Natural Gas (Central Water Heating) ¹
1-5, 11-13, 16	PG&E	E-TOU-C	E-TOU-C	PG&E GM
5	PG&E/SoCalGas			SoCalGas GM-E
6, 8-10, 14,15	SCE/SoCalGas	TOU-D (Option 4-9)	TOU-D (Option 4-9)	
7, 10, 14	SDG&E	TOU-DR1	TOU-DR1	SDG&E GM
12	SMUD/PG&E	R-TOD (RT02)	GSN-T	PG&E GM
4	CPAU	E-1	E-2	G-2

¹ These rates are allowed assuming no gas is used in the apartments.

Utility rates are assumed to escalate over time, using assumptions from research conducted by Energy and Environmental Economics (E3) in the 2019 study Residential Building Electrification in California (Energy & Environmental Economics, 2019). Escalation of natural gas rates between 2019 and 2022 is based on the currently filed General Rate Cases (GRCs) for PG&E, SoCalGas and SDG&E. From 2023 through 2025, gas rates are assumed to escalate at 4% per year above inflation, which reflects historical rate increases between 2013 and 2018. Escalation of electricity rates from 2019 through 2025 is assumed to be 2% per year above inflation, based on electric utility estimates. After 2025, escalation rates for both natural gas and electric rates are assumed to drop to a more conservative 1% escalation per year above inflation for long-term rate trajectories beginning in 2026 through 2050. See Appendix B – Utility Tariff Details for additional details.

2.5.2 TDV Lifecycle Cost

Cost-effectiveness was also assessed using the Energy Commission’s TDV LCC methodology. TDV is a normalized monetary format developed and used by the Energy Commission for comparing electricity and natural gas savings, and it considers the cost of electricity and natural gas consumed during different times of the day and year. The 2019 TDV values are based on long term discounted costs of 30 years for all residential measures. The CBECC-Com simulation software results are expressed in terms of TDV kBtus. The present value of the energy cost savings in dollars is calculated by multiplying the TDV kBtu savings by a net present value (NPV) factor, also developed by the Energy Commission. The 30-year NPV factor is \$0.154/TDV kBtu for nonresidential projects under 2019 Title 24.

Like the customer B/C ratio, a TDV B/C ratio value of one indicates the savings over the life of the measure are equivalent to the incremental cost of that measure. A value greater than one represents a positive return on investment. The ratio is calculated according to Equation 3.

Equation 3

$$TDV \text{ Benefit} - \text{to} - \text{Cost Ratio} = \frac{TDV \text{ energy savings} * NPV \text{ factor}}{NPV \text{ of lifetime incremental cost}}$$

2.6 Greenhouse Gas Emissions

Equivalent CO2 emission savings were calculated based on estimates from Zero Code reports available in CBECC-Com simulation software.² Electricity emissions vary by region and by hour of the year, accounting for time dependent energy use and carbon emissions based on source emissions, including renewable portfolio standard

² More information at: : <https://zero-code.org/wp-content/uploads/2018/11/ZERO-Code-TSD-California.pdf>



projections. Two distinct hourly profiles, one for Climate Zones 1 through 5 and 11 through 13 and another for Climate Zones 6 through 10 and 14 through 16. For natural gas a fixed factor of 0.005307 metric tons/therm is used. To compare the mixed fuel and all-electric cases side-by-side, greenhouse gas (GHG) emissions are presented as CO₂-equivalent emissions per dwelling unit.

3 Results

The primary objective of the evaluation is to identify cost-effective, non-preempted performance targets for mid-rise multifamily buildings, under both mixed-fuel and all-electric cases, to support the design of local ordinances requiring new mid-rise residential buildings to exceed the minimum state requirements. The packages presented are representative examples of designs and measures that can be used to meet the requirements. In practice, a builder can use any combination of non-preempted or preempted compliant measures to meet the requirements.

This analysis evaluated a package of efficiency measures applied to a mixed-fuel design and a similar package for an all-electric design. Each design was evaluated using the predominant utility rates in all 16 California climate zones. Solar PV was also added to the efficiency packages and a sensitivity analysis was conducted at various PV system capacities to optimize cost-effectiveness.

Although some of the efficiency measures evaluated were not cost-effective and were eliminated, the following measures are included in at least one package:

- Improved fenestration
- Wall insulation
- Low pressure-drop distribution system
- HERS verified pipe insulation

The following measures were evaluated but were found to not be cost-effective and were not included in any of the packages.

- Solar thermal system with higher solar fraction than prescriptive requirements
- Drain water heat recovery

Cost-effectiveness results for the all-electric case are based upon the clustered HPWH approach only. Lower first costs with the clustered approach resulted in better cost-effectiveness than the central HPWH design.

3.1 Mid-Rise Multifamily Results

Table 7 and Table 9 present results for the mixed-fuel and all-electric packages, respectively. Each table shows cost-effectiveness results for **Efficiency Only** packages and **Efficiency + PV** packages (with a 17.6 kW_{DC} PV system sized based on 0.2 kW_{DC} per apartment). Both mixed-fuel and all-electric results are relative to the mixed-fuel 2019 Title 24 prescriptive baseline. B/C ratios for all packages are presented according to both the On-Bill and TDV methodologies for the mixed-fuel and the all-electric cases, respectively. Detailed results are presented in *Appendix D – Detailed Results Mixed-Fuel* and *Appendix E – Detailed Results All-Electric*.

Efficiency Only:

Compliance margins for the **Mixed-Fuel Efficiency Only** cases range from 5% to 8%, which meets the CALGreen Tier 1 energy performance requirement for high-rise residential buildings. **Mixed-Fuel Efficiency Only** cases are cost-effective based on TDV in all climate zones except for 1 and 16. The cases are cost-effective from an On-Bill perspective in all climate zones except 1.

The **All-Electric Efficiency Only** package does not meet minimum code requirements in Climate Zones 1 and 16. Compliance margins for all other climate zones range from 1% to 5%. **All-Electric Efficiency Only** cases are cost-



effective in all climate zones based on TDV. Cost-effectiveness from an On-Bill perspective is favorable in all climate zones except 1, 16, and 5 in SCG territory.

Efficiency + PV:

Several PV system size options were evaluated for the **Efficiency + PV** packages. Of the PV system sizes evaluated, 0.2 kW_{DC} per apartment represents the smallest system that resulted in B/C ratios greater than one based on both metrics in all climate zones for the mixed-fuel scenario. Adding a 0.1 kW_{DC} per apartment in the all-electric cases, resulted in B/C ratios greater than one in all climate zones.

Table 11 and Table 12 describe the efficiency measures included in the mixed-fuel and all-electric packages, respectively.



Table 7: Mixed-Fuel Package Results: Efficiency Only (SAVINGS/COST PER APARTMENT)

Climate Zone	Elec Utility	Gas Utility	Comp. Margin	Total Gas Savings (therms)	Total Electric Savings (kWh)	GHG Reductions (lb. CO2)	Savings (2020 PV\$)		Incremental Cost (2020 PV\$)	B/C Ratio ¹		NPV	
							Utility Cost Savings	TDV Savings		On-Bill	TDV	On-Bill	TDV
CZ01	PGE	PGE	5.8%	0	26	18	\$133	\$105	\$304	0.44	0.35	(\$171)	(\$199)
CZ02	PGE	PGE	5.9%	0	47	29	\$391	\$285	\$144	2.72	1.98	\$248	\$141
CZ03	PGE	PGE	6.7%	0	44	27	\$345	\$226	\$144	2.40	1.57	\$202	\$82
CZ04	PGE	PGE	6.6%	0	61	37	\$465	\$331	\$144	3.24	2.31	\$321	\$188
CZ04-2	CPAU	CPAU	6.6%	0	61	37	\$248	\$331	\$144	1.73	2.31	\$104	\$188
CZ05	PGE	PGE	6.7%	0	42	24	\$320	\$206	\$144	2.22	1.43	\$176	\$62
CZ05-2	PGE	SCG	6.7%	0	42	24	\$320	\$206	\$144	2.22	1.43	\$176	\$62
CZ06	SCE	SCG	7.1%	0	74	42	\$424	\$351	\$144	2.95	2.44	\$280	\$207
CZ07	SDGE	SDGE	7.6%	0	81	48	\$593	\$374	\$144	4.13	2.60	\$449	\$230
CZ08	SCE	SCG	7.0%	0	84	50	\$484	\$420	\$144	3.37	2.92	\$341	\$276
CZ09	SCE	SCG	6.5%	0	83	51	\$468	\$441	\$144	3.26	3.06	\$324	\$297
CZ10	SCE	SCG	6.5%	0	82	50	\$410	\$427	\$144	2.85	2.97	\$266	\$283
CZ10-2	SDGE	SDGE	6.5%	0	82	50	\$599	\$427	\$144	4.16	2.97	\$455	\$283
CZ11	PGE	PGE	6.8%	0	104	70	\$637	\$635	\$625	1.02	1.02	\$11	\$10
CZ12	PGE	PGE	6.8%	0	93	60	\$572	\$568	\$304	1.88	1.87	\$268	\$265
CZ12-2	SMUD	PGE	6.8%	0	93	71	\$319	\$568	\$304	1.05	1.87	\$15	\$265
CZ13	PGE	PGE	7.3%	0	132	89	\$798	\$779	\$625	1.28	1.25	\$173	\$154
CZ14	SCE	SCG	6.0%	0	80	49	\$407	\$449	\$304	1.34	1.48	\$103	\$145
CZ14-2	SDGE	SDGE	6.0%	0	80	49	\$576	\$449	\$304	1.90	1.48	\$273	\$145
CZ15	SCE	SCG	6.8%	0	145	93	\$719	\$802	\$625	1.15	1.28	\$94	\$177
CZ16	PGE	PGE	7.4%	0	117	76	\$646	\$563	\$625	1.03	0.90	\$21	(\$62)

¹ Values in red indicate B/C ratios less than 1.

Table 8: Mixed-Fuel Package Results: PV + Efficiency 0.2 kW_{DC} per Apartment (SAVINGS/COST PER APARTMENT)

Climate Zone	Elec Utility	Gas Utility	Comp. Margin	Total Gas Savings (therms)	Total Electric Savings (kWh)	GHG Reductions (lb. CO ₂)	Savings (2020 PV\$)		Incremental Cost (2020 PV\$)	B/C Ratio ¹		NPV	
							Utility Cost Savings	TDV Savings		On-Bill	TDV	On-Bill	TDV
CZ01	PGE	PGE	5.8%	0	291	131	\$1,637	\$1,090	\$937	1.75	1.16	\$701	\$153
CZ02	PGE	PGE	5.9%	0	360	163	\$2,431	\$1,469	\$777	3.13	1.89	\$1,655	\$692
CZ03	PGE	PGE	6.7%	0	359	161	\$2,400	\$1,397	\$777	3.09	1.80	\$1,624	\$620
CZ04	PGE	PGE	6.6%	0	385	176	\$2,579	\$1,562	\$777	3.32	2.01	\$1,802	\$785
CZ04-2	CPAU	CPAU	6.6%	0	61	176	\$1,335	\$1,562	\$777	1.72	2.01	\$558	\$785
CZ05	PGE	PGE	6.7%	0	379	168	\$2,480	\$1,461	\$777	3.19	1.88	\$1,704	\$685
CZ05-2	PGE	SCG	6.7%	0	379	168	\$2,480	\$1,461	\$777	3.19	1.88	\$1,704	\$685
CZ06	SCE	SCG	7.1%	0	392	178	\$1,987	\$1,587	\$777	2.56	2.04	\$1,210	\$810
CZ07	SDGE	SDGE	7.6%	0	411	189	\$2,770	\$1,647	\$777	3.57	2.12	\$1,993	\$870
CZ08	SCE	SCG	7.0%	0	402	186	\$2,059	\$1,708	\$777	2.65	2.20	\$1,282	\$931
CZ09	SCE	SCG	6.5%	0	410	192	\$1,876	\$1,742	\$777	2.41	2.24	\$1,099	\$965
CZ10	SCE	SCG	6.5%	0	409	190	\$1,797	\$1,681	\$777	2.31	2.16	\$1,020	\$904
CZ10-2	SDGE	SDGE	6.5%	0	409	190	\$2,646	\$1,681	\$777	3.41	2.16	\$1,869	\$904
CZ11	PGE	PGE	6.8%	0	422	206	\$2,438	\$1,877	\$1,258	1.94	1.49	\$1,180	\$619
CZ12	PGE	PGE	6.8%	0	406	193	\$2,352	\$1,794	\$937	2.51	1.91	\$1,415	\$857
CZ12-2	SMUD	PGE	6.8%	0	406	193	\$1,226	\$1,794	\$937	1.31	1.91	\$289	\$857
CZ13	PGE	PGE	7.3%	0	441	221	\$2,548	\$1,965	\$1,258	2.03	1.56	\$1,290	\$707
CZ14	SCE	SCG	6.0%	0	439	201	\$1,923	\$1,901	\$937	2.05	2.03	\$987	\$964
CZ14-2	SDGE	SDGE	6.0%	0	439	201	\$2,819	\$1,901	\$937	3.01	2.03	\$1,882	\$964
CZ15	SCE	SCG	6.8%	0	478	234	\$2,128	\$2,110	\$1,258	1.69	1.68	\$870	\$852
CZ16	PGE	PGE	7.4%	0	457	222	\$2,567	\$1,818	\$1,258	2.04	1.44	\$1,309	\$560

¹ Values in red indicate B/C ratios less than 1.

Table 9: All-Electric Package Results: Efficiency Only (SAVINGS/COSTS PER APARTMENT)

Climate Zone	Elec Utility	Gas Utility	Comp. Margin	Total Gas Savings (therms)	Total Electric Savings (kWh)	GHG Reductions (lb. CO2)	Savings (2020 PV\$)		Incremental Cost (2020 PV\$)	B/C Ratio ^{1,2}		NPV	
							Utility Cost Savings	TDV Savings		On-Bill	TDV	On-Bill	TDV
CZ01	PGE	PGE	-0.4%	125	-873	1040	-\$674	\$199	-\$446	0.7	>1	(\$228)	\$645
CZ02	PGE	PGE	1.6%	114	-762	971	-\$238	\$528	-\$606	2.5	>1	\$368	\$1,134
CZ03	PGE	PGE	1.1%	115	-767	975	-\$287	\$390	-\$606	2.1	>1	\$319	\$996
CZ04	PGE	PGE	3.4%	111	-714	952	-\$102	\$625	-\$606	6.0	>1	\$504	\$1,231
CZ04-2	CPAU	CPAU	3.4%	111	-714	952	\$345	\$625	-\$606	>1	>1	\$951	\$1,231
CZ05	PGE	PGE	1.3%	117	-788	991	-\$350	\$391	-\$606	1.7	>1	\$255	\$996
CZ05-2	PGE	SCG	1.3%	117	-788	991	-\$827	\$391	-\$606	0.7	>1	(\$221)	\$996
CZ06	SCE	SCG	3.7%	107	-670	933	\$153	\$612	-\$606	>1	>1	\$759	\$1,218
CZ07	SDGE	SDGE	4.8%	106	-653	930	-\$58	\$665	-\$606	10.4	>1	\$547	\$1,271
CZ08	SCE	SCG	3.9%	104	-633	912	\$227	\$693	-\$606	>1	>1	\$833	\$1,298
CZ09	SCE	SCG	3.8%	104	-633	912	\$212	\$739	-\$606	>1	>1	\$817	\$1,345
CZ10	SCE	SCG	1.8%	90	-626	743	-\$214	\$396	-\$853	4.0	>1	\$639	\$1,249
CZ10-2	SDGE	SDGE	1.8%	90	-626	743	-\$478	\$396	-\$853	1.8	>1	\$375	\$1,249
CZ11	PGE	PGE	2.0%	91	-619	769	-\$241	\$430	-\$371	1.5	>1	\$130	\$802
CZ12	PGE	PGE	1.4%	94	-662	773	-\$414	\$288	-\$693	1.7	>1	\$279	\$980
CZ12-2	SMUD	PGE	1.4%	94	-662	773	\$1,060	\$288	-\$693	>1	>1	\$1,753	\$980
CZ13	PGE	PGE	2.6%	90	-579	777	-\$62	\$505	-\$371	6.0	>1	\$309	\$876
CZ14	SCE	SCG	1.1%	92	-653	759	-\$258	\$305	-\$693	2.7	>1	\$435	\$998
CZ14-2	SDGE	SDGE	1.1%	92	-653	759	-\$532	\$305	-\$693	1.3	>1	\$161	\$998
CZ15	SCE	SCG	4.4%	74	-409	679	\$332	\$832	-\$371	>1	>1	\$704	\$1,203
CZ16	PGE	PGE	-5.8%	108	-777	895	-\$621	\$127	-\$371	0.6	>1	(\$250)	\$498

¹ Values in red indicate B/C ratios less than 1.

² ">1" indicates cases where there are both incremental measure cost savings and energy cost savings.



Table 10: All-Electric Package Results: PV + Efficiency 0.1 kW_{DC} per Apartment (SAVINGS/COSTS PER APARTMENT)

Climate Zone	Elec Utility	Gas Utility	Comp. Margin	Total Gas Savings (therms)	Total Electric Savings (kWh)	GHG Reductions (lb. CO ₂)	Savings (2020 PV\$)		Incremental Cost (2020 PV\$)	B/C Ratio ^{1,2}		NPV	
							Utility Cost Savings	TDV Savings		On-Bill	TDV	On-Bill	TDV
CZ01	PGE	PGE	-0.4%	125	-741	1,097	\$78	\$692	-\$129	>1	>1	\$208	\$821
CZ02	PGE	PGE	1.6%	114	-606	1,038	\$782	\$1,120	-\$289	>1	>1	\$1,071	\$1,409
CZ03	PGE	PGE	1.1%	115	-609	1,042	\$741	\$975	-\$289	>1	>1	\$1,030	\$1,264
CZ04	PGE	PGE	3.4%	111	-552	1,021	\$955	\$1,240	-\$289	>1	>1	\$1,244	\$1,529
CZ04-2	CPAU	CPAU	3.4%	111	-714	1,021	\$904	\$1,240	-\$289	>1	>1	\$1,194	\$1,529
CZ05	PGE	PGE	1.3%	117	-619	1,063	\$730	\$1,018	-\$289	>1	>1	\$1,019	\$1,307
CZ05-2	PGE	SCG	1.3%	117	-619	1,063	\$254	\$1,018	-\$289	>1	>1	\$543	\$1,307
CZ06	SCE	SCG	3.7%	107	-512	1,001	\$935	\$1,231	-\$289	>1	>1	\$1,224	\$1,520
CZ07	SDGE	SDGE	4.8%	106	-488	1,000	\$1,049	\$1,302	-\$289	>1	>1	\$1,339	\$1,591
CZ08	SCE	SCG	3.9%	104	-474	981	\$1,014	\$1,337	-\$289	>1	>1	\$1,304	\$1,626
CZ09	SCE	SCG	3.8%	104	-469	983	\$924	\$1,390	-\$289	>1	>1	\$1,213	\$1,679
CZ10	SCE	SCG	1.8%	90	-463	813	\$480	\$1,023	-\$536	>1	>1	\$1,016	\$1,559
CZ10-2	SDGE	SDGE	1.8%	90	-463	813	\$546	\$1,023	-\$536	>1	>1	\$1,082	\$1,559
CZ11	PGE	PGE	2.0%	91	-460	837	\$660	\$1,052	-\$55	>1	>1	\$714	\$1,106
CZ12	PGE	PGE	1.4%	94	-505	839	\$476	\$900	-\$376	>1	>1	\$852	\$1,276
CZ12-2	SMUD	PGE	1.4%	94	-505	839	\$1,513	\$900	-\$376	>1	>1	\$1,890	\$1,276
CZ13	PGE	PGE	2.6%	90	-424	843	\$813	\$1,098	-\$55	>1	>1	\$867	\$1,153
CZ14	SCE	SCG	1.1%	92	-473	835	\$500	\$1,031	-\$376	>1	>1	\$877	\$1,407
CZ14-2	SDGE	SDGE	1.1%	92	-473	835	\$589	\$1,031	-\$376	>1	>1	\$965	\$1,407
CZ15	SCE	SCG	4.4%	74	-242	750	\$1,037	\$1,485	-\$55	>1	>1	\$1,091	\$1,540
CZ16	PGE	PGE	-5.8%	108	-608	969	\$339	\$754	-\$55	>1	>1	\$394	\$809

¹ Values in red indicate B/C ratios less than 1.² ">1" indicates cases where there are both incremental measure cost savings and energy cost savings.

Table 11: Mixed-Fuel Measure Package Summary

Climate Zone	Compliance Margin	MEASURE SPECIFICATION				
		Window U-value	Window SHGC	Add Wall Ins.	Fan Watt Draw	HERS Pipe Ins.
CZ01	5.8%			+ 1"	0.25 W/cfm	No
CZ02	5.9%		0.22		0.25 W/cfm	No
CZ03	6.7%		0.22		0.25 W/cfm	No
CZ04	6.6%		0.22		0.25 W/cfm	No
CZ05	6.7%		0.22		0.25 W/cfm	No
CZ06	7.1%		0.22		0.25 W/cfm	No
CZ07	7.6%		0.22		0.25 W/cfm	No
CZ08	7.0%		0.22		0.25 W/cfm	No
CZ09	6.5%		0.22		0.25 W/cfm	No
CZ10	6.5%		0.22		0.25 W/cfm	No
CZ11	6.8%	0.25	0.22	+ 1"	0.25 W/cfm	No
CZ12	7.3%		0.22	+ 1"	0.25 W/cfm	No
CZ13	7.3%	0.25	0.22	+ 1"	0.25 W/cfm	No
CZ14	6.8%		0.22	+ 1"	0.25 W/cfm	No
CZ15	6.8%	0.25	0.22	+ 1"	0.25 W/cfm	No
CZ16	7.4%	0.25	0.22	+ 1"	0.25 W/cfm	No

Table 12: All-Electric Measure Package Summary

Climate Zone	Compliance Margin	MEASURE SPECIFICATION				
		Window U-value	Window SHGC	Add Wall Ins.	Fan Watt Draw	HERS Pipe Ins.
CZ01	-0.4%			+ 1"	0.25 W/cfm	Yes
CZ02	1.6%		0.22		0.25 W/cfm	Yes
CZ03	1.1%		0.22		0.25 W/cfm	Yes
CZ04	3.4%		0.22		0.25 W/cfm	Yes
CZ05	1.3%		0.22		0.25 W/cfm	Yes
CZ06	3.7%		0.22		0.25 W/cfm	Yes
CZ07	4.8%		0.22		0.25 W/cfm	Yes
CZ08	3.9%		0.22		0.25 W/cfm	Yes
CZ09	3.8%		0.22		0.25 W/cfm	Yes
CZ10	1.8%		0.22		0.25 W/cfm	Yes
CZ11	2.0%	0.25	0.22	+ 1"	0.25 W/cfm	Yes
CZ12	2.0%		0.22	+ 1"	0.25 W/cfm	Yes
CZ13	2.6%	0.25	0.22	+ 1"	0.25 W/cfm	Yes
CZ14	2.0%		0.22	+ 1"	0.25 W/cfm	Yes
CZ15	4.4%	0.25	0.22	+ 1"	0.25 W/cfm	Yes
CZ16	-5.8%	0.25	0.22	+ 1"	0.25 W/cfm	Yes



4 Conclusions & Summary

This report evaluated the feasibility and cost-effectiveness of “above code” performance specifications for newly constructed mid-rise multifamily buildings. The analysis included application of efficiency measures, electric appliances, and PV in all 16 California climate zones, and found cost-effective packages across the state. For the building designs and climate zones where cost-effective packages were identified, the results of this analysis can be used by local jurisdictions to support the adoption of reach codes. Cost-effectiveness was evaluated according to two metrics: On-Bill customer lifecycle benefit-to-cost ratio and TDV lifecycle benefit-to-cost ratio.

For mixed-fuel buildings, this analysis demonstrates that there are cost-effective **Efficiency Only** packages that achieve a minimum 5% compliance margin in most climate zones. The exception is Climate Zone 1 where the package was not cost-effective based on either the TDV or the On-Bill methodology. In all other cases the package is cost-effective for at least one of the metrics.

When 0.1 kW_{DC} per apartment is included, all climate zones are cost-effective based on at least one of the metrics. The addition of 0.1 kW_{DC} per apartment, or 8.8 kW_{DC} total for the building, results in an incremental cost for the PV system of \$27,855. When 0.2 kW_{DC} per apartment is included, all climate zones are cost-effective based on both metrics. The addition of 0.2 kW_{DC} per apartment, or 17.6 kW_{DC} for the building, results in an incremental cost for the PV system of \$55,711.

This study evaluated electrification of residential loads in new mid-rise multifamily buildings. Based on typical construction across California, the basecase condition incorporated all electric appliances within the apartment spaces. As a result, only central water heating was converted from natural gas to electric as part of this analysis. For all-electric buildings, this analysis demonstrates that there are cost-effective **All-Electric Efficiency Only** packages that meet minimum Title 24 code compliance in all climate zones except 1 and 16. The package is cost-effective based on the TDV methodology in all climate zones. It is cost-effective based on the On-Bill methodology in Climate Zones 2 through 15, except for Climate Zones 5 in SCG territory.

When 0.1 kW_{DC} per apartment is included, all climate zones are cost-effective based on both metrics. The addition of 0.1 kW_{DC} per apartment, or 8.8 kW_{DC} for the building, results in an incremental cost for the PV system of \$27,855.

Additional considerations

- This study found that electrification of central domestic hot water loads, in combination with efficiency measures, can result in a benefit to the consumer through lower utility bills under certain electricity and gas tariff scenarios (Climate Zones 6, 8, 9, 15, 4 in CPAU territory, and 12 in SMUD territory). The all-electric results demonstrate a trend with On-Bill cost-effectiveness across the different electric utilities. Net Present Value in SCE and SDG&E territories, as well as SMUD and CPAU territories, are typically higher than the cases in PG&E territory. This indicates that rate design can play an important role in encouraging or discouraging electrification.
- This study did not evaluate federally preempted high efficiency appliances. Specifying high efficiency equipment is a viable approach to meeting Title 24 code compliance and local ordinance requirements and is commonly used by project teams. Other studies have found that efficiency packages and electrification packages that employ high efficiency equipment can be quite cost-effective ((Statewide Reach Code Team, 2019b), (Energy & Environmental Economics. 2019)).
- If PV capacity is added to both the mixed-fuel and all-electric efficiency packages, all cases are cost-effective based on at least one of the two evaluated metrics. In some cases, cost-effectiveness improves, and in other cases it decreases relative to the case with efficiency and/or electrification measures only. The cost-effectiveness of adding PV up to 1 kW per apartment, as an independent measure, results in On-Bill benefit-to-cost ratios between 2.3 and 3.1 for PGE territory, 2.1 to 2.3 for SCE territory, and 3.2 to 3.5 for SDG&E territory. The TDV B/C ratio for PV alone is approximately 2.0 for most climate zones



for all service territories. Adding PV in addition to the efficiency packages improves cost-effectiveness where the B/C ratios for the efficiency measures alone are lower than the B/C ratios for PV alone, and vice versa where they are higher. Annual basecase electricity costs and annual utility savings from PV are lower in SCE territory than in PG&E and SDG&E territories. This is due to lower off-peak cost and a bigger difference in peak versus off-peak rate for the TOU-D SCE electricity rate tariff. Most PV production occurs during off-peak times (4 pm to 9 pm peak period).

Table 13 summarizes compliance margin and cost-effectiveness results for the mixed-fuel and all-electric cases. Compliance margin is reported in the cells and cost-effectiveness is indicated by the color of the cell according to the following:

- Cells highlighted in green depict a positive compliance margin and cost-effective results using both On-Bill and TDV approaches.
- Cells highlighted in yellow depict a positive compliance margin and cost-effective results using either the On-Bill or TDV approach but not both.
- Cells not highlighted either depict a negative compliance margin (red text) or a package that was not cost-effective using either the On-Bill or TDV approach.

For more detail on the results, please refer to *Section 3.1 Mid-Rise Multifamily Results, Appendix D – Detailed Results Mixed-Fuel* and *Appendix E – Detailed Results All-Electric*.

Table 13: Mid-Rise Multifamily Summary of Compliance Margin and Cost-Effectiveness

Climate Zone	Elec Utility	Gas Utility	Mixed-Fuel				All-Electric			
			No PV	0.1 kW _{DC} /Apt	0.2 kW _{DC} /Apt	0.3 kW _{DC} /Apt	No PV	0.1 kW _{DC} /Apt	0.2 kW _{DC} /Apt	0.3 kW _{DC} /Apt
CZ01	PGE	PGE	5.8%	5.8%	5.8%	5.8%	-0.4%	-0.4%	-0.4%	-0.4%
CZ02	PGE	PGE	5.9%	5.9%	5.9%	5.9%	1.6%	1.6%	1.6%	1.6%
CZ03	PGE	PGE	6.7%	6.7%	6.7%	6.7%	1.1%	1.1%	1.1%	1.1%
CZ04	PGE	PGE	6.6%	6.6%	6.6%	6.6%	3.4%	3.4%	3.4%	3.4%
CZ04-2	CPAU	CPAU	6.6%	6.6%	6.6%	6.6%	3.4%	3.4%	3.4%	3.4%
CZ05	PGE	PGE	6.7%	6.7%	6.7%	6.7%	1.3%	1.3%	1.3%	1.3%
CZ05-2	PGE	SCG	6.7%	6.7%	6.7%	6.7%	1.3%	1.3%	1.3%	1.3%
CZ06	SCE	SCG	7.1%	7.1%	7.1%	7.1%	3.7%	3.7%	3.7%	3.7%
CZ07	SDGE	SDGE	7.6%	7.6%	7.6%	7.6%	4.8%	4.8%	4.8%	4.8%
CZ08	SCE	SCG	7.0%	7.0%	7.0%	7.0%	3.9%	3.9%	3.9%	3.9%
CZ09	SCE	SCG	6.5%	6.5%	6.5%	6.5%	3.8%	3.8%	3.8%	3.8%
CZ10	SCE	SCG	6.5%	6.5%	6.5%	6.5%	1.8%	1.8%	1.8%	1.8%
CZ10-2	SDGE	SDGE	6.5%	6.5%	6.5%	6.5%	1.8%	1.8%	1.8%	1.8%
CZ11	PGE	PGE	6.8%	6.8%	6.8%	6.8%	2.0%	2.0%	2.0%	2.0%
CZ12	PGE	PGE	6.8%	6.8%	6.8%	6.8%	1.4%	1.4%	1.4%	1.4%
CZ12-2	SMUD	PGE	6.8%	6.8%	6.8%	6.8%	1.4%	1.4%	1.4%	1.4%
CZ13	PGE	PGE	7.3%	7.3%	7.3%	7.3%	2.6%	2.6%	2.6%	2.6%
CZ14	SCE	SCG	6.0%	6.0%	6.0%	6.0%	1.1%	1.1%	1.1%	1.1%
CZ14-2	SDGE	SDGE	6.0%	6.0%	6.0%	6.0%	1.1%	1.1%	1.1%	1.1%
CZ15	SCE	SCG	6.8%	6.8%	6.8%	6.8%	4.4%	4.4%	4.4%	4.4%
CZ16	PGE	PGE	7.4%	7.4%	7.4%	7.4%	-5.8%	-5.8%	-5.8%	-5.8%



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Appendix A – California Climate Zone Map

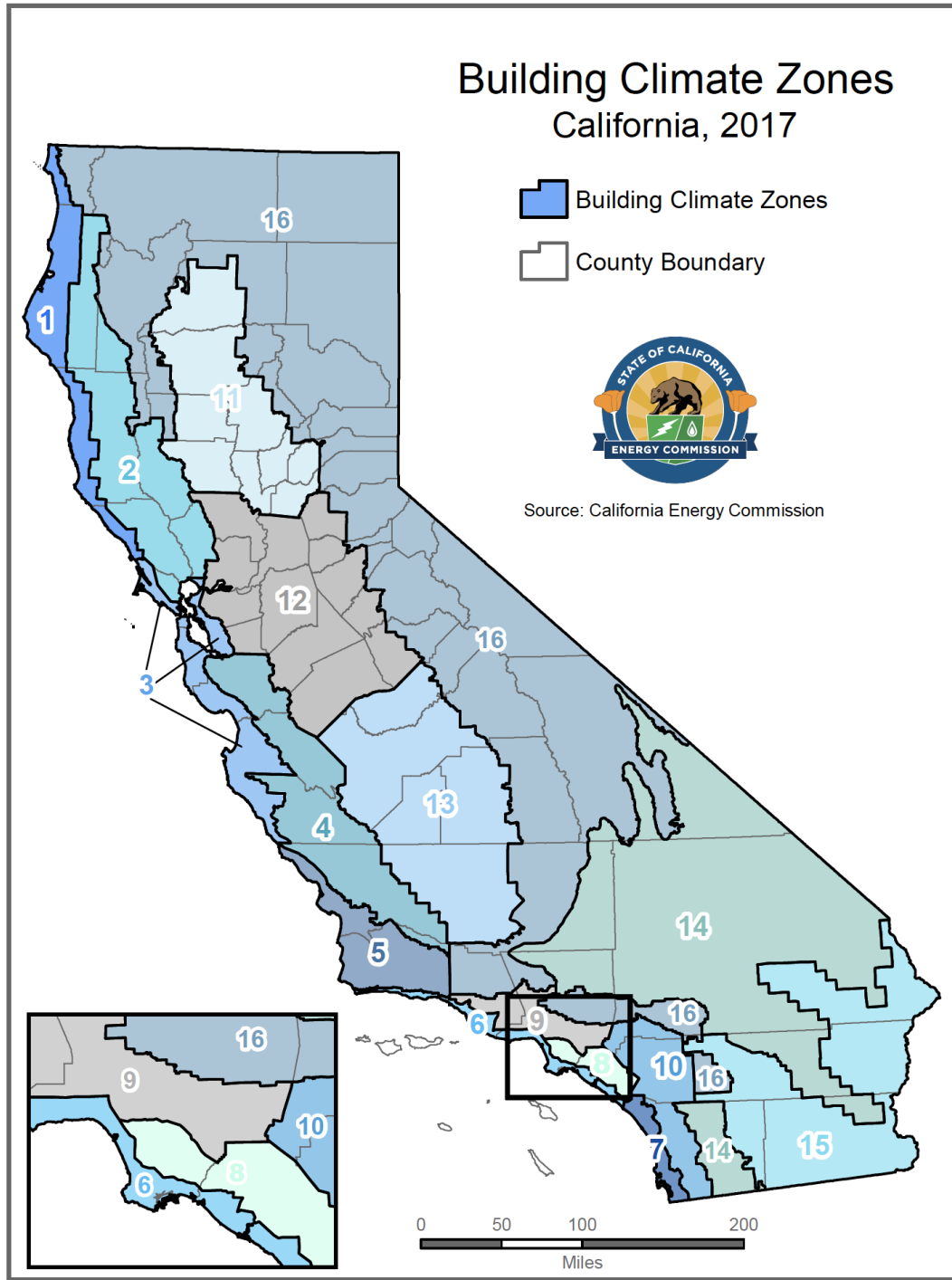


Figure 3: Map of California climate zones. (Source, California Energy Commission³)

³ https://ww2.energy.ca.gov/maps/renewable/building_climate_zones.html



Appendix B – Utility Tariff Details

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PG&E

The following pages provide details on the PG&E electricity and natural gas tariffs applied in this study. Table 14 describes the baseline territories that were assumed for each climate zone.

Table 14: PG&E Baseline Territory by Climate Zone

	Baseline Territory
CZ01	V
CZ02	X
CZ03	T
CZ04	X
CZ05	T
CZ11	R
CZ12	S
CZ13	R
CZ16	Y

The PG&E monthly gas rate in \$/therm was applied on a monthly basis for the 12-month period ending April 2020 according to the rates shown in Table 15. Rates are based on historical data provided by PG&E.⁴

Table 15: PG&E Monthly Gas Rate (\$/Therm)

Month	Procurement Charge	Transportation Charge		Total Charge	
		Baseline	Excess	Baseline	Excess
Jan 2020	\$0.45813	\$0.99712	\$1.59540	\$1.45525	\$2.05353
Feb 2020	\$0.44791	\$0.99712	\$1.59540	\$1.44503	\$2.04331
Mar 2020	\$0.35346	\$1.13126	\$1.64861	\$1.48472	\$2.00207
Apr 2020	\$0.23856	\$1.13126	\$1.64861	\$1.36982	\$1.88717
May 2019	\$0.21791	\$0.99933	\$1.59892	\$1.21724	\$1.81683
June 2019	\$0.20648	\$0.99933	\$1.59892	\$1.20581	\$1.80540
July 2019	\$0.28462	\$0.99933	\$1.59892	\$1.28395	\$1.88354
Aug 2019	\$0.30094	\$0.96652	\$1.54643	\$1.26746	\$1.84737
Sept 2019	\$0.25651	\$0.96652	\$1.54643	\$1.22303	\$1.80294
Oct 2019	\$0.27403	\$0.98932	\$1.58292	\$1.26335	\$1.85695
Nov 2019	\$0.33311	\$0.96729	\$1.54767	\$1.30040	\$1.88078
Dec 2019	\$0.40178 ^{7/}	\$0.96729	\$1.54767	\$1.36907	\$1.94945

⁴The PG&E procurement and transportation charges were obtained from the following site:

<https://www.pge.com/tariffs/GRF.SHTML#RESGAS>





**Pacific Gas and
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U 39 San Francisco, California

Cancelling Revised

Cal. P.U.C. Sheet No. 46539-E
Cal. P.U.C. Sheet No. 46325-E

ELECTRIC SCHEDULE E-TOU-C
RESIDENTIAL TIME-OF-USE (PEAK PRICING 4 - 9 p.m. EVERY DAY)

Sheet 2

RATES:
(Cont'd.)

E-TOU-C TOTAL RATES

Total Energy Rates (\$ per kWh)	PEAK		OFF-PEAK	
<i>Summer</i>				
Total Usage	\$0.41333	(I)	\$0.34989	(I)
Baseline Credit (Applied to Baseline Usage Only)	(\$0.08633)	(R)	(\$0.08633)	(R)
<i>Winter</i>				
Total Usage	\$0.31624	(I)	\$0.29891	(I)
Baseline Credit (Applied to Baseline Usage Only)	(\$0.08633)	(R)	(\$0.08633)	(R)
Delivery Minimum Bill Amount (\$ per meter per day)	\$0.32854			
California Climate Credit (per household, per semi-annual payment occurring in the April and October bill cycles) [†]	(\$35.73)			(T)

Total bundled service charges shown on customer's bills are unbundled according to the component rates shown below. Where the delivery minimum bill amount applies, the customer's bill will equal the sum of (1) the delivery minimum bill amount plus (2) for bundled service, the generation rate times the number of kWh used. For revenue accounting purposes, the revenues from the delivery minimum bill amount will be assigned to the Transmission, Transmission Rate Adjustments, Reliability Services, Public Purpose Programs, Nuclear Decommissioning, Competition Transition Charges, Energy Cost Recovery Amount, DWR Bond, and New System Generation Charges based on kWh usage times the corresponding unbundled rate component per kWh, with any residual revenue assigned to Distribution.

[†] Pursuant to D.20-04-027, distribution of the October 2020 California Climate Credit will be advanced and split to the May 2020 and June 2020 bill cycles, \$17.87 and \$17.86 respectively.. (N)
(N)

(Continued)

Advice 5661-E-B
Decision

Issued by
Robert S. Kenney
Vice President, Regulatory Affairs

Submitted April 28, 2020
Effective May 1, 2020
Resolution





**Pacific Gas and
Electric Company**

San Francisco, California

Cancelling Revised Cal. P.U.C. Sheet No. 46540-E
Revised Cal. P.U.C. Sheet No. 46252-E

ELECTRIC SCHEDULE E-TOU-C
RESIDENTIAL TIME-OF-USE (PEAK PRICING 4 - 9 p.m. EVERY DAY)

Sheet 3

RATES:
(Cont'd.)

UNBUNDLING OF E-TOU-C TOTAL RATES

Energy Rates by Component (\$ per kWh)	PEAK		OFF-PEAK	
Generation:				
Summer (all usage)	\$0.16735	(R)	\$0.11391	(R)
Winter (all usage)	\$0.11859	(R)	\$0.10356	(R)
Distribution**:				
Summer (all usage)	\$0.12767	(I)	\$0.11767	(I)
Winter (all usage)	\$0.07935	(I)	\$0.07705	(I)
Conservation Incentive Adjustment (Baseline Usage)			(\$0.03294)	(I)
Conservation Incentive Adjustment (Over Baseline Usage)			\$0.05339	(I)
Transmission* (all usage)			\$0.03595	
Transmission Rate Adjustments* (all usage)			\$0.00314	
Reliability Services* (all usage)			(\$0.00066)	
Public Purpose Programs (all usage)			\$0.01296	(I)
Nuclear Decommissioning (all usage)			\$0.00101	(I)
Competition Transition Charges (all usage)			\$0.00096	(R)
Energy Cost Recovery Amount (all usage)			\$0.00005	(I)
DWR Bond (all usage)			\$0.00580	
New System Generation Charge (all usage)**			\$0.00571	(I)

* Transmission, Transmission Rate Adjustments and Reliability Service charges are combined for presentation on customer bills.

** Distribution and New System Generation Charges are combined for presentation on customer bills.

(Continued)

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**Pacific Gas and
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San Francisco, California

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Revised

Cal. P.U.C. Sheet No. 48190-E
Cal. P.U.C. Sheet No. 43414-E

ELECTRIC SCHEDULE E-TOU-C
RESIDENTIAL TIME-OF-USE (PEAK PRICING 4 - 9 p.m. EVERY DAY)

Sheet 4 (T)

**SPECIAL
CONDITIONS:**

1. **BASELINE (TIER 1) QUANTITIES:** The following quantities of electricity are to be used to define usage eligible for the baseline credit (also see Rule 19 for additional allowances for medical needs):

BASELINE QUANTITIES (kWh PER DAY)				
Baseline Territory*	Code B - Basic Quantities		Code H - All-Electric Quantities	
	Summer	Winter	Summer	Winter
	Tier I	Tier I	Tier I	Tier I
P	14.2	12.0	16.0	27.4
Q	10.3	12.0	8.9	27.4
R	18.6	11.3	20.9	28.1
S	15.8	11.1	18.7	24.9
T	6.8	8.2	7.5	13.6
V	7.5	8.8	10.9	16.9
W	20.2	10.7	23.6	20.0
X	10.3	10.5	8.9	15.4
Y	11.0	12.1	12.6	25.3
Z	6.2	8.1	7.0	16.5

2. **TIME PERIODS FOR E-TOU-C:** Times of the year and times of the day are defined as follows: (T)

Summer (service from June 1 through September 30):

Peak: 4:00 p.m. to 9:00 p.m. All days

Off-Peak: All other times

Winter (service from October 1 through May 31):

Peak: 4:00 p.m. to 9:00 p.m. All days

Off-Peak: All other times

* The applicable baseline territory is described in Part A of the Preliminary Statement

(Continued)

Advice	5759-E	Issued by	Submitted	February 14, 2020
Decision	D.19-07-004	Robert S. Kenney	Effective	March 1, 2020
		Vice President, Regulatory Affairs	Resolution	





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San Francisco, California

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Cal. P.U.C. Sheet No.
Cal. P.U.C. Sheet No.

35762-G
35696-G

GAS SCHEDULE GM
MASTER-METERED MULTIFAMILY SERVICE

Sheet 2

RATES: Customers on this schedule pay a Procurement Charge and a Transportation Charge, per meter, as follows:

	<u>Baseline</u>	<u>Per Therm</u>	<u>Excess</u>
<u>Procurement Charge:</u>	\$0.23856 (R)	\$0.23856 (R)	
<u>Transportation Charge:</u>	\$1.13126	\$1.64861	
Total:	\$1.36982 (R)	\$1.88717 (R)	

California Natural Gas Climate Credit (\$27.18)
(per Household, annual payment
occurring in the April bill cycle)

Public Purpose Program Surcharge:

Customers served under this schedule are subject to a gas Public Purpose Program (PPP) Surcharge under Schedule G-PPPS.

See Preliminary Statement, Part B for the Default Tariff Rate Components.

The Procurement Charge on this schedule is equivalent to the rate shown on informational Schedule G-CP—Gas Procurement Service to Core End-Use Customers.





**Pacific Gas and
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U 39

San Francisco, California

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Revised

Cal. P.U.C. Sheet No. 35447-G

Cal. P.U.C. Sheet No. 34307-G

GAS SCHEDULE GM
MASTER-METERED MULTIFAMILY SERVICE

Sheet 3

**BASELINE
QUANTITIES:**

The above rates are applicable only to residential use. PG&E may require the Customer to submit a completed "Declaration of Eligibility for Baseline Quantities for Residential Rates." The delivered quantities of gas shown below are billed at the rates for baseline use. As an exception, service under this schedule not used to supply space heating but used to supply water heating from a central source to residential dwelling units that are individually metered by PG&E for either gas or electricity will be billed using a baseline quantity of 0.5 therms per dwelling unit per day (Code W) in all baseline territories and in both seasons.

Baseline Territories	BASELINE QUANTITIES (Therms Per Day Per Dwelling Unit)						(T) (T)
	Summer (April-October)		Winter Off-Peak (Nov, Feb, Mar)		Winter On-Peak (Dec, Jan)		
	Effective Apr. 1, 2020		Effective Nov. 1, 2019		Effective Dec. 1, 2019		
**	0.29	(R)	0.87	(R)	1.00	(I)	
P	0.49	(R)	0.64	(R)	0.77	(I)	
Q	0.33	(R)	0.84	(R)	1.19	(I)	
R	0.29	(R)	0.54	(R)	0.68	(I)	
S	0.49	(R)	0.94	(R)	1.06	(R)	
T	0.56		1.18	(R)	1.29	(I)	
V	0.23	(R)	0.61	(R)	0.87	(R)	
W	0.33	(R)	0.64	(R)	0.77	(I)	
X	0.36		0.87	(R)	1.00	(I)	
Y							

**SEASONAL
CHANGES:**

The summer season is April-October, the winter off-peak season is November, February and March, and the winter on-peak season is December and January. Baseline quantities for bills that include the April 1, November 1 and December 1 seasonal changeover dates will be calculated by multiplying the applicable daily baseline quantity for each season by the number of days in each season for the billing period.

**STANDARD
MEDICAL
QUANTITIES:**

Additional medical quantities (Code M) are available as provided in Rule 19.

**RESIDENTIAL
DWELLING
UNITS:**

It is the responsibility of the Customer to advise PG&E within 15 days following any change in the number of residential dwelling units, mobile home spaces, and permanent-residence RV units receiving gas service.

**CENTRAL
BOILERS:**

Service to central boilers for water and/or space heating will be billed with monthly baseline quantities related to the number of dwelling units furnished such water and/or space heating.



SCE

The following pages provide details on are the SCE electricity tariffs applied in this study. Table 16 describes the baseline territories that were assumed for each climate zone.

Table 16: SCE Baseline Territory by Climate Zone

	Baseline Territory
CZ06	6
CZ08	8
CZ09	9
CZ10	10
CZ14	14
CZ15	15

Schedule TOU-D
TIME-OF-USE
DOMESTIC
(Continued)

Sheet 2

RATES

Customers receiving service under this Schedule will be charged the applicable rates under Option 4-9 PM, Option 4-9 PM-CPP, Option 5-8 PM, Option 5-8 PM-CPP, Option PRIME, Option PRIME-CPP Option A, Option A-CPP, Option B, or Option B-CPP, as listed below. CPP Event Charges will apply to all energy usage during CPP Event Energy Charge periods and CPP Non-Event Energy Credits will apply as a reduction on CPP Non-Event Energy Credit Periods during Summer Season weekdays, 4:00 p.m. to 9:00 p.m., as described in Special Conditions 1 and 3, below:

		Delivery Service		
		Total*	UG***	DWREC*
Option 4-9 PM / Option 4-9 PM-CPP				
Energy Charge - \$/kWh				
Summer Season - On-Peak	0.21574 (I)	0.17870 (I)	(0.00007)	
Mid-Peak	0.21574 (I)	0.10434 (R)	(0.00007)	
Off-Peak	0.17099 (I)	0.07584 (R)	(0.00007)	
Winter Season - Mid-Peak	0.21574 (I)	0.12676 (R)	(0.00007)	
Off-Peak	0.17099 (I)	0.08874 (R)	(0.00007)	
Super-Off-Peak	0.16567 (I)	0.07025 (R)	(0.00007)	
Baseline Credit**** - \$/kWh	(0.07456) (R)	0.00000		
Basic Charge - \$/day				
Single-Family Residence	0.031			
Multi-Family Residence	0.024			
Minimum Charge** - \$/day				
Single Family Residence	0.346			
Multi-Family Residence	0.346			
Minimum Charge (Medical Baseline)** - \$/day				
Single Family Residence	0.173			
Multi-Family Residence	0.173			
California Climate Credit†	(37.00) (I)			
California Alternate Rates for				
Energy Discount - %	100.00*			
Family Electric Rate Assistance Discount - %	100.00			
Option 4-9 PM-CPP				
CPP Event Energy Charge - \$/kWh			0.80000	
Summer CPP Non-Event Credit				
On-Peak Energy Credit - \$/kWh			(0.15170)	
Maximum Available Credit - \$/kWh*****				
Summer Season			(0.58504) (R)	

* Represents 100% of the discount percentage as shown in the applicable Special Condition of this Schedule.

** The Minimum Charge is applicable when the Delivery Service Energy Charge, plus the applicable Basic Charge is less than the Minimum Charge.

*** The ongoing Competition Transition Charge CTC of \$0.00089 per kWh is recovered in the UG component of Generation.

**** The Baseline Credit applies up to 100% of the Baseline Allocation, regardless of Time of Use. The Baseline Allocation is set forth in Preliminary Statement, Part H.

***** The Maximum Available Credit is the capped credit amount for CPP Customers dual participating in other demand response programs.

1 Total - Total Delivery Service rates are applicable to Bundled Service, Direct Access (DA) and Community Choice Aggregation Service (CCA Service) Customers, except DA and CCA Service Customers are not subject to the DWRBC rate component of this Schedule but instead pay the DWRBC as provided by Schedule DA-CRS or Schedule CCA-CRS.

2 Generation - The Gen rates are applicable only to Bundled Service Customers.

3 DWREC - Department of Water Resources (DWR) Energy Credit - For more information on the DWR Energy Credit, see the Billing Calculation Special Condition of this Schedule.

4 Applied on an equal basis, per household, semi-annually. See the Special Conditions of this Schedule for more information.



Schedule TOU-D
TIME-OF-USE
DOMESTIC
(Continued)

Sheet 12 (T)

SPECIAL CONDITIONS

1. Applicable rate time periods are defined as follows:

Option 4-9 PM, Option 4-9 PM-CPP, Option PRIME, Option PRIME-CPP:

(T)

TOU Period	Weekdays		Weekends and Holidays	
	Summer	Winter	Summer	Winter
On-Peak	4 p.m. - 9 p.m.	N/A	N/A	N/A
Mid-Peak	N/A	4 p.m. - 9 p.m.	4 p.m. - 9 p.m.	4 p.m. - 9 p.m.
Off-Peak	All other hours	9 p.m. - 8 a.m.	All other hours	9 p.m. - 8 a.m.
Super-Off-Peak	N/A	8 a.m. - 4 p.m.	N/A	8 a.m. - 4 p.m.
CPP Event Period	4 p.m. - 9 p.m.	4 p.m. - 9 p.m.	N/A	N/A

Summer Daily Allocations (June through September)

Baseline Region Number	Daily kWh Allocation	All-Electric Allocation
5	17.2	17.9
6	11.4	8.8
8	12.6	9.8
9	16.5	12.4
10	18.9	15.8
13	22.0	24.6
14	18.7	18.3
15	46.4	24.1
16	14.4	13.5



Winter Daily Allocations (October through May)

Baseline Region Number	Daily kWh Allocation	All-Electric Allocation
5	18.7	29.1
6	11.3	13.0
8	10.6	12.7
9	12.3	14.3
10	12.5	17.0
13	12.6	24.3
14	12.0	21.3
15	9.9	18.2
16	12.6	23.1



SoCalGas

Following are the SoCalGas natural gas tariffs applied in this study. Table 17 describes the baseline territories that were assumed for each climate zone.

Table 17: SoCalGas Baseline Territory by Climate Zone

	Baseline Territory
CZ05	2
CZ06	1
CZ08	1
CZ09	1
CZ10	1
CZ14	2
CZ15	1

The SoCalGas monthly gas rate in \$/therm was applied on a monthly basis for the 12-month period ending April 2020 according to the rates shown in Table 18. Historical natural gas rate data was only available for SoCalGas' procurement charges⁵. To estimate total costs by month, the baseline and excess transmission charges were assumed to be relatively consistent and applied for the entire year based on April 2020 costs.

Table 18: SoCalGas Monthly Gas Rate (\$/Therm)

Month	Procurement Charge	Transmission Charge		Total Charge	
		Baseline	Excess	Baseline	Excess
Jan 2020	\$0.34730	\$0.81742	\$1.17186	\$1.16472	\$1.51916
Feb 2020	\$0.28008	\$0.81742	\$1.17186	\$1.09750	\$1.45194
Mar 2020	\$0.22108	\$0.81742	\$1.17186	\$1.03850	\$1.39294
Apr 2020	\$0.20307	\$0.81742	\$1.17186	\$1.02049	\$1.37493
May 2019	\$0.23790	\$0.81742	\$1.17186	\$1.05532	\$1.40976
June 2019	\$0.24822	\$0.81742	\$1.17186	\$1.06564	\$1.42008
July 2019	\$0.28475	\$0.81742	\$1.17186	\$1.10217	\$1.45661
Aug 2019	\$0.27223	\$0.81742	\$1.17186	\$1.08965	\$1.44409
Sept 2019	\$0.26162	\$0.81742	\$1.17186	\$1.07904	\$1.43348
Oct 2019	\$0.30091	\$0.81742	\$1.17186	\$1.11833	\$1.47277
Nov 2019	\$0.27563	\$0.81742	\$1.17186	\$1.09305	\$1.44749
Dec 2019	\$0.38067	\$0.81742	\$1.17186	\$1.19809	\$1.55253

⁵ The SoCalGas procurement and transmission charges were obtained from the following site:

<https://www.socalgas.com/for-your-business/energy-market-services/gas-prices>



SOUTHERN CALIFORNIA GAS COMPANY Revised CAL. P.U.C. SHEET NO. 57458-G
LOS ANGELES, CALIFORNIA CANCELING Revised CAL. P.U.C. SHEET NO. 57432-G

Schedule No. GM

Sheet 2

MULTI-FAMILY SERVICE

(Includes GM-E, GM-C, GM-EC, GM-CC, GT-ME, GT-MC and all GMB Rates)

(Continued)

APPLICABILITY (Continued)

Multi-family Accommodations built prior to December 15, 1981 and currently served under this schedule may also be eligible for service under Schedule No. GS. If an eligible Multi-family Accommodation served under this schedule converts to an applicable submetered tariff, the tenant rental charges shall be revised for the duration of the lease to reflect removal of the energy related charges.

Eligibility for service hereunder is subject to verification by the Utility.

TERRITORY

Applicable throughout the service territory.

RATES

	<u>GM/GT-M</u>	<u>GMB/GT-MB</u>
Customer Charge, per meter, per day:	16.438¢	\$16.357

For "Space Heating Only" customers, a daily Customer Charge applies during the winter period from November 1 through April 30^{1/}: 33.149¢

GM

	<u>GM-E</u>	<u>GM-EC^{3/}</u>	<u>GT-ME</u>	
<u>Baseline Rate, per therm (baseline usage defined per Special Conditions 3 and 4):</u>				
Procurement Charge: ^{2/}	20.307¢	20.307¢	N/A	R
Transmission Charge:	81.742¢	81.742¢	81.742¢	
Total Baseline Charge (all usage):	102.049¢	102.049¢	81.742¢	R
<u>Non-Baseline Rate, per therm (usage in excess of baseline usage):</u>				
Procurement Charge: ^{2/}	20.307¢	20.307¢	N/A	R
Transmission Charge:	117.186¢	117.186¢	117.186¢	
Total Non Baseline Charge (all usage):	137.493¢	137.493¢	117.186¢	R
	<u>GM-C</u>	<u>GM-CC^{3/}</u>	<u>GT-MC</u>	
<u>Non-Baseline Rate, per therm (usage in excess of baseline usage):</u>				
Procurement Charge: ^{2/}	20.307¢	20.307¢	N/A	R
Transmission Charge:	117.186¢	117.186¢	117.186¢	
Total Non Baseline Charge (all usage):	137.493¢	137.493¢	117.186¢	R

^{1/} For the summer period beginning May 1 through October 31, with some exceptions, usage will be accumulated to at least 20 Ccf (100 cubic feet) before billing, or it will be included with the first bill of the heating season which may cover the entire duration since a last bill was generated for the current calendar year. (Footnotes continue next page.)

(Continued)

(TO BE INSERTED BY UTILITY)

ADVICE LETTER NO. 5614

DECISION NO.

207

ISSUED BY

Dan Skopec

Vice President

Regulatory Affairs

(TO BE INSERTED BY CAL. PUC)

SUBMITTED Apr 6, 2020

EFFECTIVE Apr 10, 2020

RESOLUTION NO. G-3351



SOUTHERN CALIFORNIA GAS COMPANY Revised CAL. P.U.C. SHEET NO. 57168-G
LOS ANGELES, CALIFORNIA CANCELING Revised CAL. P.U.C. SHEET NO. 41015-G

Schedule No. GM
MULTI-FAMILY SERVICE

Sheet 5

(Includes GM-E, GM-C, GM-EC, GM-CC, GT-ME, GT-MC and all GMB Rates)

(Continued)

SPECIAL CONDITIONS (Continued)

3. (Continued)

Codes	Per Residence	Daily Therm Allowance for Climate Zones*		
		1	2	3
1	Space heating only			
	Summer	0.000	0.000	0.000
	Winter	1.210	1.343	2.470
2	Water heating and cooking	0.477	0.477	0.477
3	Cooking, water heating and space heating			
	Summer	0.473	0.473	0.473
	Winter	1.691	1.823	2.950
4	Cooking and space heating			
	Summer	0.088	0.088	0.088
	Winter	1.299	1.432	2.559
5	Cooking only	0.089	0.089	0.089
6	Water heating only	0.388	0.388	0.388
7	Water heating and space heating			
	Summer	0.385	0.385	0.385
	Winter	1.601	1.734	2.861

* Climate Zones are described in the Preliminary Statement.

4. **Medical Baseline:** Upon completion of an application and verification by a state-licensed physician, nurse practitioner, physician's assistant, or osteopath (Form No. 4859-E), an additional Baseline allowance of 0.822 therms per day will be provided for paraplegic, quadriplegic, or hemiplegic persons, those afflicted with multiple sclerosis or scleroderma, or persons being treated for a life threatening illness or who have a compromised immune system.

Where it is established that the energy required for a Life-Support Device, as defined in Rule No. 1, exceeds 0.822 therms per day, an additional uniform daily Baseline allowance will be provided. The amount of the additional allowance will be determined by the Utility from load and operating time data of the Life-Support Device.

5. **Space Heating Only:** Applies to customers who are using gas primarily for space heating, as determined by survey or under the presumption that customers who use less than 11 Ccf per month during each of the regular billing periods ending in August and September qualify for Heat Only billing.

(Continued)

(TO BE INSERTED BY UTILITY)
ADVICE LETTER NO. 5576-A
DECISION NO. 02-04-026

ISSUED BY
Dan Skopec
Vice President

(TO BE INSERTED BY CAL. PUC)
SUBMITTED Jan 31, 2020
EFFECTIVE Feb 27, 2020



SDG&E

Following are the SDG&E electricity and natural gas tariffs applied in this study. Table 19 describes the baseline territories that were assumed for each climate zone. All-Electric baseline allowances were applied.

Table 19: SDG&E Baseline Territory by Climate Zone

	Baseline Territory
CZ07	Coastal
CZ10	Inland
CZ14	Mountain



San Diego Gas & Electric Company
San Diego, California

Revised Cal. P.U.C. Sheet No. 33144-E

Canceling Revised Cal. P.U.C. Sheet No. 32930-E

SCHEDULE TOU-DR1
RESIDENTIAL TIME-OF-USE

Sheet 2

RATES**Total Rates:**

Description – TOU DR1	UDC Total Rate	DWR-BC Rate	EECC Rate + DWR Credit	Total Rate
Summer:				
On-Peak	0.22374	I 0.00580	0.29042 R	0.51996 R
Off-Peak	0.22374	I 0.00580	0.09305 R	0.32259 R
Super Off-Peak	0.22374	I 0.00580	0.04743 R	0.27697 R
Winter:				
On-Peak	0.25734	R 0.00580	0.07844 R	0.34158 R
Off-Peak	0.25734	R 0.00580	0.06961 R	0.33275 R
Super Off-Peak	0.25734	R 0.00580	0.05981 R	0.32295 R
Summer Baseline Adjustment Credit up to 130% of Baseline	(0.07506)	I		(0.07506) I
Winter Baseline Adjustment Credit up to 130% of Baseline	(0.06833)	I		(0.06833) I
Minimum Bill (\$/day)	0.338			0.338

Note:

- (1) Total Rates consist of UDC, Schedule DWR-BC (Department of Water Resources Bond Charge), and Schedule EECC (Electric Energy Commodity Cost) rates, with the EECC rates reflecting a DWR Credit.
- (2) Total Rates presented are for customers that receive commodity supply and delivery service from Utility.
- (3) DWR-BC charges do not apply to CARE customers.
- (4) As identified in the rates tables, customer bills will also include line-item summer and winter credits for usage up to 130% of baseline to provide the rate capping benefits adopted by Assembly Bill 1X and Senate Bill 695.

(Continued)

2C8

Advice Ltr. No. 3514-E

Decision No. D.20-01-021

Issued by

Dan Skopec

Vice President
Regulatory Affairs

Submitted Mar 26, 2020

Effective Apr 1, 2020

Resolution No. _____



Time Periods

All time periods listed are applicable to local time. The definition of time will be based upon the date service is rendered.

TOU Periods – Weekdays	Summer	Winter
On-Peak	4:00 p.m. – 9:00 p.m.	4:00 p.m. – 9:00 p.m.
Off-Peak	6:00 a.m. – 4:00 p.m.; 9:00 p.m. – midnight	6:00 a.m. – 4:00 p.m. Excluding 10:00 a.m. – 2:00 p.m. in March and April; 9:00 p.m. – midnight
Super Off-Peak	Midnight – 6:00 a.m.	Midnight – 6:00 a.m. 10:00 a.m. – 2:00 p.m. in March and April
TOU Period – Weekends and Holidays	Summer	Winter
On-Peak	4:00 p.m. – 9:00 p.m.	4:00 p.m. – 9:00 p.m.
Off-Peak	2:00 p.m. – 4:00 p.m.; 9:00 p.m. – midnight	2:00 p.m. – 4:00 p.m.; 9:00 p.m. – midnight
Super Off-Peak	Midnight – 2:00 p.m.	Midnight – 2:00 p.m.

Seasons: Summer June 1 – October 31
Winter November 1 – May 31

Baseline Usage: The following quantities of electricity are used to calculate the baseline adjustment credit.

	Baseline Allowance For Climatic Zones*			
	Coastal	Inland	Mountain	Desert
Basic Allowance				
Summer (June 1 to October 31)	9.0	10.4	13.6	15.9
Winter (November 1 to May 31)	9.2	9.6	12.9	10.9
All Electric**				
Summer (June 1 to October 31)	6.8	9.2	15.6	17.5
Winter (November 1 to May 31)	10.4	13.4	23.4	18.1

* Climatic Zones are shown on the Territory Served, Map No. 1.

** All Electric allowances are available upon application to those customers who have permanently installed space heating or who have electric water heating and receive no energy from another source.





San Diego Gas & Electric Company
San Diego, California

Revised Cal. P.U.C. Sheet No. 24487-G

Canceling Revised Cal. P.U.C. Sheet No. 24422-G

SCHEDULE GM

Sheet 2

MULTI-FAMILY NATURAL GAS SERVICE (Includes Rates for GM, GM-C and GTC/GTCA)

RATES

	<u>GM</u>	<u>GM-C</u>	<u>GTC/GTCA¹</u>
<u>Baseline Rate, per therm (baseline usage defined in Special Condition 4)</u>			
Procurement Charge ²	\$0.20327 R	\$0.22130	N/A
Transmission Charge.....	<u>\$1.35946</u>	<u>\$1.35946</u>	<u>\$1.37374</u>
Total Baseline Charge.....	\$1.56273 R	\$1.58076	\$1.37374
<u>Non-Baseline Rate (usage in excess of baseline usage)</u>			
Procurement Charge ²	\$0.20327 R	\$0.22130	N/A
Transmission Charge.....	<u>\$1.59125</u>	<u>\$1.59125</u>	<u>\$1.60553</u>
Total Non-Baseline Charge.....	\$1.79452 R	\$1.81255	\$1.60553
<u>Minimum Bill, per day³</u>			
Non-CARE customers.....	\$0.09863	\$0.09863	\$0.09863
CARE customers.....	\$0.07890	\$0.07890	\$0.07890

(Continued)

2C6

Advice Ltr. No. 2858-G

Decision No. _____

Issued by

Dan Skopec

Vice President
Regulatory Affairs

Submitted Mar 31, 2020

Effective Apr 1, 2020

Resolution No. _____

Baseline Usage. The following quantities of gas are to be billed at the baseline rate for multi-family units. Usage in excess of applicable baseline usage will be billed at non-baseline rates.

Daily Therm
Allowance Per
Residential Unit

Summer (May 1 to October 31, inclusive)
Winter (November 1 to April 30, inclusive)

0.345
1.082



The SDG&E monthly gas rate in \$/therm was applied on a monthly basis for the 12-month period ending April 2020 according to the rates shown in Table 20. Historical natural gas rate data was only available for SoCalGas' procurement charges⁶. To estimate total costs by month, the baseline and excess transmission charges were assumed to be relatively consistent and applied for the entire year based on April 2020 costs.

Table 20: SDG&E Monthly Gas Rate (\$/Therm)

Month	Procurement Charge	Transmission Charge		Total Charge	
		Baseline	Excess	Baseline	Excess
Jan 2020	\$0.34761	\$1.36166	\$1.59166	\$1.70927	\$1.93927
Feb 2020	\$0.28035	\$1.36166	\$1.59166	\$1.64201	\$1.87201
Mar 2020	\$0.22130	\$1.36166	\$1.59166	\$1.58296	\$1.81296
Apr 2020	\$0.20327	\$1.35946	\$1.59125	\$1.56273	\$1.79452
May 2019	\$0.23804	\$1.06349	\$1.25253	\$1.30153	\$1.49057
June 2019	\$0.24838	\$1.06349	\$1.25253	\$1.31187	\$1.50091
July 2019	\$0.28491	\$1.06349	\$1.25253	\$1.34840	\$1.53744
Aug 2019	\$0.27239	\$1.06349	\$1.25253	\$1.33588	\$1.52492
Sept 2019	\$0.26178	\$1.06349	\$1.25253	\$1.32527	\$1.51431
Oct 2019	\$0.30109	\$1.06349	\$1.25253	\$1.36458	\$1.55362
Nov 2019	\$0.27580	\$1.06349	\$1.25253	\$1.33929	\$1.52833
Dec 2019	\$0.38090	\$1.06349	\$1.25253	\$1.44439	\$1.63343

⁶ The SDG&E procurement and transmission charges were obtained from the following sets of documents:

http://regarchive.sdge.com/tm2/pdf/GAS_GAS-SCHEDS_GM_2020.pdf

http://regarchive.sdge.com/tm2/pdf/GAS_GAS-SCHEDS_GM_2019.pdf



SMUD

Following are the SMUD electricity tariffs applied in this study.

RTOD Rate Schedule**II. Firm Service Rates**

A. Time-of-Day (5-8 p.m.) Rate	Rate Category RT02
Non-Summer Prices* – January 1 through May 31	
System Infrastructure Fixed Charge per month	\$21.05
Electricity Usage Charge	
Peak \$/kWh	\$0.1388
Off-Peak \$/kWh	\$0.1006
Summer Prices - June 1 through September 30	
System Infrastructure Fixed Charge per month	\$21.05
Electricity Usage Charge	
Peak \$/kWh	\$0.2941
Mid-Peak \$/kWh	\$0.1671
Off-Peak \$/kWh	\$0.1209
Non-Summer Prices* – October 1 through December 31	
System Infrastructure Fixed Charge per month	\$21.70
Electricity Usage Charge	
Peak \$/kWh	\$0.1430
Off-Peak \$/kWh	\$0.1035

* Non-Summer Season includes Fall (Oct 1 – Nov 30), Winter (Dec 1 – Mar 31) and Spring (Apr 1 – May 31) periods.

Summer (Jun 1 - Sept 30)	Peak	Weekdays between 5:00 p.m. and 8:00 p.m.
	Mid-Peak	Weekdays between noon and midnight except during the Peak hours.
	Off-Peak	All other hours, including weekends and holidays ¹ .
Non-Summer (Oct 1 - May 31)	Peak	Weekdays between 5:00 p.m. and 8:00 p.m.
	Off-Peak	All other hours, including weekends and holidays ¹ .



GSN_T Rate Schedule:

II. Firm Service Rates

Rate Category	Nondemand GSN_T	Flat GFN	Demand GSS_T
Winter Season – January 1 through May 31			
System Infrastructure Fixed Charge - per month per meter	\$21.15	\$9.45	\$25.75
Site Infrastructure Charge (per 12 months max kW or contract capacity)	n/a	n/a	\$7.94
Electricity Usage Charge			
All day \$/kWh	\$0.1365	\$0.1381	\$0.1071
Summer Season - June 1 through September 30			
System Infrastructure Fixed Charge - per month per meter	\$21.15	\$9.45	\$25.75
Site Infrastructure Charge (per 12 months max kW or contract capacity)	n/a	n/a	\$7.94
Electricity Usage Charge			
On-peak \$/kWh	\$0.3151	\$0.1381	\$0.2733
Off-peak \$/kWh	\$0.1152	\$0.1381	\$0.0948
Rate Category	Nondemand GSN_T	Flat GFN	Demand GSS_T
Winter Season - October 1 through December 31			
System Infrastructure Fixed Charge - per month per meter	\$21.80	\$9.70	\$26.50
Site Infrastructure Charge (per 12 months max kW or contract capacity)	n/a	n/a	\$8.18
Electricity Usage Charge			
All day \$/kWh	\$0.1406	\$0.1423	\$0.1103

D. Billing Periods

1. Winter (October 1 – May 31) All hours are off-peak.

2. Summer Time-of-Use Billing Periods (June 1 – September 30)

On-Peak	Summer weekdays between 3:00 p.m. and 6:00 p.m.
Off-Peak	All other hours, including holidays shown below



CPAU

Following are the CPAU electricity and natural gas tariffs applied in this study.

E1 Rate Schedule:**RESIDENTIAL ELECTRIC SERVICE**UTILITY RATE SCHEDULE E-1**A. APPLICABILITY:**

This Rate Schedule applies to separately metered single-family residential dwellings receiving Electric Service from the City of Palo Alto Utilities.

B. TERRITORY:

This rate schedule applies everywhere the City of Palo Alto provides Electric Service.

C. UNBUNDLED RATES:

<u>Per kilowatt-hour (kWh)</u>	<u>Commodity</u>	<u>Distribution</u>	<u>Public Benefits</u>	<u>Total</u>
Tier 1 usage	\$0.08339	\$0.04971	\$0.00447	\$0.13757
Tier 2 usage Any usage over Tier 1	0.11569	0.07351	0.00447	0.19367
<u>Minimum Bill (\$/day)</u>				0.3283

E2 Rate Schedule:**RESIDENTIAL MASTER-METERED AND SMALL NON-RESIDENTIAL ELECTRIC SERVICE**UTILITY RATE SCHEDULE E-2**A. APPLICABILITY:**

This Rate Schedule applies to the following Customers receiving Electric Service from the City of Palo Alto Utilities:

1. Small non-residential Customers receiving Non-Demand Metered Electric Service; and
2. Customers with Accounts at Master-Metered multi-family facilities.

B. TERRITORY:

This rate schedule applies everywhere the City of Palo Alto provides Electric Service.

C. UNBUNDLED RATES:

<u>Per kilowatt-hour (kWh)</u>	<u>Commodity</u>	<u>Distribution</u>	<u>Public Benefits</u>	<u>Total</u>
Summer Period	\$0.11855	\$0.08551	\$0.00447	\$0.20853
Winter Period	0.08502	0.05675	0.00447	0.14624
<u>Minimum Bill (\$/day)</u>				0.8359



G-2 Rate Schedule:

RESIDENTIAL MASTER-METERED AND COMMERCIAL GAS SERVICEUTILITY RATE SCHEDULE G-2**A. APPLICABILITY:**

This schedule applies to the following Customers receiving Gas Service from the City of Palo Alto Utilities:

1. Commercial Customers who use less than 250,000 therms per year at one site.
2. Master-metered residential Customers in multi-family residential facilities.

B. TERRITORY:

This schedule applies anywhere the City of Palo Alto provides Gas Service.

C. UNBUNDLED RATES:Per Service

Monthly Service Charge:\$104.95

Per Therm

Supply Charges:

1. Commodity (Monthly Market Based) \$0.10-\$2.00
2. Cap and Trade Compliance Charges \$0.00-0.25
3. Transportation Charge.....\$0.00-\$0.15
4. Carbon Offset Charge\$0.00-\$0.10

Distribution Charge: \$0.6102

G2 Monthly Per Therm Rates:

Effective Date	Commodity Rate	Cap and Trade Compliance Charge	Transportation Charge	Carbon Offset Charge	G2 Total Volumetric Rate
1/1/20	\$0.3289	0.033	0.09941	0.040	1.11151
2/1/20	0.2466	0.033	0.09941	0.040	1.02921
3/1/20	0.2416	0.033	0.09891	0.040	1.02371
4/1/20	0.2066	0.033	0.09891	0.040	0.98871
5/1/20	0.2258	0.033	0.09891	0.040	1.00791
6/1/20	0.2279	0.033	0.09891	0.040	1.01001
7/1/19	0.2471	0.033	0.11757	0.040	1.04787
8/1/19	0.2507	0.033	0.10066	0.040	1.03456
9/1/19	0.2461	0.033	0.10066	0.040	1.02996
10/1/19	0.2811	0.033	0.10288	0.040	1.06718
11/1/19	0.2923	0.033	0.10288	0.040	1.07838
12/1/19	0.3781	0.033	0.10288	0.040	1.16418



Escalation Assumptions

The average annual escalation rates in the following table were used in this study and are from E3's 2019 study Residential Building Electrification in California (Energy & Environmental Economics, 2019). These rates are applied to the 2019 rate schedules over a 30-year period beginning in 2020. SDG&E was not covered in the E3 study. The Statewide Reach Code Team reviewed SDG&E's GRC filing and applied the same approach that E3 applied for PG&E and SoCalGas to arrive at average escalation rates between 2020 and 2022. The statewide electricity escalation rates were also applied to the analysis for SMUD and CPAU. PG&E gas escalation rates were applied to CPAU as the best available estimate since CPAU uses PG&E gas infrastructure.

Table 21: Real Utility Rate Escalation Rate Assumptions
Statewide Electric Residential Average Rate (%/year, real)
Natural Gas Residential Core Rate (%/yr escalation, real)

	Statewide Electric Residential Average Rate (%/year, real)	PG&E	SoCalGas	SDG&E
2020	2.0%	1.48%	6.37%	5.00%
2021	2.0%	5.69%	4.12%	3.14%
2022	2.0%	1.11%	4.12%	2.94%
2023	2.0%	4.0%	4.0%	4.0%
2024	2.0%	4.0%	4.0%	4.0%
2025	2.0%	4.0%	4.0%	4.0%
2026	1.0%	1.0%	1.0%	1.0%
2027	1.0%	1.0%	1.0%	1.0%
2028	1.0%	1.0%	1.0%	1.0%
2029	1.0%	1.0%	1.0%	1.0%
2030	1.0%	1.0%	1.0%	1.0%
2031	1.0%	1.0%	1.0%	1.0%
2032	1.0%	1.0%	1.0%	1.0%
2033	1.0%	1.0%	1.0%	1.0%
2034	1.0%	1.0%	1.0%	1.0%
2035	1.0%	1.0%	1.0%	1.0%
2036	1.0%	1.0%	1.0%	1.0%
2037	1.0%	1.0%	1.0%	1.0%
2038	1.0%	1.0%	1.0%	1.0%
2039	1.0%	1.0%	1.0%	1.0%
2040	1.0%	1.0%	1.0%	1.0%
2041	1.0%	1.0%	1.0%	1.0%
2042	1.0%	1.0%	1.0%	1.0%
2043	1.0%	1.0%	1.0%	1.0%
2044	1.0%	1.0%	1.0%	1.0%
2045	1.0%	1.0%	1.0%	1.0%
2046	1.0%	1.0%	1.0%	1.0%
2047	1.0%	1.0%	1.0%	1.0%
2048	1.0%	1.0%	1.0%	1.0%
2049	1.0%	1.0%	1.0%	1.0%



Appendix C – PG&E Gas Infrastructure Cost Memo



Janice Berman
Director – Grid Edge
Pacific Gas and Electric Company
Mail Code B9F
P.O. Box 770000
San Francisco, CA 94177-00001

December 5, 2019

Energy Commission Staff:

On March 2, 2018, PG&E provided gas extension cost estimates for residential existing and new subdivisions (see attached memo). We have recently updated our estimates and are therefore providing an updated memo.

In addition to mainline and service extension costs, we are also providing estimates of the cost of gas meters for different building types including both residential and commercial customers. These estimates are based on PG&E historical jobs.

Developing gas extension cost estimates is complex and the actual costs are project dependent. Costs vary widely with location, terrain, distance to the nearest main, joint trenching, materials, number of dwellings per development, and several other site and job-specific conditions. For these reasons, it is not practical to come up with estimates that represent every case. Instead we are including estimates based on historical averages taken from projects within PG&E's territory. It is not recommended to compare specific project costs to these estimates as any number of factors could lead to higher or lower costs than these averages are representing.

We are also including estimates for in-house gas infrastructure costs and specific plan review costs. These estimates are from external sources, and are not based on PG&E data, but have been provided for the sake of completeness and for use in energy efficiency analysis.

To further anchor the estimates, several assumptions have been made:

1. It is assumed that during new construction, gas infrastructure will likely be joint trenched with electric infrastructure. As a result, the incremental cost of trenching associated with the gas infrastructure alone is minimal. Therefore, all mainline cost estimates exclude trench costs. Service extension cost estimates include both estimates with and without trench costs. In the case where new construction would require overhead electric and underground gas infrastructure, the estimates with trench costs included for service extensions should be utilized.
2. It is assumed that new construction in an existing subdivision would not generally require a mainline extension. In cases where a mainline extension would be required to an existing subdivision, the costs are highly dependent on the location, terrain, and distance to the nearest main.





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 San Francisco, CA 94177-0001

3. These estimates are for total costs. The cost estimates have not been reduced to account for the portion of the costs paid by all customers due to application of Rule 15¹ and Rule 16² allowances. Hence, costs to the specific customer may be lower than the estimates below, as the specific customer benefits from the Rule 15 and Rule 16 allowances.

Table 1: PG&E Gas Infrastructure Cost Estimates

	Existing Subdivision/Development	New Greenfield Subdivision/Development
Mainline Extension	N/A ³	<u>Single-Family</u> \$17/ft ⁴ <u>Multi-Family</u> \$11/ft ⁴
Service Extension (Typically 1" pipe from mainline to the meter)	\$6750 per service/building ⁴ (excludes trench costs) \$9200 per service/building ⁴ (includes trench costs)	\$1300 per service/building ⁴ (includes mainline extension costs within the subdivision; excludes trench costs) \$1850 per service/building ⁴ (includes mainline extension costs within the subdivision; includes trench costs)
Meter	<u>Residential Single Family</u> \$300 per meter ⁵ <u>Residential Multi-Family</u> \$300 per meter + \$300 per meter manifold outlet ⁵ <u>Small/Medium Commercial</u> \$3600 per meter ⁶	<u>Residential Single Family</u> \$300 per meter ⁵ <u>Residential Multi-Family</u> \$300 per meter + \$300 per meter manifold outlet ⁵ <u>Small/Medium Commercial</u> \$3600 per meter ⁶

¹ https://www.pge.com/tariffs/tm2/pdf/ELEC_RULES_15.pdf

² https://www.pge.com/tariffs/tm2/pdf/ELEC_RULES_16.pdf

³ It is assumed that new construction in an existing subdivision would not require a main extension.

⁴ Estimates based on PG&E jobs from Jan 2016 - Dec 2017 from PG&E's Service Planning team.

⁵ Estimates from PG&E's Dedicated Estimating Team. For Multi-Family units, the costs of \$300 per meter and \$300 per meter manifold outlet should be combined for a total of \$600 per meter.

⁶ PG&E Marginal Customer Access Cost Estimates presented in the 2018 Gas Cost Allocation Proceedings (GCAP), A.17-09-006, Exhibit PG&E-2, Appendix A, Section A, Table A-1. The Average Connection Cost per Customer values were included in the MCAC worksheet that accompanied the GCAP testimony





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	<u>Large Commercial</u> \$32,000 per meter ⁶	<u>Large Commercial</u> \$32,000 per meter ⁶
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Note: Service extension cost estimates for New Greenfield Subdivisions include mainline extension costs as well. Therefore, mainline cost estimates can be ignored for the purpose of estimating total project costs.

Table 2: Gas Infrastructure Cost Estimates from Other Sources

	Existing Subdivision/Development	New Greenfield Subdivision/Development
In-House Infrastructure	<u>Single-Family</u> \$800 ⁷	<u>Single-Family</u> \$800 ⁷
	<u>Multi-Family</u> \$600 per unit ⁷	<u>Multi-Family</u> \$600 per unit ⁷
	<u>Medium Office</u> \$600-4500 ^{7,8}	<u>Medium Office</u> \$600-4500 ^{7,8}
	<u>Medium Retail</u> \$10,000 ⁸	<u>Medium Retail</u> \$10,000 ⁸
Plan Review (Will vary by city and often not a fixed fee)	<u>Residential</u> Palo Alto - \$850 ⁹	<u>Residential</u> Palo Alto - \$850 ⁹
	<u>Nonresidential</u> Palo Alto - \$2316 ⁹	<u>Nonresidential</u> Palo Alto - \$2316 ⁹

Please let us know if there are any follow-up questions or clarifications.

Best regards,

⁷ Frontier Energy, Inc., Misti Bruceri & Associates, LLC. 2019. "2019 Cost-effectiveness Study: Low Rise Residential New Construction." Available at: <https://localenergycodes.com/content/performance-ordinances>

⁸ TRC, EnergySoft. 2019. "2019 Nonresidential New Construction Reach Code Cost Effectiveness Study." Available at: <https://localenergycodes.com/content/performance-ordinances>

⁹ TRC. 2018. "City of Palo Alto 2019 Title 24 Energy Reach Code Cost Effectiveness Analysis Draft." Available at: <http://cityofpaloalto.org/civicax/filebank/documents/66742>



Appendix D – Detailed Results Mixed-Fuel

Table 22: Mixed-Fuel Efficiency Only Package Results (SAVINGS/COST PER APARTMENT)¹

Climate Zone	Elec Utility	Gas Utility	Apartments			Central Water Heating			Total	Savings (2020 PV\$)			B/C Ratio ¹	
			Gas Savings (therms)	Elec Savings (kWh)	Year 1 Utility Cost Savings	Gas Savings (therms)	Elec Savings (kWh)	Year 1 Utility Cost Savings	Year 1 Utility Cost Savings	On-Bill Utility Cost Savings	TDV Cost Savings	Total Inc. Cost (\$)	On-Bill	TDV
CZ01	PGE	PGE	0.0	26	\$6	0.0	0	\$0	\$6	\$133	\$105	\$304	0.44	0.35
CZ02	PGE	PGE	0.0	47	\$17	0.0	0	\$0	\$17	\$391	\$285	\$144	2.72	1.98
CZ03	PGE	PGE	0.0	44	\$15	0.0	0	\$0	\$15	\$345	\$226	\$144	2.40	1.57
CZ04	PGE	PGE	0.0	61	\$20	0.0	0	\$0	\$20	\$465	\$331	\$144	3.24	2.31
CZ04-2	CPAU	CPAU	0.0	61	\$10	0.0	0	\$0	\$10	\$248	\$331	\$144	1.73	2.31
CZ05	PGE	PGE	0.0	42	\$14	0.0	0	\$0	\$14	\$320	\$206	\$144	2.22	1.43
CZ05-2	PGE	SCG	0.0	42	\$14	0.0	0	\$0	\$14	\$320	\$206	\$144	2.22	1.43
CZ06	SCE	SCG	0.0	74	\$18	0.0	0	\$0	\$18	\$424	\$351	\$144	2.95	2.44
CZ07	SDGE	SDGE	0.0	81	\$25	0.0	0	\$0	\$25	\$593	\$374	\$144	4.13	2.60
CZ08	SCE	SCG	0.0	84	\$20	0.0	0	\$0	\$20	\$484	\$420	\$144	3.37	2.92
CZ09	SCE	SCG	0.0	83	\$20	0.0	0	\$0	\$20	\$468	\$441	\$144	3.26	3.06
CZ10	SCE	SCG	0.0	82	\$17	0.0	0	\$0	\$17	\$410	\$427	\$144	2.85	2.97
CZ10-2	SDGE	SDGE	0.0	82	\$25	0.0	0	\$0	\$25	\$599	\$427	\$144	4.16	2.97
CZ11	PGE	PGE	0.0	104	\$27	0.0	0	\$0	\$27	\$637	\$635	\$625	1.02	1.02
CZ12	PGE	PGE	0.0	93	\$24	0.0	0	\$0	\$24	\$572	\$568	\$304	1.88	1.87
CZ12-2	SMUD	PGE	0.0	93	\$13	0.0	0	\$0	\$13	\$319	\$568	\$304	1.05	1.87
CZ13	PGE	PGE	0.0	132	\$34	0.0	0	\$0	\$34	\$798	\$779	\$625	1.28	1.25
CZ14	SCE	SCG	0.0	80	\$17	0.0	0	\$0	\$17	\$407	\$449	\$304	1.34	1.48
CZ14-2	SDGE	SDGE	0.0	80	\$24	0.0	0	\$0	\$24	\$576	\$449	\$304	1.90	1.48
CZ15	SCE	SCG	0.0	145	\$30	0.0	0	\$0	\$30	\$719	\$802	\$625	1.15	1.28
CZ16	PGE	PGE	0.0	117	\$27	0.0	0	\$0	\$27	\$646	\$563	\$625	1.03	0.90

¹ Values in red indicate B/C ratios less than 1.



Table 23: Mixed-Fuel Efficiency + PV Package Results (SAVINGS/COST PER APARTMENT)¹

Climate Zone	Elec Utility	Gas Utility	0.1 kW _{DC} per Apartment					0.2 kW _{DC} per Apartment				
			On-Bill Utility Cost Savings (2020 PV\$)	TDV Cost Savings (2020 PV\$)	Total Inc. Cost	On-Bill B/C Ratio	TDV B/C Ratio	On-Bill Utility Cost Savings (2020 PV\$)	TDV Cost Savings (2020 PV\$)	Total Inc. Cost	On-Bill B/C Ratio	TDV B/C Ratio
CZ01	PGE	PGE	\$885	\$597	\$620	1.43	0.96	\$1,637	\$1,090	\$937	1.75	1.16
CZ02	PGE	PGE	\$1,411	\$877	\$460	3.07	1.91	\$2,431	\$1,469	\$777	3.13	1.89
CZ03	PGE	PGE	\$1,373	\$812	\$460	2.98	1.76	\$2,400	\$1,397	\$777	3.09	1.80
CZ04	PGE	PGE	\$1,522	\$947	\$460	3.31	2.06	\$2,579	\$1,562	\$777	3.32	2.01
CZ04-2	CPAU	CPAU	\$807	\$947	\$460	1.75	2.06	\$1,335	\$1,562	\$777	1.72	2.01
CZ05	PGE	PGE	\$1,400	\$834	\$460	3.04	1.81	\$2,480	\$1,461	\$777	3.19	1.88
CZ05-2	PGE	SCG	\$1,400	\$834	\$460	3.04	1.81	\$2,480	\$1,461	\$777	3.19	1.88
CZ06	SCE	SCG	\$1,206	\$969	\$460	2.62	2.11	\$1,987	\$1,587	\$777	2.56	2.04
CZ07	SDGE	SDGE	\$1,701	\$1,010	\$460	3.69	2.19	\$2,770	\$1,647	\$777	3.57	2.12
CZ08	SCE	SCG	\$1,272	\$1,064	\$460	2.76	2.31	\$2,059	\$1,708	\$777	2.65	2.20
CZ09	SCE	SCG	\$1,181	\$1,091	\$460	2.57	2.37	\$1,876	\$1,742	\$777	2.41	2.24
CZ10	SCE	SCG	\$1,104	\$1,054	\$460	2.40	2.29	\$1,797	\$1,681	\$777	2.31	2.16
CZ10-2	SDGE	SDGE	\$1,622	\$1,054	\$460	3.52	2.29	\$2,646	\$1,681	\$777	3.41	2.16
CZ11	PGE	PGE	\$1,537	\$1,256	\$942	1.63	1.33	\$2,438	\$1,877	\$1,258	1.94	1.49
CZ12	PGE	PGE	\$1,462	\$1,181	\$620	2.36	1.90	\$2,352	\$1,794	\$937	2.51	1.91
CZ12-2	SMUD	PGE	\$772	\$1,181	\$620	1.25	1.90	\$1,226	\$1,794	\$937	1.31	1.91
CZ13	PGE	PGE	\$1,673	\$1,372	\$942	1.78	1.46	\$2,548	\$1,965	\$1,258	2.03	1.56
CZ14	SCE	SCG	\$1,165	\$1,175	\$620	1.88	1.89	\$1,923	\$1,901	\$937	2.05	2.03
CZ14-2	SDGE	SDGE	\$1,697	\$1,175	\$620	2.74	1.89	\$2,819	\$1,901	\$937	3.01	2.03
CZ15	SCE	SCG	\$1,423	\$1,456	\$942	1.51	1.55	\$2,128	\$2,110	\$1,258	1.69	1.68
CZ16	PGE	PGE	\$1,606	\$1,191	\$942	1.71	1.26	\$2,567	\$1,818	\$1,258	2.04	1.44

¹ Values in red indicate B/C ratios less than 1.

Table 24: Mixed-Fuel Efficiency + PV Package Results, cont. (SAVINGS/COST PER APARTMENT)¹

Climate Zone	Elec Utility	Gas Utility	0.3 kW _{DC} per Apartment					1 kW _{DC} per Apartment				
			On-Bill Utility Cost Savings (2020 PV\$)	TDV Cost Savings (2020 PV\$)	Total Inc. Cost	On-Bill B/C Ratio	TDV B/C Ratio	On-Bill Utility Cost Savings (2020 PV\$)	TDV Cost Savings (2020 PV\$)	Total Inc. Cost	On-Bill B/C Ratio	TDV B/C Ratio
CZ01	PGE	PGE	\$2,389	\$1,582	\$1,253	1.91	1.26	\$7,466	\$5,029	\$3,469	2.15	1.45
CZ02	PGE	PGE	\$3,452	\$2,061	\$1,093	3.16	1.88	\$9,590	\$6,203	\$3,309	2.90	1.87
CZ03	PGE	PGE	\$3,428	\$1,982	\$1,093	3.14	1.81	\$9,687	\$6,079	\$3,309	2.93	1.84
CZ04	PGE	PGE	\$3,635	\$2,177	\$1,093	3.32	1.99	\$9,992	\$6,483	\$3,309	3.02	1.96
CZ04-2	CPAU	CPAU	\$1,863	\$2,177	\$1,093	1.70	1.99	\$5,184	\$6,483	\$3,309	1.57	1.96
CZ05	PGE	PGE	\$3,561	\$2,089	\$1,093	3.26	1.91	\$10,109	\$6,482	\$3,309	3.05	1.96
CZ05-2	PGE	SCG	\$3,561	\$2,089	\$1,093	3.26	1.91	\$10,109	\$6,482	\$3,309	3.05	1.96
CZ06	SCE	SCG	\$2,769	\$2,206	\$1,093	2.53	2.02	\$7,593	\$6,534	\$3,309	2.29	1.97
CZ07	SDGE	SDGE	\$3,805	\$2,283	\$1,093	3.48	2.09	\$10,818	\$6,739	\$3,309	3.27	2.04
CZ08	SCE	SCG	\$2,838	\$2,352	\$1,093	2.60	2.15	\$7,543	\$6,861	\$3,309	2.28	2.07
CZ09	SCE	SCG	\$2,570	\$2,393	\$1,093	2.35	2.19	\$7,285	\$6,948	\$3,309	2.20	2.10
CZ10	SCE	SCG	\$2,490	\$2,308	\$1,093	2.28	2.11	\$7,197	\$6,697	\$3,309	2.17	2.02
CZ10-2	SDGE	SDGE	\$3,670	\$2,308	\$1,093	3.36	2.11	\$10,636	\$6,697	\$3,309	3.21	2.02
CZ11	PGE	PGE	\$3,338	\$2,498	\$1,575	2.12	1.59	\$9,480	\$6,846	\$3,791	2.50	1.81
CZ12	PGE	PGE	\$3,242	\$2,406	\$1,253	2.59	1.92	\$9,299	\$6,694	\$3,469	2.68	1.93
CZ12-2	SMUD	PGE	\$1,680	\$2,406	\$1,253	1.34	1.92	\$4,855	\$6,694	\$3,469	1.40	1.93
CZ13	PGE	PGE	\$3,423	\$2,558	\$1,575	2.17	1.62	\$9,402	\$6,709	\$3,791	2.48	1.77
CZ14	SCE	SCG	\$2,682	\$2,626	\$1,253	2.14	2.10	\$7,820	\$7,707	\$3,469	2.25	2.22
CZ14-2	SDGE	SDGE	\$3,940	\$2,626	\$1,253	3.14	2.10	\$11,557	\$7,707	\$3,469	3.33	2.22
CZ15	SCE	SCG	\$2,832	\$2,764	\$1,575	1.80	1.76	\$7,676	\$7,342	\$3,791	2.03	1.94
CZ16	PGE	PGE	\$3,527	\$2,445	\$1,575	2.24	1.55	\$10,032	\$6,836	\$3,791	2.65	1.80

¹ Values in red indicate B/C ratios less than 1.

Appendix E – Detailed Results All-Electric

Table 25: All-Electric Efficiency Only Package Results (SAVINGS/COST PER APARTMENT)^{1,2}

Climate Zone	Elec Utility	Gas Utility	Apartments			Central Water Heating			Total	Savings (2020 PV\$)		Total Inc. Cost (\$)	B/C Ratio	
			Gas Savings (therms)	Elec Savings (kWh)	Year 1 Utility Cost Savings	Gas Savings (therms)	Elec Savings (kWh)	Year 1 Utility Cost Savings	Year 1 Utility Cost Savings	On-Bill Utility Cost Savings	TDV Cost Savings		On-Bill	TDV
CZ01	PGE	PGE	0.0	26	\$6	124.6	-899	-\$46	-\$40	-\$674	\$199	-\$446	0.7	>1
CZ02	PGE	PGE	0.0	48	\$17	114.3	-810	-\$38	-\$21	-\$238	\$528	-\$606	2.5	>1
CZ03	PGE	PGE	0.0	44	\$15	114.9	-811	-\$38	-\$23	-\$287	\$390	-\$606	2.1	>1
CZ04	PGE	PGE	0.0	62	\$20	110.7	-775	-\$35	-\$15	-\$102	\$625	-\$606	6.0	>1
CZ04-2	CPAU	CPAU	0.0	62	\$11	110.7	-775	-\$5	\$5	\$345	\$625	-\$606	>1	>1
CZ05	PGE	PGE	0.0	42	\$14	117.3	-830	-\$40	-\$26	-\$350	\$391	-\$606	1.7	>1
CZ05-2	PGE	SCG	0.0	42	\$14	117.3	-830	-\$66	-\$53	-\$827	\$391	-\$606	0.7	>1
CZ06	SCE	SCG	0.0	74	\$18	107.0	-744	-\$28	-\$10	\$153	\$612	-\$606	>1	>1
CZ07	SDGE	SDGE	0.0	81	\$25	105.9	-734	-\$43	-\$18	-\$58	\$665	-\$606	10.4	>1
CZ08	SCE	SCG	0.0	84	\$20	103.6	-717	-\$27	-\$6	\$227	\$693	-\$606	>1	>1
CZ09	SCE	SCG	0.0	83	\$20	103.5	-716	-\$27	-\$7	\$212	\$739	-\$606	>1	>1
CZ10	SCE	SCG	0.0	83	\$17	90.0	-709	-\$40	-\$23	-\$214	\$396	-\$853	4.0	>1
CZ10-2	SDGE	SDGE	0.0	83	\$25	90.0	-709	-\$59	-\$34	-\$478	\$396	-\$853	1.8	>1
CZ11	PGE	PGE	0.0	104	\$27	91.1	-723	-\$46	-\$19	-\$241	\$430	-\$371	1.5	>1
CZ12	PGE	PGE	0.0	93	\$24	93.9	-755	-\$51	-\$27	-\$414	\$288	-\$693	1.7	>1
CZ12-2	SMUD	PGE	0.0	93	\$13	93.9	-755	\$22	\$36	\$1,060	\$288	-\$693	>1	>1
CZ13	PGE	PGE	0.0	132	\$34	89.6	-711	-\$45	-\$11	-\$62	\$505	-\$371	6.0	>1
CZ14	SCE	SCG	0.0	80	\$17	92.2	-733	-\$42	-\$25	-\$258	\$305	-\$693	2.7	>1
CZ14-2	SDGE	SDGE	0.0	80	\$24	92.2	-733	-\$61	-\$36	-\$532	\$305	-\$693	1.3	>1
CZ15	SCE	SCG	0.0	145	\$30	73.8	-554	-\$28	\$3	\$332	\$832	-\$371	>1	>1
CZ16	PGE	PGE	0.0	119	\$28	107.8	-896	-\$64	-\$37	-\$621	\$127	-\$371	0.6	>1

¹ Values in red indicate B/C ratios less than 1.

² ">1" indicates cases where there are both incremental measure cost savings and energy cost savings.



Table 26: Table 19: All-Electric Efficiency + PV Package Results (SAVINGS/COST PER APARTMENT)^{1,2}

Climate Zone	Elec Utility	Gas Utility	0.1 kW _{DC} per Apartment					0.2 kW _{DC} per Apartment				
			On-Bill Utility Cost Savings (2020 PV\$)	TDV Cost Savings (2020 PV\$)	Total Inc. Cost	On-Bill B/C Ratio	TDV B/C Ratio	On-Bill Utility Cost Savings (2020 PV\$)	TDV Cost Savings (2020 PV\$)	Total Inc. Cost	On-Bill B/C Ratio	TDV B/C Ratio
CZ01	PGE	PGE	\$78	\$692	-\$129	>1	>1	\$830	\$1,184	\$187	4.44	6.33
CZ02	PGE	PGE	\$782	\$1,120	-\$289	>1	>1	\$1,802	\$1,712	\$27	65.85	62.55
CZ03	PGE	PGE	\$741	\$975	-\$289	>1	>1	\$1,768	\$1,560	\$27	64.62	57.02
CZ04	PGE	PGE	\$955	\$1,240	-\$289	>1	>1	\$2,012	\$1,855	\$27	73.51	67.79
CZ04-2	CPAU	CPAU	\$904	\$1,240	-\$289	>1	>1	\$1,432	\$1,855	\$27	52.33	67.79
CZ05	PGE	PGE	\$730	\$1,018	-\$289	>1	>1	\$1,810	\$1,646	\$27	66.14	60.14
CZ05-2	PGE	SCG	\$254	\$1,018	-\$289	>1	>1	\$1,334	\$1,646	\$27	48.74	60.14
CZ06	SCE	SCG	\$935	\$1,231	-\$289	>1	>1	\$1,716	\$1,849	\$27	62.71	67.56
CZ07	SDGE	SDGE	\$1,049	\$1,302	-\$289	>1	>1	\$2,118	\$1,938	\$27	77.41	70.82
CZ08	SCE	SCG	\$1,014	\$1,337	-\$289	>1	>1	\$1,802	\$1,981	\$27	65.83	72.37
CZ09	SCE	SCG	\$924	\$1,390	-\$289	>1	>1	\$1,619	\$2,040	\$27	59.16	74.56
CZ10	SCE	SCG	\$480	\$1,023	-\$536	>1	>1	\$1,173	\$1,650	-\$219	>1	>1
CZ10-2	SDGE	SDGE	\$546	\$1,023	-\$536	>1	>1	\$1,570	\$1,650	-\$219	>1	>1
CZ11	PGE	PGE	\$660	\$1,052	-\$55	>1	>1	\$1,560	\$1,673	\$262	5.96	6.39
CZ12	PGE	PGE	\$476	\$900	-\$376	>1	>1	\$1,366	\$1,513	-\$60	>1	>1
CZ12-2	SMUD	PGE	\$1,513	\$900	-\$376	>1	>1	\$1,967	\$1,513	-\$60	>1	>1
CZ13	PGE	PGE	\$813	\$1,098	-\$55	>1	>1	\$1,687	\$1,691	\$262	6.44	6.46
CZ14	SCE	SCG	\$500	\$1,031	-\$376	>1	>1	\$1,259	\$1,757	-\$60	>1	>1
CZ14-2	SDGE	SDGE	\$589	\$1,031	-\$376	>1	>1	\$1,710	\$1,757	-\$60	>1	>1
CZ15	SCE	SCG	\$1,037	\$1,485	-\$55	>1	>1	\$1,741	\$2,139	\$262	6.65	8.17
CZ16	PGE	PGE	\$339	\$754	-\$55	>1	>1	\$1,299	\$1,381	\$262	4.96	5.27

¹ Values in red indicate B/C ratios less than 1.² ">1" indicates cases where there are both incremental measure cost savings and energy cost savings. Values in red indicate B/C ratios less than 1.0

Table 27: All-Electric Package Results with PV, cont. (SAVINGS/COST PER APARTMENT)^{1,2}

Climate Zone	Elec Utility	Gas Utility	0.3 kW _{DC} per Apartment					1.0 kW _{DC} per Apartment				
			On-Bill Utility Cost Savings (2020 PV\$)	TDV Cost Savings (2020 PV\$)	Total Inc. Cost	On-Bill B/C Ratio	TDV B/C Ratio	On-Bill Utility Cost Savings (2020 PV\$)	TDV Cost Savings (2020 PV\$)	Total Inc. Cost	On-Bill B/C Ratio	TDV B/C Ratio
CZ01	PGE	PGE	\$1,582	\$1,676	\$504	3.14	3.33	\$6,660	\$5,123	\$2,719	2.45	1.88
CZ02	PGE	PGE	\$2,822	\$2,304	\$344	8.21	6.70	\$8,960	\$6,446	\$2,560	3.50	2.52
CZ03	PGE	PGE	\$2,796	\$2,146	\$344	8.13	6.24	\$9,055	\$6,242	\$2,560	3.54	2.44
CZ04	PGE	PGE	\$3,069	\$2,470	\$344	8.92	7.18	\$9,425	\$6,777	\$2,560	3.68	2.65
CZ04-2	CPAU	CPAU	\$1,960	\$2,470	\$344	5.70	7.18	\$5,281	\$6,777	\$2,560	2.06	2.65
CZ05	PGE	PGE	\$2,890	\$2,274	\$344	8.40	6.61	\$9,439	\$6,667	\$2,560	3.69	2.60
CZ05-2	PGE	SCG	\$2,414	\$2,274	\$344	7.02	6.61	\$8,962	\$6,667	\$2,560	3.50	2.60
CZ06	SCE	SCG	\$2,498	\$2,467	\$344	7.26	7.17	\$7,322	\$6,796	\$2,560	2.86	2.65
CZ07	SDGE	SDGE	\$3,154	\$2,575	\$344	9.17	7.49	\$10,166	\$7,030	\$2,560	3.97	2.75
CZ08	SCE	SCG	\$2,581	\$2,625	\$344	7.51	7.63	\$7,286	\$7,133	\$2,560	2.85	2.79
CZ09	SCE	SCG	\$2,314	\$2,691	\$344	6.73	7.83	\$7,028	\$7,247	\$2,560	2.75	2.83
CZ10	SCE	SCG	\$1,866	\$2,277	\$97	19.22	23.46	\$6,573	\$6,666	\$2,313	2.84	2.88
CZ10-2	SDGE	SDGE	\$2,594	\$2,277	\$97	26.72	23.46	\$9,560	\$6,666	\$2,313	4.13	2.88
CZ11	PGE	PGE	\$2,461	\$2,294	\$578	4.25	3.97	\$8,602	\$6,641	\$2,794	3.08	2.38
CZ12	PGE	PGE	\$2,256	\$2,125	\$257	8.78	8.28	\$8,313	\$6,413	\$2,473	3.36	2.59
CZ12-2	SMUD	PGE	\$2,421	\$2,125	\$257	9.43	8.28	\$5,596	\$6,413	\$2,473	2.26	2.59
CZ13	PGE	PGE	\$2,562	\$2,284	\$578	4.43	3.95	\$8,541	\$6,435	\$2,794	3.06	2.30
CZ14	SCE	SCG	\$2,017	\$2,482	\$257	7.85	9.67	\$7,155	\$7,563	\$2,473	2.89	3.06
CZ14-2	SDGE	SDGE	\$2,831	\$2,482	\$257	11.02	9.67	\$10,448	\$7,563	\$2,473	4.23	3.06
CZ15	SCE	SCG	\$2,445	\$2,793	\$578	4.23	4.83	\$7,289	\$7,371	\$2,794	2.61	2.64
CZ16	PGE	PGE	\$2,260	\$2,009	\$578	3.91	3.47	\$8,764	\$6,399	\$2,794	3.14	2.29

¹ Values in red indicate B/C ratios less than 1.² ">1" indicates cases where there are both incremental measure cost savings and energy cost savings. Values in red indicate B/C ratios less than 1.0

2019 Cost-Effectiveness Study: 2020 Analysis of High-Rise Residential New Construction

Last Modified: 2021-02-22

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Acronym List

2020 PV\$	Present Value costs in 2020 dollars
ACM	Alternative Calculation Method
B/C	Benefit-to-Cost as in Benefit-to-Cost ratio
BSC	Building Standards Commission
CALGreen	California Green Building Standards Code (California Code of Regulations Title 24, Part 11)
CASE	Codes and Standards Enhancement
CBECC-Com	California Building Energy Code Compliance software program developed by the California Energy Commission for use in demonstrating compliance with the Non-Residential California Building Energy Efficiency Standards
cfm	Cubic Feet per Minute
CPAU	City of Palo Alto Utilities
CPC	California Plumbing Code
CZ	California Climate Zone
DOAS	Dedicated Outdoor Air System
ERV/HRV	Energy- or Heat-Recovery Ventilation
EPS	Expanded Polystyrene
ft ²	Square foot
GHG	Greenhouse Gas
GRC	General Rate Case
HERS Rater	Home Energy Rating System Rater
HPWH	Heat Pump Water Heater
HVAC	Heating, Ventilation, and Air Conditioning
IOU	Investor-Owned Utility
kBtu	kilo-British thermal unit
kWh	kilowatt-hour
KWDC	Direct Current kilowatt. Nominal rated power of a photovoltaic system
LCC	Lifecycle Cost
NEM	Net Energy Metering
NPV	Net Present Value
PG&E	Pacific Gas and Electric Company
PV	Photovoltaic
SCE	Southern California Edison

SDG&E	San Diego Gas and Electric
SHGC	Solar Heat Gain Coefficient
SMUD	Sacramento Municipal Utility District
TDV	Time Dependent Valuation
therm	Unit for quantity of heat that equals 100,000 British thermal units
Title 24	California Code of Regulations Title 24, Part 6
TOU	Time-Of-Use
UEF	Uniform Energy Factor
W	Watt
WDC	Watt Direct Current.

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1 Introduction

The California Codes and Standards Reach Codes program provides technical support to local governments considering adopting a local ordinance (reach code) intended to support meeting local and/or statewide energy and greenhouse gas (GHG) reduction goals. The program facilitates adoption and implementation of the code when requested by local jurisdictions by providing resources such as cost-effectiveness studies, model language, sample findings, and other supporting documentation. This cost-effectiveness study was sponsored by Pacific Gas and Electric Company (PG&E). Local jurisdictions that are considering adopting ordinances may contact the program for support through its website, [LocalEnergyCodes.com](https://www.localenergycodes.com).

The California Building Energy Efficiency Standards Title 24, or Title 24, Part 6 (Title 24) (California Energy Commission, 2018a) is maintained and updated every three years by two state agencies: the California Energy Commission (Energy Commission) and the Building Standards Commission (BSC). In addition to enforcing the code, local jurisdictions have the authority to adopt local energy efficiency ordinances—or reach codes—that exceed the minimum standards defined by Title 24 (as established by Public Resources Code Section 25402.1(h)2 and Section 10-106 of the Building Energy Efficiency Standards). Local jurisdictions must demonstrate that the requirements of the proposed ordinance are cost-effective and result in buildings consuming less energy than is permitted by Title 24. In addition, the jurisdiction must obtain approval from the Energy Commission and file the ordinance with the BSC for the ordinance to be legally enforceable.

This report documents cost-effective combinations of measures that exceed the minimum state requirements, 2019 Title 24, effective January 1, 2020. Local jurisdictions in California may consider adopting local energy ordinances to achieve energy savings beyond what will be accomplished by enforcing building efficiency requirements that apply statewide. This report was developed in coordination with the California Statewide Investor-Owned Utilities (IOUs) Codes and Standards Program, key consultants, and engaged cities—collectively known as the Statewide Reach Codes Team.

The focus of this study is on new high-rise (eight stories and higher) multifamily residential construction. The analysis evaluates both mixed-fuel and all-electric residential construction, documenting performance requirements that can be met by either type of building design. Compliance package options and cost-effectiveness analysis in all 16 California climate zones (CZs) are presented (see Appendix A – Map of California Climate Zones for a graphical depiction of climate zone locations). This analysis complements the analysis conducted for mid-rise multifamily residential construction in June 2020 (Statewide Reach Codes Team, 2020).

2 Methodology and Assumptions

This analysis uses two different metrics to assess cost effectiveness. Both methodologies require estimating and quantifying the incremental costs and energy savings associated with energy efficiency measures. The main difference between the methodologies is the way they value energy and thus the cost savings of reduced or avoided energy use:

- **Utility Bill Impacts (On-Bill):** Customer-based Lifecycle Cost (LCC) approach that values energy based upon estimated site energy usage and customer On-Bill savings using electricity and natural gas utility rate schedules over a 30-year duration accounting for discount rate and energy cost inflation.
- **Time Dependent Valuation (TDV):** Energy Commission LCC methodology, which is intended to capture the “societal value or cost” of energy use including long-term projected costs, such as the cost of providing energy during peak periods of demand and other societal costs, such as projected costs for carbon emissions, as well as grid transmission and distribution impacts. This metric values energy use differently depending on the fuel source (natural gas, electricity, and propane), time of day, and season. Electricity used (or saved) during peak periods has a much higher value than electricity used (or saved) during off-peak periods (Horii et al., 2014). This is the methodology used by the Energy Commission in evaluating cost effectiveness for efficiency measures in Title 24. Both 2019 and 2022 TDV multipliers are evaluated and documented in this analysis.

The general approach applied in this analysis is to evaluate performance and determine cost effectiveness of various packages of energy measures in high-rise multifamily dwelling units. The California Building Energy Code Compliance – Commercial (CBECC-Com) 2019.1.3 and 2022 beta compliance simulation tools were used to evaluate energy savings for all measures. 2022 weather files were used to evaluate site energy use and TDV cost effectiveness along with the 2022 TDV.

2.1 Building Prototypes

The Energy Commission defines building prototypes which it uses to evaluate the cost effectiveness of proposed changes to Title 24 requirements. The Energy Commission recently developed new prototype designs for multifamily buildings to more closely reflect typical designs for new multifamily buildings across the state. The new prototypes include two low-rise residential designs, a mid-rise, and a high-rise design. This analysis uses the new high-rise multifamily prototype (TRC, 2019), which is a variation of the previous ten-story high-rise prototype used in prior code cycles. The high-rise prototype is a ten-story building with two below-grade parking levels, ground floor commercial space, and nine stories of residential space. Table 1 describes the basic characteristics of the high-rise prototype and Figure 1 shows a depiction of the building.

Table 1: Prototype Characteristics

Multifamily 10-Story High-Rise	
Conditioned Floor Area	125,400 Square Foot (ft ²) Total: 24,960 ft ² Nonresidential ^a & 100,440 ft ² Residential
Number of Stories	12 Stories Total: 2-Story Parking Garage (below grade) 1 Story of Nonresidential Space 9 Stories of Residential Space
Number of Dwelling Units/Bedrooms	(18) Studios, (54) 1-Bed Units, & (45) 2-Bed Units
Foundation	Concrete Podium with Underground Parking
Wall Assembly	Steel Frame
Roof Assembly	Flat Roof
Window-to-Wall Area Ratio	40%
HVAC System	Ducted split system heat pumps at each dwelling unit. Dedicated outdoor air system for dwelling unit ventilation.
Domestic Hot Water System	Gas central boiler with solar thermal sized to meet the prescriptive requirements by climate zone.

^a. includes ground floor commercial space, corridors and common areas.

Source: TRC, 2019.



Figure 1: Ten-story high-rise multifamily prototype depiction.

Source: TRC, 2019.

The methodology used in the analyses for the prototypical building type begins with a design that meets the minimum 2019 Title 24 prescriptive requirements (zero compliance margin). Table 140.3-B and 140.3-C in the 2019 Title 24 (California Energy Commission, 2018a) list the prescriptive measures that determine the baseline design in each climate zone for the nonresidential and high-rise residential spaces, respectively. Other features are consistent with the Standard Design in the Nonresidential Alternative Calculation Method (ACM) Reference Manual (California Energy Commission, 2019a) with two exceptions:

1. The dwelling units use split system heat pumps instead of a split furnace and air conditioner that is prescribed in Table 2 of the Nonresidential ACM Reference Manual. This modeling choice was made to better reflect current market data, which shows heat pumps to be the most common system type and a very low prevalence of gas furnaces for multifamily buildings four stories and greater (TRC, 2019). In most climate zones the difference between a heat pump or gas furnace is nearly compliance neutral.
2. A dedicated outdoor air system (DOAS) is used for ventilation serving the dwelling units. This is based on anecdotal information that this practice is more common than individual ventilation systems in high-rise buildings. It also provides variability across the mid- and high-rise analysis, which is important so that this analysis provides more realistic solutions for the high-rise multifamily building type. The selection of a DOAS does not match the Standard Design, which applies individual balanced fans for ventilation at all residential spaces, and results in a small compliance penalty.¹

The analysis also assumed electric resistance cooking in the dwelling unit units to reflect the current market based on anecdotal information. Laundry was not addressed in this study. The building prototype assumes central laundry facilities and no laundry in the units.

2.2 Measure Analysis

EnergyPro software, using CBECC-Com as the simulation engine, was used to evaluate energy impacts and code compliance applying the 2019 Title 24 prescriptive standards as the benchmark. TDV is the energy metric used by Title 24 since 2005 to evaluate compliance. Although both the 2019 and 2022 compliance software were used for evaluation, the 2019 software was used for reporting compliance margins and the 2022 software, with the 2022 weather, was used for reporting site energy and utility bill impacts.

Using the 2019 baseline as the starting point, prospective energy efficiency measures were identified and modeled to determine the projected site energy (therm and kWh) and compliance impacts. Annual utility costs were calculated using hourly data output from CBECC-Com, and electricity and natural gas tariffs for each of the IOUs.

The Statewide Reach Codes Team selected measures for evaluation based on prior residential and nonresidential 2019 reach code analysis ((Statewide Reach Codes Team, 2019a), (Statewide Reach Codes Team, 2019b), (Statewide Reach Codes Team, 2020)) as well as experience with and outreach to architects, builders, and engineers and general knowledge of the relative acceptance of many measures. This analysis focuses on the residential dwelling units only. A prior study and report demonstrated the cost effectiveness of above code packages for nonresidential buildings (Statewide Reach Codes Team, 2019a).

2.2.1 Federal Preemption

The United States Department of Energy sets minimum efficiency standards for equipment and appliances that are federally regulated under the National Appliance Energy Conservation Act of 1975, including heating, cooling, and water heating equipment. Since state and local governments are prohibited from adopting policies that mandate higher minimum efficiencies than the federal standards require (federal preemption), the focus of this study is to identify and evaluate cost-effective packages that do not include high efficiency equipment. While this

¹ The compliance penalty is not reflected in the results in this analysis since the baseline and proposed designs both include a DOAS.

study is limited by federal preemption, in practice builders may use any package of compliant measures to achieve the performance goals, including high efficiency appliances. Often, these measures are the simplest and most affordable measures to increase energy performance.

2.2.2 Energy Efficiency Measures

Following are descriptions of each of the efficiency measures evaluated for the residential spaces under this analysis. Because not all of the measures described below were found to be cost-effective, and cost effectiveness varied by climate zone, not all measures are included in all packages and some of the measures listed are not included in any final package.

Improved Fenestration – Lower U-factor: Reduce window U-factor to 0.25 Btu/hour-ft²-°F. The prescriptive maximum U-factor is 0.36 in all climates. This measure applies to all windows on floors two through ten.

Improved Fenestration – Lower SHGC: Reduce window solar heat gain coefficient (SHGC) to 0.22. The prescriptive maximum SHGC is 0.25 for fixed windows in all climates. The Statewide Reach Codes Team evaluated increased SHGC in heating dominated climates (Climate Zones 1, 3, 5, and 16) but results were better with a lower SHGC. This measure applies to all windows on floors two through ten.

Exterior Wall Insulation: Additional R-4 exterior continuous insulation on exterior walls. To meet the prescriptive wall requirements, it is assumed that exterior wall insulation is used in the base case, therefore this measure adds the additional R-value to existing exterior insulation. This measure applies to all walls on floors two through ten.

HERS Verification of Hot Water Pipe Insulation: The California Plumbing Code (CPC) requires pipe insulation on all hot water lines. This measure provides credit for HERS Rater verification of pipe insulation requirements according to the procedures outlined in the 2019 Reference Appendices RA3.6.3. (California Energy Commission, 2018b).

Low Pressure Drop Ducts: Upgrade the duct distribution system to reduce external static pressure and meet a maximum fan efficacy of 0.25 watts (W) per cubic feet per minute (cfm) operating at full speed. This may involve upsizing ductwork, reducing the total effective length of ducts, and/or selecting low pressure drop components, such as filters. This measure is applied to the ducted split system heat pumps serving the dwelling units.

Energy- or Heat- Recovery Ventilation: An energy- or heat-recovery ventilation (ERV/HRV) system installed on the central DOAS with 67 percent sensible recovery effectiveness and 1.0 W/cfm fan efficacy (total including both supply and return fans). The DOAS in the base case model also has a 1.0 W/cfm fan efficacy, so there is no fan efficacy credit or penalty evaluated for this measure.

Solar Thermal: Prescriptively, central water heating systems require a solar thermal system with a 20 percent solar fraction in Climate Zones 1 through 9 and 35 percent solar fraction in Climate Zones 10 through 16. This measure upgrades the prescriptive solar thermal system to meet a 50 percent solar fraction in all climates, assuming there is available roof space for the additional collectors.

2.2.3 Equipment Fuel Substitution Measures – Water Heating

Since the base case prototype model assumes individual heat pumps for space heating and all-electric appliances in the dwelling units, the central domestic hot water system is the only equipment serving the dwelling unit spaces to electrify in the all-electric design. The Statewide Reach Codes Team evaluated two configurations for electric heat pump water heaters (HPWHs) described below.

New functionality was added to CBECC-Com 2019.1.3 with the ability to model central HPWH systems. There are two primary system types: “Small, Integrated, Packaged System” and “Large Single Pass Primary”. The former allows for modeling 40- to 85-gallon residential HPWHs including Northwest Energy Efficiency Alliance rated units and is how the clustered approach referred to in this analysis is modeled. The latter models large central HPWHs and covers various product models over six manufacturers (at the time of writing this report). CBECC-Com 2019.1.3 also provides a “Solar Thermal Flexibility Credit” to allow for projects with electric central water heating to use a photovoltaic (PV) system to offset the energy use of the solar thermal system in the Standard Design base case. Under these conditions, PV’s impact on compliance margin is limited to the value of the solar thermal credit.

Central HPWH with Recirculation: Per Section 150.1(c)8C of 2019 Title 24, the Energy Commission made an executive determination outlining requirements of a prescriptive approach for central heat pump water heating systems in December 2019 (California Energy Commission, 2019b). Key aspects of the prescriptive approach are described below:

- The system must be configured with a design similar to what is presented in the schematic in Figure 2, copied from the executive determination document.
- HPWH must be a single-pass split system with the compressor located outdoors and be able to operate down to -20°F.
- The system must include either a solar thermal water heating system that meets the current prescriptive requirements or 0.1 direct current kilowatt (kW_{DC}) of PV system capacity per dwelling unit/dwelling unit.

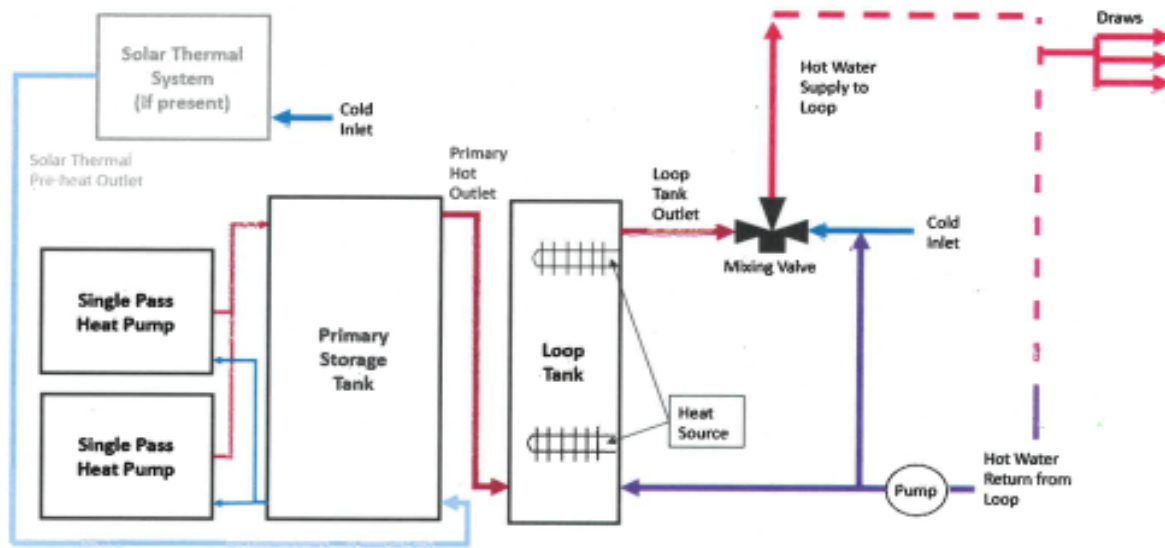


Figure 2: Prescriptive central HPWH system schematic.

Source: Energy Commission (California Energy Commission, 2019b).

For this configuration, the Statewide Reach Codes Team evaluated a central recirculating HPWH system using Sanden compressors that meet the prescriptive requirements. Based on the system sizing requirements, 19 Sanden units and 1,520 gallons of primary storage capacity are required for the 117-dwelling unit building. The system is modeled with the tanks located indoors in a conditioned zone and source air provided from outdoors with the Sanden units likely located on rooftops. The rooftop space required for the heat pump units and the prescriptive PV system (0.1 kW_{DC} per dwelling unit) will be similar or less than that required for the prescriptive solar thermal water heating system. The recirculation system is demand controlled meeting the requirements of the 2019 Reference Appendices RA4.4.13.

Clustered HPWH: This clustered design uses residential integrated storage HPWHs to serve more than one dwelling unit; four to five bedrooms on average for a total of 38 HPWHs in the 117- dwelling unit, 162-bed building. The water heaters are located in conditioned interior closets throughout the building and designed for short plumbing runs without using a hot water recirculation loop. A minimum efficiency 2.0 uniform energy factor (UEF) HPWH was used for this analysis (to avoid federal preemption). This approach has been selectively used in multifamily projects because of its reliance on lower cost, small capacity HPWH products. The clustered strategy is not a prescriptive option but is allowed in the performance path if the water heater serves no more than eight units. Since each water heater serves multiple dwelling units, the Standard Design includes a solar thermal water heating system and the project is penalized in compliance if a solar thermal or PV system is not included.

2.2.4 Renewable Energy

PV: There is no existing requirement for PV in the 2019 Title 24 nonresidential code for high-rise residential buildings (four or more stories). The PV sizing methodology was developed to offset a portion of annual residential electricity use and avoid oversizing which would violate net energy metering (NEM) rules. In all cases, PV is evaluated with the PV simulations within CBECC-Com using a standard module type, 180-degree azimuth, and 22-degree tilt. The analysis evaluated a PV system capacity equal to 0.1 and 0.2 kW_{DC} per dwelling unit. Assuming 15 W per ft² this requires 780 to 1,560 ft² of the 12,540 ft² rooftop. The benefit of the PV was applied to the dwelling units assuming virtual NEM.

2.2.5 Nonresidential and Common Area Spaces

Efficiency measure packages and electric equipment (for the all-electric analysis) found to be cost-effective in the nonresidential building reach code analysis were applied to the nonresidential spaces for evaluating performance relative to compliance, but the incremental costs and energy impacts of these measures on the nonresidential spaces were not included in this analysis. Refer to the nonresidential reach code study for more details (Statewide Reach Codes Team, 2019a).

2.3 Package Development

Three types of measure packages were evaluated for each climate zone to identify cost-effective combinations, as described below.

1. **Efficiency Packages:** These packages combine efficiency measures that do not trigger federal preemption including envelope, water heating distribution, and duct distribution efficiency measures.
2. **Fuel Substitution:** In addition to applying the efficiency measures these packages also use electric appliances in place of natural gas appliances. For the residential spaces, only water heating is converted from using natural gas to electricity.
 - a. For water heating both a central design with recirculation and a clustered design are evaluated.
3. **Efficiency and PV Packages (with or without fuel substitution):** In addition to applying efficiency measures these packages have a PV system to offset a portion of dwelling unit estimated electricity use.

2.4 Measure Cost

Measure costs were obtained from various sources, including prior reach code studies, past Title 24 Codes and Standards Enhancement (CASE) work (developed by the Statewide CASE Team), local contractors, internet searches, past projects, and technical reports.

2.4.1 Energy Efficiency and Renewable Measures

Table 2 summarizes the incremental cost assumptions for the residential measures evaluated in this study. Incremental costs represent the equipment, installation, replacement, and maintenance costs of the proposed measures relative to the base case. Replacement costs are applied to PV inverters and water heating equipment over the 30-year evaluation period. There is no assumed incremental maintenance on the envelope, HVAC, or water heating measures. Costs were estimated to reflect costs to the building owner. When costs were obtained from a source that did not already include builder overhead and profit, a markup of ten percent was added. All costs are provided as present value in 2020 (2020 PV\$). Costs due to variations in heat pump capacity by climate zone were not accounted for in the analysis. While the efficiency measures will reduce required cooling and heating capacities, in most cases they will not be reduced enough to drop to the next nominal capacity system.

Table 2: Incremental Cost Details

Measure	Performance Level	Incremental Cost (2020 PV\$)	Source & Notes
Non-Preempted Measures			
Window U-factor	0.25 vs 0.36	\$27,342	\$6.95/ft ² window area based on analysis conducted for the 2019 and 2022 Title 24 code cycles (Statewide CASE Team, 2018).
Window SHGC	0.22 vs 0.25	\$0	Data from CASE Report along with direct feedback from Statewide CASE Team that higher SHGC does not necessarily have any incremental cost impact (Statewide CASE Team, 2017b).
Exterior Wall Insulation	Add 1 inch	\$8,497	\$0.86/ft ² based on adding 1 inch of exterior insulation on exterior walls with some level of existing exterior insulation. Costs are averaged from two sources ((Statewide CASE Team, 2014), (Statewide CASE Team, 2017a)) and for both expanded polystyrene (EPS) and polyisocyanurate products with a 10% mark-up added to account for cost increases since the time of the report.
HERS Verified Pipe Insulation	HERS verified pipe insulation vs no verification	\$13,275	\$83 per dwelling unit for a HERS Rater to conduct verification of pipe insulation based on feedback from HERS Raters.
Low Pressure Drop Duct Design	0.25 W/cfm vs 0.35 W/cfm	\$16,824	\$144 per dwelling unit. Costs assume 1.5 hours labor per multifamily dwelling unit. Labor rate of \$96 per hour is from 2019 RSMeans for sheet metal workers and includes an average City Cost Index for labor for California cities.
ERV/HRV (on central DOAS)	67% sensible recovery effectiveness	\$110,331	Based on costs from the Multifamily Indoor Air Quality 2022 CASE Report (Statewide CASE Team, 2020b).
Solar Thermal System	50% solar fraction vs prescriptive 20%-35%	\$59,452 - \$84,932	Costs based on 2022 multifamily solar thermal measure CASE proposal (Statewide CASE Team, 2020a) and include first cost of \$70,727 and \$8,834 present value for replacement/maintenance costs.
Renewable Energy (PV)			
PV System	0.1 and 0.2 kW _{DC} per dwelling unit	\$3.17/W _{DC}	<p>First costs are from Lawrence Berkeley National Laboratory's Tracking the Sun 2018 costs (Barbose et al., 2018) and represent costs for the first half of 2018 of \$2.90/W_{DC} for nonresidential systems ≤ 500 kW_{DC}. These costs were reduced by 16% for the solar investment tax credit, which is the average credit over years 2020-2022.</p> <p>Inverter replacement cost of \$0.14/W_{DC} present value includes replacements at year 11 at \$0.15/W_{DC} (nominal) and at year 21 at \$0.12/W_{DC} (nominal) per the 2019 PV CASE Report (California Energy Commission, 2017).</p> <p>System maintenance costs of \$0.31/W_{DC} present value assumes additional \$0.02/W_{DC} (nominal) annually per the 2019 PV CASE Report (California Energy Commission, 2017).</p> <p>10% overhead and profit added to all costs.</p>

2.4.2 Equipment Fuel Substitution Measures – Water Heating

The Statewide Reach Codes Team reached out to stakeholders to collect project cost information for central gas boilers and central recirculating and clustered HPWH designs. Project data sources included Association for Energy Affordability, Redwood Energy, Mithun, Ecotope, and the All-Electric Multifamily Compliance Pathway 2022 CASE Report (Statewide CASE Team, 2020a). Costs are presented in Table 3 and do not include PV system costs. The cases were evaluated with and without PV even though PV or solar thermal is prescriptively required as part of the electric central water heating prescriptive approach.

Table 3: Gas and Electric Water Heating Equipment Present Value (2020\$) Costs over 30-Year Period of Analysis

	Central Gas Boiler (CZs 1-9)	Central Gas Boiler (CZs 10-16)	Central Recirculating HPWH	Clustered HPWH
System Quantity/Description	1 boiler recirculation		19 units, 1,547-gallon total	38 units, 80-gallon each
Total Equipment Cost	\$131,270		\$270,261	\$153,409
Solar Thermal System	(20% solar fraction) \$122,216	(35% solar fraction) \$147,696	-	-
Total First Cost	\$253,486	\$278,966	\$270,261	\$153,409
Maintenance/Replacement Cost (PV)	\$90,167	\$90,167	\$147,450	\$98,467
Total Cost (NPV)	\$343,653	\$369,133	\$417,710	\$251,876
Incremental Cost CZ 1-9 (PV)	-	-	\$74,057	(\$91,777)
Incremental Cost CZ 10-16 (PV)	-	-	\$48,577	(\$117,257)

Source: Statewide CASE Team, 2020a.

Typical costs for the water heating systems are based on the following assumptions:

Central Gas Boiler: Based on the average of total estimated project costs from contractors for four multi-family projects ranging from 32 to 340 dwelling units and cost estimates for mid- and high-rise buildings from the All-Electric Multifamily Compliance Pathway 2022 CASE Report (Statewide CASE Team, 2020a). The cost per dwelling unit ranged from \$547 to \$2,089 and the average cost applied in this analysis was \$1,122 per dwelling unit. Costs include installation of gas piping from the building meter to the water heater. Water heater lifetime is assumed to be 15 years and the net present value (NPV) replacement cost at year 15 is \$84,257.

Central Recirculating HPWH: Based on average total installed project costs from four multi-family projects with Sanden HPWHs ranging from four to 16 Sanden units per project. The cost per Sanden HPWH ranged from \$13,094 to \$15,766 and the average cost applied in this analysis was \$14,224 per HPWH. Based on the prescriptive system sizing requirements, 19 Sanden units are required for the 117-dwelling unit building, resulting in a total first cost of \$270,261. Water heater lifetime is assumed to be 15 years. Because Sanden HPWHs are an emerging technology in the United States, it is expected that over time their costs will decrease and for replacement at year 15 the costs are assumed to have decreased by 15 percent.

Clustered HPWH: Based on costs from one project with RHEEM HPWHs used in a clustered design. Costs include water heater interior closet, electrical outlets, and increased breaker size and sub feed. Water heater based on 2.0 UEF 80-gallon appliance with 38 total HPWHs serving the building (one per four to five bedrooms). Water heater lifetime is assumed to be 15 years and the NPV replacement cost at year 15 is \$98,467. While this has an impact on leasable floor area, the design impacts have been found to be minimal when addressed early in design and is equivalent to less than one percent of the residential floor area. This design assumes eight water heater closets per floor, at approximately 15 ft² per closet.

Solar Thermal: Based on system costs provided in the All-Electric Multifamily Compliance Pathway 2022 CASE Report (Statewide CASE Team, 2020a). First costs for materials for the 35 percent solar fraction case and the markup percentage reflect that presented in the CASE Report for the high-rise prototype. The labor costs and 20 percent solar fraction case costs are estimated based on detailed costs in the CASE Report. Replacement and maintenance costs assume replacement of the solar thermal tank at year 15 at \$6,110 and glycol replacement of \$1,300 each time at years 9, 18, and 27. The cost of the remaining useful life of the glycol at year 30 is deducted from the final cost. The CASE Report included costs for replacing the solar collectors at year 20. Collectors can have longer lifetimes up to 30 years if well maintained, therefore this analysis does not assume any replacement of the collectors over the 30-year analysis period. See Table 4 for details.

Table 4: Solar Thermal Detailed Costs over 30-Year Period of Analysis

Solar Fraction	20%	35%
Materials	\$39,854	\$57,450
Labor	\$56,001	\$58,390
Markup	27.5%	27.5%
First Cost	\$122,216	\$147,696
Replacement/Maintenance (2020 \$PV)	\$5,910	\$5,910
Total Cost (2020 \$PV)	\$128,126	\$153,605

Source: Statewide CASE Team, 2020a.

2.4.3 Natural Gas Infrastructure Costs

This analysis assumes that in an all-electric new construction project, natural gas would not be supplied to the building. Eliminating natural gas to the building would save costs associated with connecting a service line from the street main to the building, piping distribution within the building, and monthly meter customer charges from the utility. Incremental costs for natural gas infrastructure in the mixed-fuel building are presented in Table 5. Cost data for the plan review and service extension was estimated on a per building basis and then apportioned to the residential and nonresidential portions of the buildings based on annual gas consumption. For the base case prototype building 49 to 82 percent of estimated building annual gas use is attributed to the residential water heating system across all climate zones. A statewide average of 75 percent was calculated and applied to the costs in Table 5 based on housing starts provided by the Energy Commission for the 2019 Title 24 code development process. The meter costs were based on the service provided to the residential and nonresidential portion of the building separately. Following the table are descriptions of assumptions for each of the cost components. Costs for gas piping from the meter to the gas boilers are included in the central gas boiler costs above. Gas piping distribution costs were typically included in total project costs and could not be broken out in all cases.

Table 5: Natural Gas Infrastructure Cost Savings for All-Electric Building

Item	Source	Total	Nonresidential Portion	Residential Portion
Natural Gas Plan Review	(TRC, 2018)	\$2,316	\$588	\$1,728
Service Extension ^a	(PG&E, 2019)	\$4,600	\$1,169	\$3,431
Meter	(PG&E, 2019)	\$7,200	\$3,600	\$3,600
Total First Cost		\$14,116	\$5,357	\$8,759

^a Service extension costs include 50 percent reduction assuming portion of the costs are passed on to gas customers.

Natural Gas Plan Review: Total costs are based on TRC’s 2019 reach code analysis for Palo Alto (TRC, 2018) and then split between the residential and nonresidential spaces in the building proportionately according to annual gas consumption with 75 percent of the annual load is attributed to residential units on a statewide basis.

Service Extension: Service extension costs to the building were taken from a PG&E memo dated December 5, 2019 to Energy Commission staff. They include costs for trenching and assume nonresidential new construction within a developed area (see Appendix C – PG&E Gas Infrastructure Cost Memo). The total cost of \$9,200 from the memo is reduced by 50 percent to account for the portion of the costs paid for by all customers due to application of Utility Gas Main Extensions rules². The resultant cost is apportioned between the residential and nonresidential spaces in the building based on annual gas consumption of residential and nonresidential uses, with 75 percent of the annual natural gas use attributed to residential units on a statewide basis.

Meter: Cost per meter provided by PG&E for commercial meters (see Appendix C – PG&E Gas Infrastructure Cost Memo). Assume one meter for nonresidential boilers serving space heating and service water heating, and another for residential boilers serving domestic hot water.

2.5 Cost Effectiveness

Cost effectiveness was evaluated for all climate zones and is presented based on both TDV energy, using the Energy Commission’s LCC methodology, and an On-Bill approach using residential customer utility rates. Both methodologies require estimating and quantifying the value of the energy impact associated with energy efficiency measures over the life of the measures (30 years) as compared to the prescriptive Title 24 requirements.

Additional analysis included evaluating the measures using both the 2019 and proposed 2022 TDV multipliers. The proposed 2022 weather files were also used to calculate site energy use and evaluate On-Bill energy performance. The 2022 weather files were updated in 2019 and are considered to better represent conditions now and in the future. They tend to increase cooling and reduce space heating energy use, based on recent warming trends throughout the state.

Cost effectiveness is presented using both lifecycle NPV savings and benefit-to-cost (B/C) ratio metrics, which represent the cost effectiveness of a measure over a 30-year lifetime taking into account discounting of future savings and costs.

- **NPV Savings:** PV benefits minus PV costs is reported as a cost-effectiveness metric. If the net savings of a measure or package is positive, it is considered cost-effective. Negative savings represent net costs. A measure that has negative energy cost benefits (energy cost increase) can still be cost-effective if the costs to implement the measure are more negative (i.e., material and maintenance cost savings).
- **B/C Ratio:** Ratio of the present value of all benefits to the present value of all costs over 30 years (PV benefits divided by PV costs). The criterion for cost effectiveness is a B/C ratio greater than one. A value of one indicates the NPV of the savings over the life of the measure is equivalent to the NPV of the lifetime incremental cost of that measure. A value greater than one represents a positive return on investment. The B/C ratio is calculated according to Equation 1.

Equation 1

$$\text{Benefit – to – Cost Ratio} = \frac{\text{PV of lifetime benefit}}{\text{PV of lifetime cost}}$$

² PG&E Rule 15: https://www.pge.com/tariffs/tm2/pdf/GAS_RULES_15.pdf

SoCalGas Rule 20: <https://www.socalgas.com/regulatory/tariffs/tm2/pdf/20.pdf>

SDG&E Rule 15: http://regarchive.sdge.com/tm2/pdf/GAS_GAS-RULES_GRULE15.pdf

Improving the efficiency of a project often requires an initial incremental investment. In most cases the benefit is represented by annual On-Bill utility or TDV savings, and the cost by incremental first cost and replacement costs. However, some packages result in initial construction cost savings (negative incremental cost), and either energy cost savings (positive benefits), or increased energy costs (negative benefits). In cases where both construction costs and energy-related savings are negative, the construction cost savings are treated as the 'benefit' while the increased energy costs are the 'cost.' In cases where a measure or package is cost-effective immediately (i.e. upfront construction cost savings and lifetime energy cost savings), B/C ratio cost effectiveness is represented by ">1". Because of these situations, NPV savings are also reported, which, in these cases, are positive values.

The lifetime costs or benefits are calculated according to Equation 2.

Equation 2

$$PV \text{ of lifetime cost or benefit} = \sum_{t=0}^n \frac{(Annual \text{ cost or benefit})_t}{(1 + r)^t}$$

Where:

- n = analysis term
- r = discount rate
- t = year at which cost/benefit is incurred

The following summarizes the assumptions applied in this analysis to both methodologies.

- Analysis term of 30-years
- Real discount rate of three percent (does not include inflation)

2.5.1 On-Bill Customer LCC

Residential utility rates were used to calculate utility costs for all cases and determine On-Bill customer cost effectiveness for the proposed packages. Utility costs of the nonresidential spaces were not evaluated in this study, only dwelling unit and water heating energy use. The Statewide Reach Codes Team obtained the recommended utility rates from the representative utility based on the assumption that the reach codes go into effect in 2020. Annual utility costs were calculated using hourly electricity and gas output from CBECC-Com and applying the utility tariffs summarized in Table 6. Appendix B – Utility Rate Schedules includes details on the utility rate schedules used for this study. The applicable residential time-of-use (TOU) rate was applied to all cases. For cases with PV generation, the approved NEM2 tariffs were applied along with minimum daily use billing and mandatory non-bypassable charges. For the PV cases annual electric production was always less than annual electricity consumption; and therefore, no credits for surplus generation were necessary. Future changes to the NEM tariffs are likely; however, there is a lot of uncertainty about what those changes will be and when they will become effective.

There are no master metered multifamily service electric tariffs available from the IOUs. Based on guidance from the IOUs, the residential electric TOU tariffs that apply to individually metered residential dwelling units were also used to calculate electricity costs for the central water heating systems. Baseline allowances included in the electric tariff were applied on a per unit basis for all-electric service.

Based on guidance from the IOUs, master metered multifamily service gas tariffs were used to calculate gas costs for the central water heating systems. The baseline quantities were applied on a per unit basis, as is defined in the schedules, and when available water heating only baseline values were used.

Utility rates were applied to each climate zone based on the predominant IOU serving the population of each zone according to Table 6. Climate Zones 10 and 14 are evaluated with both SCE/SoCalGas and SDG&E tariffs since each utility has customers within these climate zones. Climate Zone 5 is evaluated under both PG&E and SoCalGas natural gas rates. Two municipal utility rates were also evaluated, Sacramento Municipal Utility District (SMUD) in Climate Zone 12 and City of Palo Alto Utilities (CPAU) in Climate Zone 4.

Table 6: IOU Tariffs Applied Based on Climate Zone

Climate Zone	Electric/Gas Utility	Electricity (Dwelling Unit Use)	Electricity (Central Water Heating)	Natural Gas (Central Water Heating) ^a
1-5, 11-13, 16	PG&E	E-TOU-C	E-TOU-C	PG&E GM
5	PG&E/SoCalGas			SoCalGas GM-E
6, 8-10, 14, 15	SCE/SoCalGas	TOU-D (Option 4-9)	TOU-D (Option 4-9)	
7, 10, 14	SDG&E	TOU-DR1	TOU-DR1	SDG&E GM
12	SMUD/PG&E	R-TOD (RT02)	GSN-T	PG&E GM
4	CPAU	E-1	E-2	G-2

^a These rates are allowed assuming no gas is used in the dwelling units.

Utility rates are assumed to escalate over time, using assumptions from research conducted by Energy and Environmental Economics (E3) in the 2019 study Residential Building Electrification in California (Energy & Environmental Economics, 2019). Escalation of natural gas rates between 2019 and 2022 is based on the currently filed GRCs for PG&E, SoCalGas, and SDG&E. Consistent with the E3 study, gas rates are assumed to escalate at four percent per year above inflation from 2023 through 2025, which reflects historical rate increases between 2013 and 2018. Escalation of electricity rates from 2019 through 2025 is assumed to be two percent per year above inflation, based on electric utility estimates. After 2025 escalation rates for both natural gas and electric rates are assumed to drop to a more conservative one percent escalation per year above inflation for long-term rate trajectories beginning in 2026 through 2050. See Appendix B – Utility Rate Schedules for additional details.

2.5.2 TDV LCC

Cost effectiveness was also assessed using the Energy Commission's TDV LCC methodology. TDV is a normalized monetary format developed and used by the Energy Commission for comparing electricity and natural gas savings, and it considers the cost of electricity and natural gas consumed during different times of the day and year. Two versions of TDV were evaluated in this study: the 2019 TDV values used under current 2019 Title 24 for compliance and the 2022 TDV values recently developed and approved by the Energy Commission for the upcoming 2022 Title 24 cycle which will become effective January 1, 2023.

The Energy Commission adopted the TDV methodology to more accurately reflect the variations in the value of energy used (or saved) based on the mix of generation resources and demand on the grid at any given time, as well as impacts on retail energy costs. The 2022 TDV values reflect changes in the generation mix as well as the shift in the peak demand time from mid-afternoon toward early evenings.

The TDV values are based on long term discounted costs of 30 years for all residential measures. The CBECC-Com simulation software results are expressed in terms of TDV kBtu. The present value of the energy cost savings in dollars is calculated by multiplying the TDV kBtu savings by a NPV factor, also developed by the Energy Commission. The 30-year NPV factor is \$0.154/TDV kBtu for nonresidential projects under both the 2019 and 2022 Title 24.

Like the customer B/C ratio, a TDV B/C ratio value of one indicates the savings over the life of the measure are equivalent to the incremental cost of that measure. A value greater than one represents a positive return on investment. The ratio is calculated according to Equation 3.

Equation 3

$$TDV \text{ Benefit} - to - Cost \text{ Ratio} = \frac{TDV \text{ energy savings} * NPV \text{ factor}}{PV \text{ of lifetime incremental cost}}$$

2.5.2.1 2019 and 2022 TDV Differences

There were key changes to the 2022 TDV methodology as compared to the 2019 TDV. Major updates include the following and are further described in the final 2022 TDV methodology report (Energy & Environmental Economics, 2020).

- Updated weather files to reflect historical data from recent years.
- New load profiles representing building and transportation electrification and renewable generation.
- Addition of internalized cost streams to account for carbon emissions.
- Shaped retail rate adjustment partially scaled to hourly marginal cost of service.
- Addition of non-combustion emissions from methane and refrigerant leakage.

The impact of these key changes for electricity TDV are lower values during the mid-day that correspond with an abundance of solar production and a shift of the peak TDV to later in the day as a result of increasing levels of rooftop PV systems. However, the overall magnitude of the electricity 2022 TDV does not increase significantly relative to 2019 TDV. For natural gas TDV there is a large increase in magnitude with the 2022 TDV roughly 40 percent higher than in 2019. This is driven by the new retail rate forecast, increased fixed costs for maintaining the distribution system, and the new carbon cost component.

The updated 2022 weather files represent an updated dataset based on historical weather sampled from recent years (1998-2017) to reflect the impacts of climate change. Cooling loads increase significantly, particularly for the mild climate zones where cooling energy use was previously low. Heating loads decrease on average 30 percent across all climate zones. The weather files used for the 2019 code cycle had not been updated since the 2013 code cycle and represented data only up until 2009. The Energy Commission and the Statewide Reach Codes Team contend that the updated 2022 weather files better reflect changing climate conditions in California. Therefore, the 2022 files are used for all the analysis reported in this study.

2.6 GHG Emissions Reductions

Equivalent CO₂ emission reductions were calculated based on estimates from Zero Code reports available in CBECC-Com simulation software.³ Electricity emissions vary by region and by hour of the year, accounting for time dependent energy use and carbon emissions based on source emissions, including renewable portfolio standard projections. Hourly profiles reflect Climate Zones 1 through 5 and 11 through 13 as a single region and Climate Zones 6 through 10 and 14 through 16 as another. For natural gas, a fixed factor of 11.7 pounds (lb) per therm is used. To compare the mixed-fuel and all-electric cases side-by-side, GHG emissions are presented as CO₂-equivalent (CO₂e) emissions per dwelling unit.

³ More information at: <https://zero-code.org/wp-content/uploads/2018/11/ZERO-Code-TSD-California.pdf>

3 Results

The primary objective of this evaluation is to identify cost-effective, non-preempted performance targets for high-rise multifamily buildings, under both mixed-fuel and all-electric cases, to support the design of local ordinances requiring new high-rise residential buildings to exceed the minimum state requirements. The packages presented are representative examples of designs and measures that can be used to meet the requirements. In practice, a builder can use any combination of non-preempted or preempted compliant measures to meet the requirements.

This analysis evaluated a package of efficiency measures applied to a mixed-fuel design and a similar package for an all-electric design. Each design was evaluated using the predominant utility rates in all climate zones. PV was also added to the efficiency packages.

The following measures are included in at least one package:

- Lower SHGC fenestration
- Wall insulation
- Low pressure-drop HVAC distribution system
- HERS verified pipe insulation

The following measures were evaluated but were found to not be cost-effective in any of the climate zones and were not included in any of the packages:

- Solar thermal system with higher solar fraction than prescriptive requirements
- ERV/HRV System
- Lower U-factor fenestration

Table 7 describes the efficiency measures included in the mixed-fuel and all-electric packages.

Table 7: Measure Package Summary

Climate Zone	MEASURE SPECIFICATION			
	Window SHGC	Add Exterior Wall Insulation (inch)	Fan Watt Draw (W/cfm)	HERS Pipe Insulation
1		+ 1	0.25	No
2	0.22		0.25	No
3	0.22	+ 1 (all-electric only)	0.25	Yes (all-electric only)
4	0.22		0.25	No
5	0.22	+ 1 (all-electric only)	0.25	Yes (all-electric only)
6	0.22		0.25	No
7	0.22		0.25	No
8	0.22		0.25	No
9	0.22		0.25	No
10	0.22		0.25	No
11	0.22	+ 1	0.25	No
12	0.22	+ 1	0.25	No
13	0.22	+ 1	0.25	No
14	0.22	+ 1	0.25	No
15	0.22	+ 1	0.25	No
16	0.22	+ 1	0.25	No

Table 8 presents results for the mixed-fuel packages and Table 9 through Table 11 present results for the all-electric packages. Both mixed-fuel and all-electric results are relative to the mixed-fuel 2019 Title 24 prescriptive baseline model with in-unit heat pumps for heating and cooling and central gas water heating. B/C ratios for all packages are calculated according to the On-Bill, 2019 TDV, and 2022 TDV methodologies. The all-electric results are presented both without PV and with a PV system sized based on 0.1 and 0.2 kW_{DC} per dwelling unit. The mixed-fuel package was also evaluated with 0.1 kW_{DC} per dwelling unit and results are presented in Appendix D – Detailed Results - Mixed Fuel. Appendix E – Detailed Results - All-Electric provides detailed results for the all-electric packages.

Compliance margins for the mixed-fuel efficiency packages range from six to eight percent (except in Climate Zone 1), which meets the Title 24, Part 11 (CALGreen) Tier 1 energy performance requirement for high-rise residential buildings (minimum five percent compliance margin). The packages are cost-effective based on all metrics in Climate Zones 2 through 16.

The all-electric efficiency packages with central recirculating HPWH equipment meet minimum Title 24 requirements in all climate zones except 1 and 16, with compliance margins ranging from 0.1 to 4.7 percent. The all-electric packages result in natural gas savings and an increase in electricity use. The central recirculating case is not cost-effective On-Bill with higher lifecycle utility costs except in SMUD territory but is cost-effective based on 2022 TDV in all climates.

The clustered HPWH case only meets minimum Title 24 requirements in Climate Zones 4, 6 through 9, and 15. Even though the clustered HPWH is cost-effective in almost all climate zones, it is not code compliant in many and may not be used to support a local reach code in those zones. The package is cost-effective On-Bill everywhere except Climate Zones 1, 3, 5, and 16. The clustered approach has lower installed costs compared to the mixed fuel baseline but results in higher utility costs in all Climate Zones except 8, 9, 15, 4 (in CPAU territory), and 12 (in SMUD territory). The clustered HPWH case is cost-effective based on TDV in all climates.

The all-electric packages become cost-effective On-Bill when either 0.1 or 0.2 kW_{DC} of PV per dwelling unit is installed, except with the central HPWH with recirculation design in Climate Zone 1. The all-electric packages in Climate Zones 1 and 16 are not code compliant with PV and may not be used to support a local reach code in those climate zones.

Table 8: Mixed-Fuel Package Results: Efficiency Only (Savings/Cost Per Dwelling Unit)^a

Climate Zone	Elec Utility	Gas Utility	Comp. Margin	Total Gas Savings (therm)	Total Electric Savings (kWh)	Utility Cost Savings (2020 PV\$)	Incremental Cost (2020 PV\$)	On-Bill		2019 TDV		2022 TDV	
								B/C Ratio	NPV	B/C Ratio	NPV	B/C Ratio	NPV
1	PGE	PGE	4.5%	0	39	\$199	\$216	0.9	(\$17)	0.6	(\$83)	0.8	(\$42)
2	PGE	PGE	6.5%	0	79	\$570	\$144	4.0	\$426	3.0	\$289	2.7	\$247
3	PGE	PGE	6.7%	0	60	\$420	\$144	2.9	\$276	2.3	\$184	1.9	\$131
4	PGE	PGE	7.2%	0	95	\$678	\$144	4.7	\$534	3.2	\$321	3.2	\$313
4	CPAU	CPAU	7.2%	0	95	\$394	\$144	2.7	\$250	3.2	\$321	3.2	\$313
5	PGE	PGE	6.8%	0	71	\$484	\$144	3.4	\$340	2.3	\$180	1.9	\$122
5	PGE	SCG	6.8%	0	71	\$484	\$144	3.4	\$340	2.3	\$180	1.9	\$122
6	SCE	SCG	7.8%	0	113	\$619	\$144	4.3	\$475	3.4	\$344	3.2	\$315
7	SDGE	SDGE	8.1%	0	105	\$789	\$144	5.5	\$645	3.4	\$339	2.8	\$264
8	SCE	SCG	7.8%	0	128	\$728	\$144	5.1	\$585	3.9	\$413	3.9	\$421
9	SCE	SCG	7.6%	0	125	\$695	\$144	4.8	\$551	4.2	\$461	3.9	\$413
10	SCE	SCG	7.5%	0	130	\$623	\$144	4.3	\$479	4.2	\$457	3.9	\$415
10	SDGE	SDGE	7.5%	0	130	\$972	\$144	6.8	\$828	4.2	\$457	3.9	\$415
11	PGE	PGE	7.7%	0	148	\$897	\$216	4.1	\$681	3.7	\$584	3.4	\$523
12	PGE	PGE	7.5%	0	122	\$736	\$216	3.4	\$519	3.1	\$448	2.8	\$397
12	SMUD	PGE	7.5%	0	122	\$401	\$216	1.9	\$185	3.1	\$448	2.8	\$397
13	PGE	PGE	7.4%	0	152	\$923	\$216	4.3	\$706	3.4	\$523	3.5	\$534
14	SCE	SCG	7.9%	0	152	\$735	\$216	3.4	\$518	3.6	\$556	3.5	\$532
14	SDGE	SDGE	7.9%	0	152	\$1,055	\$216	4.9	\$838	3.6	\$556	3.5	\$532
15	SCE	SCG	7.8%	0	213	\$1,021	\$216	4.7	\$804	4.5	\$768	4.4	\$725
16	PGE	PGE	6.0%	0	115	\$679	\$216	3.1	\$463	2.3	\$279	2.1	\$244

^a Values in red indicate B/C ratios less than 1 or negative values.

Table 9: All-Electric Package Results: Central Recirculating vs Clustered HPWH Approach with Efficiency (Savings/Cost Per Dwelling Unit)^{a, b}

Climate Zone	Elec Utility	Gas Utility	Total Gas Savings (therm)	Central Recirculating						Clustered					
				Comp Margin	Total Electric Savings (kWh)	Incremental Cost (2020 PV\$)	B/C Ratio			Comp Margin	Total Electric Savings (kWh)	Incremental Cost (2020 PV\$)	B/C Ratio		
							On-Bill	2019 TDV	2022 TDV				On-Bill	2019 TDV	2022 TDV
1	PGE	PGE	96	-4.6%	(671)	\$775	0.0	0.0	2.1	-6.2%	(770)	(\$643)	0.6	1.9	>1
2	PGE	PGE	87	1.0%	(557)	\$702	0.0	0.5	2.5	-0.8%	(648)	(\$715)	1.3	>1	>1
3	PGE	PGE	87	0.1%	(549)	\$888	0.0	0.3	1.9	-1.9%	(642)	(\$529)	0.9	>1	>1
4	PGE	PGE	81	4.1%	(495)	\$702	0.2	0.5	2.5	2.4%	(578)	(\$715)	2.3	>1	>1
4	CPAU	CPAU	81	4.1%	(495)	\$702	0.6	0.5	2.5	2.4%	(578)	(\$715)	>1	>1	>1
5	PGE	PGE	87	0.2%	(536)	\$888	0.0	0.3	1.7	-1.1%	(630)	(\$529)	1.0	>1	>1
5	PGE	SCG	87	0.2%	(536)	\$888	0.0	0.3	1.7	-1.1%	(630)	(\$529)	0.6	>1	>1
6	SCE	SCG	78	3.4%	(447)	\$702	0.6	0.7	2.4	0.6%	(532)	(\$715)	10.7	>1	>1
7	SDGE	SDGE	78	3.5%	(452)	\$702	0.2	0.7	2.2	1.1%	(537)	(\$715)	1.8	>1	>1
8	SCE	SCG	76	4.6%	(416)	\$702	0.7	0.9	2.7	1.4%	(492)	(\$715)	>1	>1	>1
9	SCE	SCG	76	4.2%	(428)	\$702	0.7	0.9	2.7	1.9%	(503)	(\$715)	>1	>1	>1
10	SCE	SCG	63	1.5%	(422)	\$484	0.0	0.4	2.5	-0.8%	(494)	(\$933)	2.2	>1	>1
10	SDGE	SDGE	63	1.5%	(422)	\$484	0.0	0.4	2.5	-0.8%	(494)	(\$933)	1.5	>1	>1
11	PGE	PGE	65	2.0%	(434)	\$557	0.0	0.7	2.4	-1.2%	(495)	(\$861)	2.0	>1	>1
12	PGE	PGE	68	1.4%	(474)	\$557	0.0	0.5	2.2	-1.9%	(550)	(\$861)	1.2	10.9	>1
12	SMUD	PGE	68	1.4%	(474)	\$557	1.5	0.5	2.2	-1.9%	(550)	(\$861)	>1	10.9	>1
13	PGE	PGE	63	1.7%	(411)	\$557	0.0	0.6	2.4	-1.9%	(467)	(\$861)	2.4	7.1	>1
14	SCE	SCG	65	2.3%	(433)	\$557	0.1	0.8	2.6	-0.7%	(498)	(\$861)	2.4	>1	>1
14	SDGE	SDGE	65	2.3%	(433)	\$557	0.0	0.8	2.6	-0.7%	(498)	(\$861)	1.4	>1	>1
15	SCE	SCG	51	4.7%	(252)	\$557	0.9	1.4	2.7	2.1%	(279)	(\$861)	>1	>1	>1
16	PGE	PGE	78	-7.5%	(622)	\$557	0.0	0.0	1.3	-7.1%	(698)	(\$861)	0.7	1.3	>1

^a Values in red indicate B/C ratios less than 1 or negative values. Values in grey indicate cases which are cost-effective but are not code compliant and cannot be used to support a reach code.

^b ">1" indicates cases where there are both incremental measure cost savings and energy cost savings.

Table 10: All-Electric Central Recirculating HPWH Results: With and Without PV (Savings/Cost Per Dwelling Unit)^{a, b}

Climate Zone	Elec Utility	Gas Utility	Comp Margin		No PV			0.1 kW _{DC} /dwelling unit			0.2 kW _{DC} /dwelling unit		
			No PV	With PV ^b	Total Electric Savings (kWh)	Incremental Cost (2020 PV\$)	On-Bill B/C Ratio	Total Electric Savings (kWh)	Incremental Cost (2020 PV\$)	On-Bill B/C Ratio	Total Electric Savings (kWh)	Incremental Cost (2020 PV\$)	On-Bill B/C Ratio
1	PGE	PGE	-4.6%	-2.5%	(671)	\$775	0.0	(538)	\$1,091	0.2	(406)	\$1,408	0.72
2	PGE	PGE	1.0%	3.0%	(557)	\$702	0.0	(400)	\$1,018	1.0	(242)	\$1,335	1.54
3	PGE	PGE	0.1%	3.0%	(549)	\$888	0.0	(386)	\$1,205	0.8	(224)	\$1,521	1.36
4	PGE	PGE	4.1%	6.1%	(495)	\$702	0.2	(329)	\$1,018	1.2	(163)	\$1,335	1.75
4	CPAU	CPAU	4.1%	6.1%	(495)	\$702	0.6	(329)	\$1,018	1.1	(163)	\$1,335	1.25
5	PGE	PGE	0.2%	2.3%	(536)	\$888	0.0	(362)	\$1,205	0.9	(188)	\$1,521	1.48
5	PGE	SCG	0.2%	2.3%	(536)	\$888	0.0	(362)	\$1,205	0.7	(188)	\$1,521	1.25
6	SCE	SCG	3.4%	5.7%	(447)	\$702	0.6	(270)	\$1,018	1.2	(94)	\$1,335	1.60
7	SDGE	SDGE	3.5%	5.6%	(452)	\$702	0.2	(288)	\$1,018	1.3	(123)	\$1,335	1.80
8	SCE	SCG	4.6%	6.6%	(416)	\$702	0.7	(246)	\$1,018	1.3	(75)	\$1,335	1.64
9	SCE	SCG	4.2%	5.8%	(428)	\$702	0.7	(250)	\$1,018	1.2	(72)	\$1,335	1.52
10	SCE	SCG	1.5%	5.7%	(422)	\$484	0.0	(244)	\$801	1.0	(67)	\$1,117	1.36
10	SDGE	SDGE	1.5%	5.7%	(422)	\$484	0.0	(244)	\$801	1.3	(67)	\$1,117	1.96
11	PGE	PGE	2.0%	6.7%	(434)	\$557	0.0	(275)	\$873	1.0	(116)	\$1,190	1.46
12	PGE	PGE	1.4%	6.3%	(474)	\$557	0.0	(311)	\$873	0.8	(147)	\$1,190	1.36
12	SMUD	PGE	1.4%	6.3%	(474)	\$557	1.5	(311)	\$873	1.5	(147)	\$1,190	1.51
13	PGE	PGE	1.7%	6.8%	(411)	\$557	0.0	(245)	\$873	1.1	(80)	\$1,190	1.56
14	SCE	SCG	2.3%	6.5%	(433)	\$557	0.1	(242)	\$873	1.0	(51)	\$1,190	1.40
14	SDGE	SDGE	2.3%	6.5%	(433)	\$557	0.0	(242)	\$873	1.2	(51)	\$1,190	1.90
15	SCE	SCG	4.7%	7.7%	(252)	\$557	0.9	(75)	\$873	1.4	102	\$1,190	1.66
16	PGE	PGE	-7.5%	-3.2%	(622)	\$557	0.0	(453)	\$873	0.3	(283)	\$1,190	1.03

^a Values in red indicate B/C ratios less than 1 or negative values.^b 0.1 kW_{DC}/dwelling unit sufficient in all climate zones to achieve reported compliance margins except in Climate Zones 11-13 0.2 kW_{DC}/dwelling unit is necessary.

Table 11: All-Electric Clustered HPWH Results: With and Without PV (Savings/Cost Per Dwelling Unit)^{a, b}

Climate Zone	Elec Utility	Gas Utility	Comp Margin		No PV			0.1 kW _{DC} /dwelling unit			0.2 kW _{DC} /dwelling unit		
			No PV	With PV ^c	Total Electric Savings (kWh)	Incremental Cost (2020 PV\$)	On-Bill B/C Ratio	Total Electric Savings (kWh)	Incremental Cost (2020 PV\$)	On-Bill B/C Ratio	Total Electric Savings (kWh)	Incremental Cost (2020 PV\$)	On-Bill B/C Ratio
1	PGE	PGE	-6.2%	-4.1%	(770)	(\$643)	0.6	(637)	(\$326)	0.96	(504)	(\$10)	>1
2	PGE	PGE	-0.8%	1.2%	(648)	(\$715)	1.3	(490)	(\$399)	>1	(333)	(\$82)	>1
3	PGE	PGE	-1.9%	0.9%	(642)	(\$529)	0.9	(479)	(\$213)	>1	(317)	\$104	14.67
4	PGE	PGE	2.4%	4.3%	(578)	(\$715)	2.3	(412)	(\$399)	>1	(246)	(\$82)	>1
4	CPAU	CPAU	2.4%	4.3%	(578)	(\$715)	>1	(412)	(\$399)	>1	(246)	(\$82)	>1
5	PGE	PGE	-1.1%	0.9%	(630)	(\$529)	1.0	(457)	(\$213)	>1	(283)	\$104	16.38
5	PGE	SCG	-1.1%	0.9%	(630)	(\$529)	0.6	(457)	(\$213)	>1	(283)	\$104	12.97
6	SCE	SCG	0.6%	2.9%	(532)	(\$715)	10.7	(355)	(\$399)	>1	(179)	(\$82)	>1
7	SDGE	SDGE	1.1%	3.1%	(537)	(\$715)	1.8	(372)	(\$399)	>1	(207)	(\$82)	>1
8	SCE	SCG	1.4%	3.5%	(492)	(\$715)	>1	(322)	(\$399)	>1	(151)	(\$82)	>1
9	SCE	SCG	1.9%	3.4%	(503)	(\$715)	>1	(325)	(\$399)	>1	(148)	(\$82)	>1
10	SCE	SCG	-0.8%	3.5%	(494)	(\$933)	2.2	(316)	(\$617)	>1	(139)	(\$300)	>1
10	SDGE	SDGE	-0.8%	3.5%	(494)	(\$933)	1.5	(316)	(\$617)	>1	(139)	(\$300)	>1
11	PGE	PGE	-1.2%	3.5%	(495)	(\$861)	2.0	(336)	(\$544)	>1	(177)	(\$228)	>1
12	PGE	PGE	-1.9%	3.0%	(550)	(\$861)	1.2	(387)	(\$544)	>1	(223)	(\$228)	>1
12	SMUD	PGE	-1.9%	3.0%	(550)	(\$861)	>1	(387)	(\$544)	>1	(223)	(\$228)	>1
13	PGE	PGE	-1.9%	3.3%	(467)	(\$861)	2.4	(301)	(\$544)	>1	(136)	(\$228)	>1
14	SCE	SCG	-0.7%	3.5%	(498)	(\$861)	2.4	(308)	(\$544)	>1	(117)	(\$228)	>1
14	SDGE	SDGE	-0.7%	3.5%	(498)	(\$861)	1.4	(308)	(\$544)	>1	(117)	(\$228)	>1
15	SCE	SCG	2.1%	5.1%	(279)	(\$861)	>1	(102)	(\$544)	>1	75	(\$228)	>1
16	PGE	PGE	-7.1%	-2.9%	(698)	(\$861)	0.7	(529)	(\$544)	2.70	(359)	(\$228)	>1

^a Values in red indicate B/C ratios less than 1 or negative values. Values in grey indicate cases which are cost-effective but are not code compliant and cannot be used to support a reach code.

^b ">1" indicates cases where there are both incremental measure cost savings and energy cost savings.

^c 0.1 kW_{DC}/dwelling unit sufficient in all climate zones to achieve reported compliance margins except in Climate Zones 11-13 0.2 kW_{DC}/dwelling unit is necessary.

4 Conclusions and Summary

This report evaluated the feasibility and cost effectiveness of “above code” performance specifications for newly constructed high-rise multifamily buildings. The analysis included application of efficiency measures, electric appliances, and PV in all climate zones and found cost-effective packages across the state. For the building designs and climate zones where cost-effective packages were identified, the results of this analysis can be used by local jurisdictions to support the adoption of reach codes. Cost effectiveness was evaluated according to three metrics: On-Bill customer, 2019 TDV, and 2022 TDV LCC B/C ratio.

For mixed-fuel buildings, this analysis demonstrates that there are cost-effective efficiency packages based on at least one of the evaluated cost-effectiveness metrics that achieve a minimum five percent compliance margin in most climate zones. The exception is Climate Zone 1 where the package only resulted in a 4.5 percent compliance margin. Although the Climate Zone 1 package is not cost-effective based on either the 2019 TDV or the On-Bill methodologies, it is cost-effective based on 2022 TDV.

This study evaluated electrification of residential loads in new high-rise multifamily buildings. Based on typical construction across California, the base case condition incorporated all-electric appliances within the dwelling unit spaces. As a result, only central water heating was converted from natural gas to electric as part of this analysis. For all-electric buildings, this analysis demonstrates that there are cost-effective efficiency packages with a HPWH that are Title 24 compliant in all climate zones except Climate Zones 1 and 16.

The case with the central recirculating HPWH is cost-effective based on the 2022 TDV methodology in all climate zones. Additionally, in Climate Zone 15 it is cost-effective based on 2019 TDV and in Climate Zone 12 in SMUD territory it is cost-effective On-Bill. Utility cost savings were found in Climate Zones 2, 4, 5 (in PG&E territory), 6-9, 10 (in SCE territory), 12 (in SMUD territory), 14 (in SCE territory), and 15. This case (Table 9) demonstrates how the analysis results differ under the 2019 and 2022 TDV metrics. The B/C ratios are typically two to five times greater under 2022 than 2019 because of the higher relative gas versus electric TDV multipliers in 2022. When 0.1 to 0.2 kW_{DC} per dwelling unit is included, the package is cost-effective based on On-Bill in all climate zones except Climate Zone 1.

The central recirculating HPWH case is based on the Energy Commission’s approved prescriptive design and applies Sanden HPWHs, which are higher cost than other available products. As HPWHs gain market share, installed costs are anticipated to decrease as the labor force becomes more familiar with the technology, performance improvements are achieved, and available product options increase. It is also anticipated that modeling of central HPWHs will improve as results from field and lab testing inform the modeling algorithms. This will allow for more accurate modeling of system performance and modeling of other design strategies such as multi-pass HPWH systems.

The clustered HPWH case is cost-effective without PV On-Bill everywhere except Climate Zones 1, 3, 5 (in SoCalGas territory), and 16, although the package is not code compliant in numerous climate zones. It was found to have a much lower installed cost than the recirculating HPWH case but higher operating cost because federal minimum efficiency was assumed (2.0 UEF). When 0.1 to 0.2 kW_{DC} per dwelling unit is included, the package is cost-effective On-Bill in all climate zones, although still not code compliant in Climate Zone 1 or 16.

Table 12 summarizes compliance margin and cost-effectiveness results for the mixed-fuel and all-electric cases. Compliance margin is reported in the cells and cost effectiveness is indicated by the color of the cell according to the following:

- Cells highlighted in green depict cost-effective results using the On-Bill approach. In most cases results are also cost-effective based on TDV.
- Cells highlighted in blue depict cost-effective results using both the 2019 and 2022 TDV approach, but not On-Bill.
- Cells highlighted in yellow depict cost-effective results using the 2022 TDV approach only.
- Cells highlighted in red depict a package that was not cost-effective using any metric.
- Red text depicts a negative compliance margin.

For more detail on the results, please refer to Appendix D – Detailed Results - Mixed Fuel and Appendix E – Detailed Results - All-Electric.

Table 12: High-Rise Multifamily Summary of Compliance Margin and Cost Effectiveness

Climate Zone	Elec Utility	Gas Utility	Mixed Fuel (No PV)	Central Recirculating HPWH			Clustered HPWH		
				No PV	0.1 kW _{DC} /apt	0.2 kW _{DC} /apt	No PV	0.1 kW _{DC} /apt	0.2 kW _{DC} /apt
1	PGE	PGE	4.5%	-4.6%	-2.5%	-2.5%	-6.2%	-4.1%	-4.1%
2	PGE	PGE	6.5%	1.0%	3.0%	3.0%	-0.8%	1.2%	1.2%
3	PGE	PGE	6.7%	0.1%	3.0%	3.0%	-1.9%	0.9%	0.9%
4	PGE	PGE	7.2%	4.1%	6.1%	6.1%	2.4%	4.3%	4.3%
4	CPAU	CPAU	7.2%	4.1%	6.1%	6.1%	2.4%	4.3%	4.3%
5	PGE	PGE	6.8%	0.2%	2.3%	2.3%	-1.1%	0.9%	0.9%
5	PGE	SCG	6.8%	0.2%	2.3%	2.3%	-1.1%	0.9%	0.9%
6	SCE	SCG	7.8%	3.4%	5.7%	5.7%	0.6%	2.9%	2.9%
7	SDGE	SDGE	8.1%	3.5%	5.6%	5.6%	1.1%	3.1%	3.1%
8	SCE	SCG	7.8%	4.6%	6.6%	6.6%	1.4%	3.5%	3.5%
9	SCE	SCG	7.6%	4.2%	5.8%	5.8%	1.9%	3.4%	3.4%
10	SCE	SCG	7.5%	1.5%	5.7%	5.7%	-0.8%	3.5%	3.5%
10	SDGE	SDGE	7.5%	1.5%	5.7%	5.7%	-0.8%	3.5%	3.5%
11	PGE	PGE	7.7%	2.0%	2.0%	6.7%	-1.2%	-1.2%	3.5%
12	PGE	PGE	7.5%	1.4%	1.4%	6.3%	-1.9%	-1.9%	3.0%
12	SMUD	PGE	7.5%	1.4%	1.4%	6.3%	-1.9%	-1.9%	3.0%
13	PGE	PGE	7.4%	1.7%	1.7%	6.8%	-1.9%	-1.9%	3.3%
14	SCE	SCG	7.9%	2.3%	6.5%	6.5%	-0.7%	3.5%	3.5%
14	SDGE	SDGE	7.9%	2.3%	6.5%	6.5%	-0.7%	3.5%	3.5%
15	SCE	SCG	7.8%	4.7%	7.7%	7.7%	2.1%	5.1%	5.1%
16	PGE	PGE	6.0%	-7.5%	-7.5%	-3.2%	-7.1%	-7.1%	-2.9%

4.1 Additional conclusions

- This study found that electrification of central domestic hot water loads, in combination with efficiency measures, can result in an overall benefit to the consumer through lower utility bills, depending on the HPWH strategy and electricity and gas tariff. The all-electric results demonstrate a trend with On-Bill cost effectiveness across the different electric utilities. B/C ratios and NPV in SCE, SMUD, and CPAU territories are typically higher than the cases in PG&E and SDG&E territories. This indicates that rate design can play an important role in encouraging or discouraging electrification. Refer to Appendix D – Detailed Results - Mixed Fuel and Appendix E – Detailed Results - All-Electric for utility cost data.
- Two electric water heating scenarios were evaluated. The most appropriate HPWH design approach for any particular building will depend on many aspects including number and size of dwelling units, building layout, and first costs.
- In multifamily buildings with central water heating where multiple people or entities are responsible for the utility bills, utility impacts may not align. If tenants pay dwelling unit utility bills and the owner pays the water heating bill, the benefits of efficiency measures or PV serving the dwelling unit will benefit the tenant and savings would not directly impact any water heating electrification cost increases.
- This study did not evaluate federally preempted high efficiency appliances. Specifying high efficiency equipment is a viable approach to meeting Title 24 compliance and local ordinance requirements and is commonly used by project teams. Other studies have found that efficiency packages and electrification packages that employ high efficiency equipment can be quite cost-effective ((Statewide Reach Codes Team, 2019b), (Energy & Environmental Economics, 2019)).
- When PV capacity is added to the all-electric packages, all cases are cost-effective based on the On-Bill metric (except Climate Zone 1 with the central recirculating HPWH). In some cases, PV improves cost effectiveness, and in other cases it reduces it. The cost effectiveness of adding PV as an independent measure results in On-Bill B/C ratios between 2.4 and 3.5 for PG&E territory, 2.4 to 2.7 for SCE territory, and 3.5 to 3.8 for SDG&E territory. The B/C ratio is 1.9 and 1.5 in CPAU and SMUD territories, respectively. Adding PV in addition to the efficiency packages improves cost effectiveness where the B/C ratios for the efficiency measures alone are lower than the B/C ratios for PV alone, and vice versa where they are higher. Annual base case electricity costs and annual utility savings from PV are lower in SCE territory than in PG&E and SDG&E territories. This is due to lower off-peak rates and a bigger difference in peak versus off-peak rates for the TOU-D SCE electricity rate tariff. Most PV production occurs during off-peak times (4 pm to 9 pm peak period).

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6 Appendices

6.1 Appendix A – Map of California Climate Zones

Climate zone geographical boundaries are depicted in Figure 3. The map in Figure 3 along with a zip-code search directory is available at: https://ww2.energy.ca.gov/maps/renewable/building_climate_zones.html.

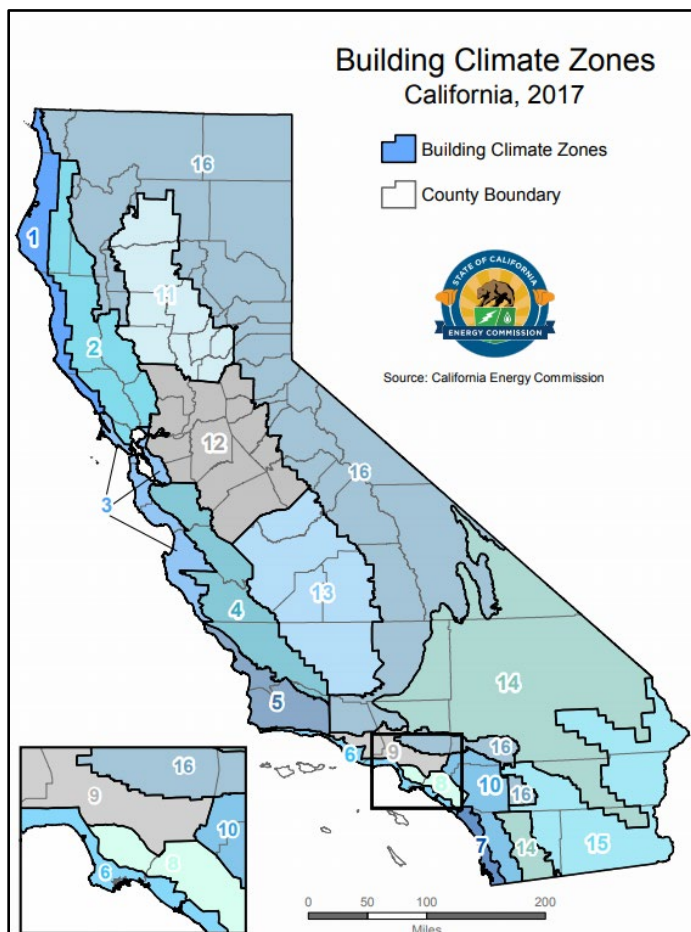


Figure 3: Map of California climate zones.

Source: Energy Commission.

6.2 Appendix B – Utility Rate Schedules

PG&E

The following pages provide details on the PG&E electricity and natural gas tariffs applied in this study. Table 13 describes the baseline territories that were assumed for each climate zone.

Table 13: PG&E Baseline Territory by Climate Zone

Climate Zone	Baseline Territory
1	V
2	X
3	T
4	X
5	T
11	R
12	S
13	R
16	Y

Source: PG&E.

The PG&E monthly gas rate in \$/therm was applied on a monthly basis for the 12-month period ending April 2020 according to the rates shown in Table 14. Rates are based on historical data provided by PG&E.⁴

Table 14: PG&E Monthly Gas Rate (\$/therm)

Month	Procurement Charge	Transportation Charge		Total Charge	
		Baseline	Excess	Baseline	Excess
Jan 2020	\$0.45813	\$0.99712	\$1.59540	\$1.45525	\$2.05353
Feb 2020	\$0.44791	\$0.99712	\$1.59540	\$1.44503	\$2.04331
Mar 2020	\$0.35346	\$1.13126	\$1.64861	\$1.48472	\$2.00207
Apr 2020	\$0.23856	\$1.13126	\$1.64861	\$1.36982	\$1.88717
May 2019	\$0.21791	\$0.99933	\$1.59892	\$1.21724	\$1.81683
June 2019	\$0.20648	\$0.99933	\$1.59892	\$1.20581	\$1.80540
July 2019	\$0.28462	\$0.99933	\$1.59892	\$1.28395	\$1.88354
Aug 2019	\$0.30094	\$0.96652	\$1.54643	\$1.26746	\$1.84737
Sept 2019	\$0.25651	\$0.96652	\$1.54643	\$1.22303	\$1.80294
Oct 2019	\$0.27403	\$0.98932	\$1.58292	\$1.26335	\$1.85695
Nov 2019	\$0.33311	\$0.96729	\$1.54767	\$1.30040	\$1.88078
Dec 2019	\$0.40178	\$0.96729	\$1.54767	\$1.36907	\$1.94945

Source: PG&E.

⁴ The PG&E procurement and transportation charges were obtained from the following site:
<https://www.pge.com/tariffs/GRF.SHTML#RESGAS>
<https://www.pge.com/tariffs/GRF.SHTML#RESGAS>



**Pacific Gas and
Electric Company®**

San Francisco, California

Cancelling Revised Cal. P.U.C. Sheet No. 35447-G
Revised Cal. P.U.C. Sheet No. 34307-G

GAS SCHEDULE GM
MASTER-METERED MULTIFAMILY SERVICE

Sheet 3

**BASELINE
QUANTITIES:**

The above rates are applicable only to residential use. PG&E may require the Customer to submit a completed "Declaration of Eligibility for Baseline Quantities for Residential Rates." The delivered quantities of gas shown below are billed at the rates for baseline use. As an exception, service under this schedule not used to supply space heating but used to supply water heating from a central source to residential dwelling units that are individually metered by PG&E for either gas or electricity will be billed using a baseline quantity of 0.5 therms per dwelling unit per day (Code W) in all baseline territories and in both seasons.

Baseline Territories	BASELINE QUANTITIES (Therms Per Day Per Dwelling Unit)						(T) (T)
	Summer (April-October)		Winter Off-Peak (Nov, Feb, Mar)		Winter On-Peak (Dec, Jan)		
	Effective Apr. 1, 2020		Effective Nov. 1, 2019		Effective Dec. 1, 2019		
**	0.29	(R)	0.87	(R)	1.00	(I)	
P	0.49	(R)	0.64	(R)	0.77	(I)	
Q	0.33	(R)	0.84	(R)	1.19	(I)	
R	0.29	(R)	0.54	(R)	0.68	(I)	
S	0.49	(R)	0.94	(R)	1.06	(R)	
T	0.56		1.18	(R)	1.29	(I)	
V	0.23	(R)	0.61	(R)	0.87	(R)	
W	0.33	(R)	0.64	(R)	0.77	(I)	
X	0.36		0.87	(R)	1.00	(I)	
Y							

**SEASONAL
CHANGES:**

The summer season is April-October, the winter off-peak season is November, February and March, and the winter on-peak season is December and January. Baseline quantities for bills that include the April 1, November 1 and December 1 seasonal changeover dates will be calculated by multiplying the applicable daily baseline quantity for each season by the number of days in each season for the billing period.

**STANDARD
MEDICAL
QUANTITIES:**

Additional medical quantities (Code M) are available as provided in Rule 19.

**RESIDENTIAL
DWELLING
UNITS:**

It is the responsibility of the Customer to advise PG&E within 15 days following any change in the number of residential dwelling units, mobile home spaces, and permanent-residence RV units receiving gas service.

**CENTRAL
BOILERS:**

Service to central boilers for water and/or space heating will be billed with monthly baseline quantities related to the number of dwelling units furnished such water and/or space heating.



**Pacific Gas and
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San Francisco, California

Cancelling Revised
Revised

Cal. P.U.C. Sheet No. 46539-E
Cal. P.U.C. Sheet No. 46325-E

ELECTRIC SCHEDULE E-TOU-C Sheet 2
RESIDENTIAL TIME-OF-USE (PEAK PRICING 4 - 9 p.m. EVERY DAY)

RATES:
(Cont'd.)

E-TOU-C TOTAL RATES

Total Energy Rates (\$ per kWh)	PEAK		OFF-PEAK	
<i>Summer</i>				
Total Usage	\$0.41333	(I)	\$0.34989	(I)
Baseline Credit (Applied to Baseline Usage Only)	(\$0.08633)	(R)	(\$0.08633)	(R)
<i>Winter</i>				
Total Usage	\$0.31624	(I)	\$0.29891	(I)
Baseline Credit (Applied to Baseline Usage Only)	(\$0.08633)	(R)	(\$0.08633)	(R)
Delivery Minimum Bill Amount (\$ per meter per day)	\$0.32854			
California Climate Credit (per household, per semi-annual payment occurring in the April and October bill cycles) [†]	(\$35.73)			(T)

Total bundled service charges shown on customer's bills are unbundled according to the component rates shown below. Where the delivery minimum bill amount applies, the customer's bill will equal the sum of (1) the delivery minimum bill amount plus (2) for bundled service, the generation rate times the number of kWh used. For revenue accounting purposes, the revenues from the delivery minimum bill amount will be assigned to the Transmission, Transmission Rate Adjustments, Reliability Services, Public Purpose Programs, Nuclear Decommissioning, Competition Transition Charges, Energy Cost Recovery Amount, DWR Bond, and New System Generation Charges based on kWh usage times the corresponding unbundled rate component per kWh, with any residual revenue assigned to Distribution.

[†] Pursuant to D.20-04-027, distribution of the October 2020 California Climate Credit will be advanced and split to the May 2020 and June 2020 bill cycles, \$17.87 and \$17.86 respectively.. (N)
(N)

(Continued)

Advice	5661-E-B	Issued by	Submitted	April 28, 2020
Decision		Robert S. Kenney	Effective	May 1, 2020
		Vice President, Regulatory Affairs	Resolution	



**Pacific Gas and
Electric Company**

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San Francisco, California

Cancelling Revised
Revised

Cal. P.U.C. Sheet No. 46540-E
Cal. P.U.C. Sheet No. 46252-E

ELECTRIC SCHEDULE E-TOU-C
RESIDENTIAL TIME-OF-USE (PEAK PRICING 4 - 9 p.m. EVERY DAY)

Sheet 3

RATES:
(Cont'd.)

UNBUNDLING OF E-TOU-C TOTAL RATES

Energy Rates by Component (\$ per kWh)	PEAK		OFF-PEAK	
Generation:				
Summer (all usage)	\$0.16735	(R)	\$0.11391	(R)
Winter (all usage)	\$0.11859	(R)	\$0.10356	(R)
Distribution**:				
Summer (all usage)	\$0.12767	(I)	\$0.11767	(I)
Winter (all usage)	\$0.07935	(I)	\$0.07705	(I)
Conservation Incentive Adjustment (Baseline Usage)			(\$0.03294)	(I)
Conservation Incentive Adjustment (Over Baseline Usage)			\$0.05339	(I)
Transmission* (all usage)			\$0.03595	
Transmission Rate Adjustments* (all usage)			\$0.00314	
Reliability Services* (all usage)			(\$0.00086)	
Public Purpose Programs (all usage)			\$0.01296	(I)
Nuclear Decommissioning (all usage)			\$0.00101	(I)
Competition Transition Charges (all usage)			\$0.00096	(R)
Energy Cost Recovery Amount (all usage)			\$0.00005	(I)
DWR Bond (all usage)			\$0.00580	
New System Generation Charge (all usage)**			\$0.00571	(I)

* Transmission, Transmission Rate Adjustments and Reliability Service charges are combined for presentation on customer bills.

** Distribution and New System Generation Charges are combined for presentation on customer bills.

(Continued)

Advice	5661-E-B	Issued by	Submitted	April 28, 2020
Decision		Robert S. Kenney	Effective	May 1, 2020
		Vice President, Regulatory Affairs	Resolution	



**Pacific Gas and
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San Francisco, California

Cancelling Revised
Revised

Cal. P.U.C. Sheet No. 46190-E
Cal. P.U.C. Sheet No. 43414-E

ELECTRIC SCHEDULE E-TOU-C Sheet 4 (T)
RESIDENTIAL TIME-OF-USE (PEAK PRICING 4 - 9 p.m. EVERY DAY)

- SPECIAL CONDITIONS:** 1. **BASELINE (TIER 1) QUANTITIES:** The following quantities of electricity are to be used to define usage eligible for the baseline credit (also see Rule 19 for additional allowances for medical needs):

Baseline Territory*	BASELINE QUANTITIES (kWh PER DAY)			
	Code B - Basic Quantities		Code H - All-Electric Quantities	
	Summer	Winter	Summer	Winter
	Tier I	Tier I	Tier I	Tier I
P	14.2	12.0	16.0	27.4
Q	10.3	12.0	8.9	27.4
R	18.6	11.3	20.9	28.1
S	15.8	11.1	18.7	24.9
T	6.8	8.2	7.5	13.6
V	7.5	8.8	10.9	16.9
W	20.2	10.7	23.6	20.0
X	10.3	10.5	8.9	15.4
Y	11.0	12.1	12.6	25.3
Z	6.2	8.1	7.0	16.5

2. **TIME PERIODS FOR E-TOU-C:** Times of the year and times of the day are defined as follows: (T)

Summer (service from June 1 through September 30):

Peak: 4:00 p.m. to 9:00 p.m. All days

Off-Peak: All other times

Winter (service from October 1 through May 31):

Peak: 4:00 p.m. to 9:00 p.m. All days

Off-Peak: All other times

* The applicable baseline territory is described in Part A of the Preliminary Statement

(Continued)

Advice	5759-E	Issued by	Submitted	February 14, 2020
Decision	D.19-07-004	Robert S. Kenney	Effective	March 1, 2020
		Vice President, Regulatory Affairs	Resolution	

SCE

The following pages provide details on are the SCE electricity tariffs applied in this study. Table 15 describes the baseline territories that were assumed for each climate zone.

Table 15: SCE Baseline Territory by Climate Zone

Climate Zone	Baseline Territory
6	6
8	8
9	9
10	10
14	14
15	15

Source: SCE.

Summer Daily Allocations (June through September)

Baseline Region Number	Daily kWh Allocation	All-Electric Allocation
5	17.2	17.9
6	11.4	8.8
8	12.6	9.8
9	16.5	12.4
10	18.9	15.8
13	22.0	24.6
14	18.7	18.3
15	46.4	24.1
16	14.4	13.5

Winter Daily Allocations (October through May)

Baseline Region Number	Daily kWh Allocation	All-Electric Allocation
5	18.7	29.1
6	11.3	13.0
8	10.6	12.7
9	12.3	14.3
10	12.5	17.0
13	12.6	24.3
14	12.0	21.3
15	9.9	18.2
16	12.6	23.1

Schedule TOU-D
TIME-OF-USE
DOMESTIC
(Continued)

Sheet 12 (T)

SPECIAL CONDITIONS

- Applicable rate time periods are defined as follows:

Option 4-9 PM, Option 4-9 PM-CPP, Option PRIME, Option PRIME-CPP:

TOU Period	Weekdays		Weekends and Holidays	
	Summer	Winter	Summer	Winter
On-Peak	4 p.m. - 9 p.m.	N/A	N/A	N/A
Mid-Peak	N/A	4 p.m. - 9 p.m.	4 p.m. - 9 p.m.	4 p.m. - 9 p.m.
Off-Peak	All other hours	9 p.m. - 8 a.m.	All other hours	9 p.m. - 8 a.m.
Super-Off-Peak	N/A	8 a.m. - 4 p.m.	N/A	8 a.m. - 4 p.m.
CPP Event Period	4 p.m. - 9 p.m.	4 p.m. - 9 p.m.	N/A	N/A

Schedule TOU-D
TIME-OF-USE
DOMESTIC
(Continued)

Sheet 2

RATES

Customers receiving service under this Schedule will be charged the applicable rates under Option 4-9 PM, Option 4-9 PM-CPP, Option 5-8 PM, Option 5-8 PM-CPP, Option PRIME, Option PRIME-CPP Option A, Option A-CPP, Option B, or Option B-CPP, as listed below. CPP Event Charges will apply to all energy usage during CPP Event Energy Charge periods and CPP Non-Event Energy Credits will apply as a reduction on CPP Non-Event Energy Credit Periods during Summer Season weekdays, 4:00 p.m. to 9:00 p.m., as described in Special Conditions 1 and 3, below:

		Delivery Service		
		Total ¹	UG ^{***}	DWREC ²
<u>Option 4-9 PM / Option 4-9 PM-CPP</u>				
Energy Charge - \$/kWh				
Summer Season - On-Peak	0.21574 (I)	0.17870 (I)	(0.00007)	
Mid-Peak	0.21574 (I)	0.10434 (R)	(0.00007)	
Off-Peak	0.17099 (I)	0.07584 (R)	(0.00007)	
Winter Season - Mid-Peak	0.21574 (I)	0.12676 (R)	(0.00007)	
Off-Peak	0.17099 (I)	0.08874 (R)	(0.00007)	
Super-Off-Peak	0.16567 (I)	0.07025 (R)	(0.00007)	
Baseline Credit ^{****} - \$/kWh	(0.07456) (R)	0.00000		
Basic Charge - \$/day				
Single-Family Residence	0.031			
Multi-Family Residence	0.024			
Minimum Charge ^{**} - \$/day				
Single Family Residence	0.346			
Multi-Family Residence	0.346			
Minimum Charge (Medical Baseline) ^{**} - \$/day				
Single Family Residence	0.173			
Multi-Family Residence	0.173			
California Climate Credit ⁴	(37.00) (I)			
California Alternate Rates for Energy Discount - %	100.00 [*]			
Family Electric Rate Assistance Discount - %	100.00			
<u>Option 4-9 PM-CPP</u>				
CPP Event Energy Charge - \$/kWh		0.80000		
Summer CPP Non-Event Credit				
On-Peak Energy Credit - \$/kWh		(0.15170)		
Maximum Available Credit - \$/kWh ^{*****}				
Summer Season		(0.58504) (R)		

* Represents 100% of the discount percentage as shown in the applicable Special Condition of this Schedule.

** The Minimum Charge is applicable when the Delivery Service Energy Charge, plus the applicable Basic Charge is less than the Minimum Charge.

*** The ongoing Competition Transition Charge CTC of \$0.00089 per kWh is recovered in the UG component of Generation.

**** The Baseline Credit applies up to 100% of the Baseline Allocation, regardless of Time of Use. The Baseline Allocation is set forth in Preliminary Statement, Part H.

***** The Maximum Available Credit is the capped credit amount for CPP Customers dual participating in other demand response programs.

1 Total - Total Delivery Service rates are applicable to Bundled Service, Direct Access (DA) and Community Choice Aggregation Service (CCA Service) Customers, except DA and CCA Service Customers are not subject to the DWRBC rate component of this Schedule but instead pay the DWRBC as provided by Schedule DA-CRS or Schedule CCA-CRS.

2 Generation - The Gen rates are applicable only to Bundled Service Customers.

3 DWREC - Department of Water Resources (DWR) Energy Credit - For more information on the DWR Energy Credit, see the Billing Calculation Special Condition of this Schedule.

4 Applied on an equal basis, per household, semi-annually. See the Special Conditions of this Schedule for more information.

(I)

SoCalGas

Following are the SoCalGas natural gas tariffs applied in this study. Table 16 describes the baseline territories that were assumed for each climate zone.

Table 16: SoCalGas Baseline Territory by Climate Zone

Climate Zone	Baseline Territory
5	2
6	1
8	1
9	1
10	1
14	2
15	1

Source: SoCalGas.

The SoCalGas monthly gas rate in \$/therm was applied on a monthly basis for the 12-month period ending April 2020 according to the rates shown in Table 17. Historical natural gas rate data were only available for SoCalGas' procurement charges.⁵ To estimate total costs by month, the baseline and excess transmission charges were assumed to be consistent and applied for the entire year based on April 2020 costs.

Table 17: SoCalGas Monthly Gas Rate (\$/therm)

Month	Procurement Charge	Transmission Charge		Total Charge	
		Baseline	Excess	Baseline	Excess
Jan 2020	\$0.34730	\$0.81742	\$1.17186	\$1.16472	\$1.51916
Feb 2020	\$0.28008	\$0.81742	\$1.17186	\$1.09750	\$1.45194
Mar 2020	\$0.22108	\$0.81742	\$1.17186	\$1.03850	\$1.39294
Apr 2020	\$0.20307	\$0.81742	\$1.17186	\$1.02049	\$1.37493
May 2019	\$0.23790	\$0.81742	\$1.17186	\$1.05532	\$1.40976
June 2019	\$0.24822	\$0.81742	\$1.17186	\$1.06564	\$1.42008
July 2019	\$0.28475	\$0.81742	\$1.17186	\$1.10217	\$1.45661
Aug 2019	\$0.27223	\$0.81742	\$1.17186	\$1.08965	\$1.44409
Sept 2019	\$0.26162	\$0.81742	\$1.17186	\$1.07904	\$1.43348
Oct 2019	\$0.30091	\$0.81742	\$1.17186	\$1.11833	\$1.47277
Nov 2019	\$0.27563	\$0.81742	\$1.17186	\$1.09305	\$1.44749
Dec 2019	\$0.38067	\$0.81742	\$1.17186	\$1.19809	\$1.55253

Source: SoCalGas.

⁵ The SoCalGas procurement and transmission charges were obtained from the following site: <https://www.socalgas.com/for-your-business/energy-market-services/gas-prices>

SOUTHERN CALIFORNIA GAS COMPANY Revised CAL. P.U.C. SHEET NO. 57458-G
LOS ANGELES, CALIFORNIA CANCELING Revised CAL. P.U.C. SHEET NO. 57432-G

Schedule No. GM		Sheet 2
<u>MULTI-FAMILY SERVICE</u>		
(Includes GM-E, GM-C, GM-EC, GM-CC, GT-ME, GT-MC and all GMB Rates)		
(Continued)		
<u>APPLICABILITY</u> (Continued)		
Multi-family Accommodations built prior to December 15, 1981 and currently served under this schedule may also be eligible for service under Schedule No. GS. If an eligible Multi-family Accommodation served under this schedule converts to an applicable submetered tariff, the tenant rental charges shall be revised for the duration of the lease to reflect removal of the energy related charges.		
Eligibility for service hereunder is subject to verification by the Utility.		
<u>TERRITORY</u>		
Applicable throughout the service territory.		
<u>RATES</u>		
	<u>GM/GT-M</u>	<u>GMB/GT-MB</u>
Customer Charge, per meter, per day:	16.438¢	\$16.357
For "Space Heating Only" customers, a daily		
Customer Charge applies during the winter period		
from November 1 through April 30 ^{1/2} :	33.149¢	

SOUTHERN CALIFORNIA GAS COMPANY Revised CAL P.U.C. SHEET NO. 57168-G
LOS ANGELES, CALIFORNIA CANCELING Revised CAL P.U.C. SHEET NO. 41015-G

Schedule No. GM
MULTI-FAMILY SERVICE

Sheet 5

(Includes GM-E, GM-C, GM-EC, GM-CC, GT-ME, GT-MC and all GMB Rates)

(Continued)

SPECIAL CONDITIONS (Continued)

3. (Continued)

Codes	Per Residence	Daily Therm Allowance for Climate Zones*		
		1	2	3
1	Space heating only			
	Summer	0.000	0.000	0.000
	Winter	1.210	1.343	2.470
2	Water heating and cooking	0.477	0.477	0.477
3	Cooking, water heating and space heating			
	Summer	0.473	0.473	0.473
	Winter	1.691	1.823	2.950
4	Cooking and space heating			
	Summer	0.088	0.088	0.088
	Winter	1.299	1.432	2.559
5	Cooking only	0.089	0.089	0.089
6	Water heating only	0.388	0.388	0.388
7	Water heating and space heating			
	Summer	0.385	0.385	0.385
	Winter	1.601	1.734	2.861

* Climate Zones are described in the Preliminary Statement.

4. Medical Baseline: Upon completion of an application and verification by a state-licensed physician, nurse practitioner, physician's assistant, or osteopath (Form No. 4859-E), an additional Baseline allowance of 0.822 therms per day will be provided for paraplegic, quadriplegic, or hemiplegic persons, those afflicted with multiple sclerosis or scleroderma, or persons being treated for a life threatening illness or who have a compromised immune system.

T
N

Where it is established that the energy required for a Life-Support Device, as defined in Rule No. 1, exceeds 0.822 therms per day, an additional uniform daily Baseline allowance will be provided. The amount of the additional allowance will be determined by the Utility from load and operating time data of the Life-Support Device.

5. Space Heating Only: Applies to customers who are using gas primarily for space heating, as determined by survey or under the presumption that customers who use less than 11 Ccf per month during each of the regular billing periods ending in August and September qualify for Heat Only billing.

(Continued)

(TO BE INSERTED BY UTILITY)
ADVICE LETTER NO. 5576-A
DECISION NO. 02-04-026

ISSUED BY
Dan Skopec
Vice President

(TO BE INSERTED BY CAL. PUC)
SUBMITTED Jan 31, 2020
EFFECTIVE Feb 27, 2020

SDG&E

Following are the SDG&E electricity and natural gas tariffs applied in this study. Table 18 describes the baseline territories that were assumed for each climate zone. All-Electric baseline allowances were applied.

Table 18: SDG&E Baseline Territory by Climate Zone

Climate Zone	Baseline Territory
7	Coastal
10	Inland
14	Mountain

Source: SDG&E.

The SDG&E monthly gas rate in \$/therm was applied on a monthly basis for the 12-month period ending April 2020 according to the rates shown in Table 19. Historical natural gas rate data from SDG&E were reviewed to identify the procurement and transmission charges⁶ used to calculate the monthly total gas rate.

Table 19: SDG&E Monthly Gas Rate (\$/therm)

Month	Procurement Charge	Transmission Charge		Total Charge	
		Baseline	Excess	Baseline	Excess
Jan 2020	\$0.34761	\$1.36166	\$1.59166	\$1.70927	\$1.93927
Feb 2020	\$0.28035	\$1.36166	\$1.59166	\$1.64201	\$1.87201
Mar 2020	\$0.22130	\$1.36166	\$1.59166	\$1.58296	\$1.81296
Apr 2020	\$0.20327	\$1.35946	\$1.59125	\$1.56273	\$1.79452
May 2019	\$0.23804	\$1.06349	\$1.25253	\$1.30153	\$1.49057
June 2019	\$0.24838	\$1.06349	\$1.25253	\$1.31187	\$1.50091
July 2019	\$0.28491	\$1.06349	\$1.25253	\$1.34840	\$1.53744
Aug 2019	\$0.27239	\$1.06349	\$1.25253	\$1.33588	\$1.52492
Sept 2019	\$0.26178	\$1.06349	\$1.25253	\$1.32527	\$1.51431
Oct 2019	\$0.30109	\$1.06349	\$1.25253	\$1.36458	\$1.55362
Nov 2019	\$0.27580	\$1.06349	\$1.25253	\$1.33929	\$1.52833
Dec 2019	\$0.38090	\$1.06349	\$1.25253	\$1.44439	\$1.63343

Source: SDG&E.

⁶ The SDG&E procurement and transmission charges were obtained from the following sets of documents:

http://regarchive.sdge.com/tm2/pdf/GAS_GAS-SCHEDS_GM_2020.pdf

http://regarchive.sdge.com/tm2/pdf/GAS_GAS-SCHEDS_GM_2019.pdf

<u>RATES</u>	<u>GM</u>	<u>GM-C</u>	<u>GTC/GTCA¹</u>
Minimum Bill, per day ³			
Non-CARE customers.....	\$0.09863	\$0.09863	\$0.09863
CARE customers.....	\$0.07890	\$0.07890	\$0.07890

Baseline Usage. The following quantities of gas are to be billed at the baseline rate for multi-family units. Usage in excess of applicable baseline usage will be billed at non-baseline rates.

	Daily Therm Allowance Per Residential Unit
Summer (May 1 to October 31, inclusive)	0.345
Winter (November 1 to April 30, inclusive)	1.082



Revised Cal. P.U.C. Sheet No. 33144-E
 Canceling Revised Cal. P.U.C. Sheet No. 32930-E

SCHEDULE TOU-DR1							Sheet 2
<u>RESIDENTIAL TIME-OF-USE</u>							
<u>RATES</u>							
<u>Total Rates:</u>							
Description – TOU DR1	UDC Total Rate	DWR-BC Rate	EECC Rate + DWR Credit		Total Rate		
Summer:							
On-Peak	0.22374	I 0.00580	0.29042	R	0.51996	R	
Off-Peak	0.22374	I 0.00580	0.09305	R	0.32259	R	
Super Off-Peak	0.22374	I 0.00580	0.04743	R	0.27697	R	
Winter:							
On-Peak	0.25734	R 0.00580	0.07844	R	0.34158	R	
Off-Peak	0.25734	R 0.00580	0.06961	R	0.33275	R	
Super Off-Peak	0.25734	R 0.00580	0.05981	R	0.32295	R	
Summer Baseline Adjustment Credit up to 130% of Baseline	(0.07506)	I			(0.07506)	I	
Winter Baseline Adjustment Credit up to 130% of Baseline	(0.06833)	I			(0.06833)	I	
Minimum Bill (\$/day)	0.338				0.338		

Time Periods

All time periods listed are applicable to local time. The definition of time will be based upon the date service is rendered.

TOU Periods – Weekdays	Summer	Winter
On-Peak	4:00 p.m. – 9:00 p.m.	4:00 p.m. – 9:00 p.m.
Off-Peak	6:00 a.m. – 4:00 p.m.; 9:00 p.m. - midnight	6:00 a.m. – 4:00 p.m. Excluding 10:00 a.m. – 2:00 p.m. in March and April; 9:00 p.m. - midnight
Super Off-Peak	Midnight – 6:00 a.m.	Midnight – 6:00 a.m. 10:00 a.m. – 2:00 p.m. in March and April
TOU Period – Weekends and Holidays	Summer	Winter
On-Peak	4:00 p.m. – 9:00 p.m.	4:00 p.m. – 9:00 p.m.
Off-Peak	2:00 p.m. – 4:00 p.m.; 9:00 p.m. - midnight	2:00 p.m. – 4:00 p.m.; 9:00 p.m. - midnight
Super Off-Peak	Midnight – 2:00 p.m.	Midnight – 2:00 p.m.

Seasons: Summer June 1 – October 31
Winter November 1 – May 31

Baseline Usage: The following quantities of electricity are used to calculate the baseline adjustment credit.

	Baseline Allowance For Climatic Zones*			
	Coastal	Inland	Mountain	Desert
Basic Allowance				
Summer (June 1 to October 31)	9.0	10.4	13.6	15.9
Winter (November 1 to May 31)	9.2	9.6	12.9	10.9
All Electric**				
Summer (June 1 to October 31)	6.8	9.2	15.6	17.5
Winter (November 1 to May 31)	10.4	13.4	23.4	18.1

* Climatic Zones are shown on the Territory Served, Map No. 1.

** All Electric allowances are available upon application to those customers who have permanently installed space heating or who have electric water heating and receive no energy from another source.

SMUD

Following are the SMUD electricity tariffs applied in this study.

RTOD Rate Schedule**II. Firm Service Rates****A. Time-of-Day (5-8 p.m.) Rate** **Rate Category RT02****Non-Summer Prices* – January 1 through May 31**

System Infrastructure Fixed Charge per month \$21.05

Electricity Usage Charge

Peak \$/kWh \$0.1388

Off-Peak \$/kWh \$0.1006

Summer Prices - June 1 through September 30

System Infrastructure Fixed Charge per month \$21.05

Electricity Usage Charge

Peak \$/kWh \$0.2941

Mid-Peak \$/kWh \$0.1671

Off-Peak \$/kWh \$0.1209

Non-Summer Prices* – October 1 through December 31

System Infrastructure Fixed Charge per month \$21.70

Electricity Usage Charge

Peak \$/kWh \$0.1430

Off-Peak \$/kWh \$0.1035

* Non-Summer Season includes Fall (Oct 1 – Nov 30), Winter (Dec 1 – Mar 31) and Spring (Apr 1 – May 31) periods.

Summer (Jun 1 - Sept 30)	Peak	Weekdays between 5:00 p.m. and 8:00 p.m.
	Mid-Peak	Weekdays between noon and midnight except during the Peak hours.
	Off-Peak	All other hours, including weekends and holidays ¹ .
Non-Summer (Oct 1 - May 31)	Peak	Weekdays between 5:00 p.m. and 8:00 p.m.
	Off-Peak	All other hours, including weekends and holidays ¹ .

GSN_T Rate Schedule:

II. Firm Service Rates

Rate Category	Nondemand GSN_T	Flat GFN	Demand GSS_T
Winter Season – January 1 through May 31			
System Infrastructure Fixed Charge - per month per meter	\$21.15	\$9.45	\$25.75
Site Infrastructure Charge <i>(per 12 months max kW or contract capacity)</i>	n/a	n/a	\$7.94
Electricity Usage Charge			
All day \$/kWh	\$0.1365	\$0.1381	\$0.1071
Summer Season - June 1 through September 30			
System Infrastructure Fixed Charge - per month per meter	\$21.15	\$9.45	\$25.75
Site Infrastructure Charge <i>(per 12 months max kW or contract capacity)</i>	n/a	n/a	\$7.94
Electricity Usage Charge			
On-peak \$/kWh	\$0.3151	\$0.1381	\$0.2733
Off-peak \$/kWh	\$0.1152	\$0.1381	\$0.0948
Rate Category	Nondemand GSN_T	Flat GFN	Demand GSS_T
Winter Season - October 1 through December 31			
System Infrastructure Fixed Charge - per month per meter	\$21.80	\$9.70	\$26.50
Site Infrastructure Charge <i>(per 12 months max kW or contract capacity)</i>	n/a	n/a	\$8.18
Electricity Usage Charge			
All day \$/kWh	\$0.1406	\$0.1423	\$0.1103

D. Billing Periods

1. Winter (October 1 – May 31) All hours are off-peak.

2. Summer Time-of-Use Billing Periods (June 1 – September 30)

On-Peak	Summer weekdays between 3:00 p.m. and 6:00 p.m.
Off-Peak	All other hours, including holidays shown below

CPAU

Following are the CPAU electricity and natural gas tariffs applied in this study.

E1 Rate Schedule:

RESIDENTIAL ELECTRIC SERVICE

UTILITY RATE SCHEDULE E-1

A. APPLICABILITY:

This Rate Schedule applies to separately metered single-family residential dwellings receiving Electric Service from the City of Palo Alto Utilities.

B. TERRITORY:

This rate schedule applies everywhere the City of Palo Alto provides Electric Service.

C. UNBUNDLED RATES:

<u>Per kilowatt-hour (kWh)</u>	<u>Commodity</u>	<u>Distribution</u>	<u>Public Benefits</u>	<u>Total</u>
Tier 1 usage	\$0.08339	\$0.04971	\$0.00447	\$0.13757
Tier 2 usage Any usage over Tier 1	0.11569	0.07351	0.00447	0.19367
<u>Minimum Bill (\$/day)</u>				0.3283

E2 Rate Schedule:

RESIDENTIAL MASTER-METERED AND SMALL NON-RESIDENTIAL ELECTRIC SERVICE

UTILITY RATE SCHEDULE E-2

A. APPLICABILITY:

This Rate Schedule applies to the following Customers receiving Electric Service from the City of Palo Alto Utilities:

1. Small non-residential Customers receiving Non-Demand Metered Electric Service; and
2. Customers with Accounts at Master-Metered multi-family facilities.

B. TERRITORY:

This rate schedule applies everywhere the City of Palo Alto provides Electric Service.

C. UNBUNDLED RATES:

<u>Per kilowatt-hour (kWh)</u>	<u>Commodity</u>	<u>Distribution</u>	<u>Public Benefits</u>	<u>Total</u>
Summer Period	\$0.11855	\$0.08551	\$0.00447	\$0.20853
Winter Period	0.08502	0.05675	0.00447	0.14624
<u>Minimum Bill (\$/day)</u>				0.8359

The CPAU monthly gas rate in \$/therm was applied on a monthly basis for the 12-month period ending June 2020 according to the rates shown in Table 20.

Table 20: CPAU Monthly Gas Rate (\$/therm)

Effective Date	Commodity Rate	Cap and Trade Compliance Charge	Transportation Charge	Carbon Offset Charge	G2 Total Volumetric Rate
1/1/20	\$0.3289	0.033	0.09941	0.040	1.11151
2/1/20	0.2466	0.033	0.09941	0.040	1.02921
3/1/20	0.2416	0.033	0.09891	0.040	1.02371
4/1/20	0.2066	0.033	0.09891	0.040	0.98871
5/1/20	0.2258	0.033	0.09891	0.040	1.00791
6/1/20	0.2279	0.033	0.09891	0.040	1.01001
7/1/19	0.2471	0.033	0.11757	0.040	1.04787
8/1/19	0.2507	0.033	0.10066	0.040	1.03456
9/1/19	0.2461	0.033	0.10066	0.040	1.02996
10/1/19	0.2811	0.033	0.10288	0.040	1.06718
11/1/19	0.2923	0.033	0.10288	0.040	1.07838
12/1/19	0.3781	0.033	0.10288	0.040	1.16418

Source: CPAU.

RESIDENTIAL MASTER-METERED AND COMMERCIAL GAS SERVICE

UTILITY RATE SCHEDULE G-2

A. APPLICABILITY:

This schedule applies to the following Customers receiving Gas Service from the City of Palo Alto Utilities:

1. Commercial Customers who use less than 250,000 therms per year at one site.
2. Master-metered residential Customers in multi-family residential facilities.

B. TERRITORY:

This schedule applies anywhere the City of Palo Alto provides Gas Service.

C. UNBUNDLED RATES:

Per Service

Monthly Service Charge:\$104.95

Per Therm

Supply Charges:

1. Commodity (Monthly Market Based) \$0.10-\$2.00
2. Cap and Trade Compliance Charges \$0.00-0.25
3. Transportation Charge.....\$0.00-\$0.15
4. Carbon Offset Charge\$0.00-\$0.10

Distribution Charge: \$0.6102

Escalation Assumptions

The average annual escalation rates in Table 21 were used in this study and are from E3's 2019 study Residential Building Electrification in California (Energy & Environmental Economics, 2019). These rates are applied to the 2019 rate schedules over a 30-year period beginning in 2020. SDG&E was not covered in the E3 study. The Statewide Reach Codes Team reviewed SDG&E's GRC filing and applied the same approach that E3 applied for PG&E and SoCalGas to arrive at average escalation rates between 2020 and 2022. The statewide electricity escalation rates were also applied to the analysis for SMUD and CPAU. PG&E gas escalation rates were applied to CPAU as the best available estimate since CPAU uses PG&E gas infrastructure.

Table 21: Real Utility Rate Escalation Rate Assumptions

Year	Statewide Electric Residential Average Rate Escalation (%/year, real)	Natural Gas Residential Core Rate Escalation (%/year, real)		
		PG&E	SoCalGas	SDG&E
2020	2.0%	1.48%	6.37%	5.00%
2021	2.0%	5.69%	4.12%	3.14%
2022	2.0%	1.11%	4.12%	2.94%
2023	2.0%	4.0%	4.0%	4.0%
2024	2.0%	4.0%	4.0%	4.0%
2025	2.0%	4.0%	4.0%	4.0%
2026	1.0%	1.0%	1.0%	1.0%
2027	1.0%	1.0%	1.0%	1.0%
2028	1.0%	1.0%	1.0%	1.0%
2029	1.0%	1.0%	1.0%	1.0%
2030	1.0%	1.0%	1.0%	1.0%
2031	1.0%	1.0%	1.0%	1.0%
2032	1.0%	1.0%	1.0%	1.0%
2033	1.0%	1.0%	1.0%	1.0%
2034	1.0%	1.0%	1.0%	1.0%
2035	1.0%	1.0%	1.0%	1.0%
2036	1.0%	1.0%	1.0%	1.0%
2037	1.0%	1.0%	1.0%	1.0%
2038	1.0%	1.0%	1.0%	1.0%
2039	1.0%	1.0%	1.0%	1.0%
2040	1.0%	1.0%	1.0%	1.0%
2041	1.0%	1.0%	1.0%	1.0%
2042	1.0%	1.0%	1.0%	1.0%
2043	1.0%	1.0%	1.0%	1.0%
2044	1.0%	1.0%	1.0%	1.0%
2045	1.0%	1.0%	1.0%	1.0%
2046	1.0%	1.0%	1.0%	1.0%
2047	1.0%	1.0%	1.0%	1.0%
2048	1.0%	1.0%	1.0%	1.0%
2049	1.0%	1.0%	1.0%	1.0%

Source: Energy & Environmental Economics, 2019.

6.3 Appendix C – PG&E Gas Infrastructure Cost Memo



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December 5, 2019

Energy Commission Staff:

On March 2, 2018, PG&E provided gas extension cost estimates for residential existing and new subdivisions (see attached memo). We have recently updated our estimates and are therefore providing an updated memo.

In addition to mainline and service extension costs, we are also providing estimates of the cost of gas meters for different building types including both residential and commercial customers. These estimates are based on PG&E historical jobs.

Developing gas extension cost estimates is complex and the actual costs are project dependent. Costs vary widely with location, terrain, distance to the nearest main, joint trenching, materials, number of dwellings per development, and several other site and job-specific conditions. For these reasons, it is not practical to come up with estimates that represent every case. Instead we are including estimates based on historical averages taken from projects within PG&E's territory. It is not recommended to compare specific project costs to these estimates as any number of factors could lead to higher or lower costs than these averages are representing.

We are also including estimates for in-house gas infrastructure costs and specific plan review costs. These estimates are from external sources, and are not based on PG&E data, but have been provided for the sake of completeness and for use in energy efficiency analysis.

To further anchor the estimates, several assumptions have been made:

1. It is assumed that during new construction, gas infrastructure will likely be joint trenched with electric infrastructure. As a result, the incremental cost of trenching associated with the gas infrastructure alone is minimal. Therefore, all mainline cost estimates exclude trench costs. Service extension cost estimates include both estimates with and without trench costs. In the case where new construction would require overhead electric and underground gas infrastructure, the estimates with trench costs included for service extensions should be utilized.
2. It is assumed that new construction in an existing subdivision would not generally require a mainline extension. In cases where a mainline extension would be required to an existing subdivision, the costs are highly dependent on the location, terrain, and distance to the nearest main.



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3. These estimates are for total costs. The cost estimates have not been reduced to account for the portion of the costs paid by all customers due to application of Rule 15¹ and Rule 16² allowances. Hence, costs to the specific customer may be lower than the estimates below, as the specific customer benefits from the Rule 15 and Rule 16 allowances.

Table 1: PG&E Gas Infrastructure Cost Estimates

	Existing Subdivision/Development	New Greenfield Subdivision/Development
Mainline Extension	N/A ³	<u>Single-Family</u> \$17/ft ⁴ <u>Multi-Family</u> \$11/ft ⁴
Service Extension (Typically 1" pipe from mainline to the meter)	\$6750 per service/building ⁴ (excludes trench costs) \$9200 per service/building ⁴ (includes trench costs)	\$1300 per service/building ⁴ (includes mainline extension costs within the subdivision; excludes trench costs) \$1850 per service/building ⁴ (includes mainline extension costs within the subdivision; includes trench costs)
Meter	<u>Residential Single Family</u> \$300 per meter ⁵ <u>Residential Multi-Family</u> \$300 per meter + \$300 per meter manifold outlet ⁵ <u>Small/Medium Commercial</u> \$3600 per meter ⁶	<u>Residential Single Family</u> \$300 per meter ⁵ <u>Residential Multi-Family</u> \$300 per meter + \$300 per meter manifold outlet ⁵ <u>Small/Medium Commercial</u> \$3600 per meter ⁶

¹ https://www.pge.com/tariffs/tm2/pdf/ELEC_RULES_15.pdf

² https://www.pge.com/tariffs/tm2/pdf/ELEC_RULES_16.pdf

³ It is assumed that new construction in an existing subdivision would not require a main extension.

⁴ Estimates based on PG&E jobs from Jan 2016 - Dec 2017 from PG&E's Service Planning team.

⁵ Estimates from PG&E's Dedicated Estimating Team. For Multi-Family units, the costs of \$300 per meter and \$300 per meter manifold outlet should be combined for a total of \$600 per meter.

⁶ PG&E Marginal Customer Access Cost Estimates presented in the 2018 Gas Cost Allocation Proceedings (GCAP), A.17-09-006, Exhibit PG&E-2, Appendix A, Section A, Table A-1. The Average Connection Cost per Customer values were included in the MCAC workpaper that accompanied the GCAP testimony



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	<u>Large Commercial</u> \$32,000 per meter ⁶	<u>Large Commercial</u> \$32,000 per meter ⁶
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Note: Service extension cost estimates for New Greenfield Subdivisions include mainline extension costs as well. Therefore, mainline cost estimates can be ignored for the purpose of estimating total project costs.

Table 2: Gas Infrastructure Cost Estimates from Other Sources

	Existing Subdivision/Development	New Greenfield Subdivision/Development
In-House Infrastructure	<u>Single-Family</u> \$800 ⁷	<u>Single-Family</u> \$800 ⁷
	<u>Multi-Family</u> \$600 per unit ⁷	<u>Multi-Family</u> \$600 per unit ⁷
	<u>Medium Office</u> \$600-4500 ^{7,8}	<u>Medium Office</u> \$600-4500 ^{7,8}
	<u>Medium Retail</u> \$10,000 ⁸	<u>Medium Retail</u> \$10,000 ⁸
Plan Review (Will vary by city and often not a fixed fee)	<u>Residential</u> Palo Alto - \$850 ⁹	<u>Residential</u> Palo Alto - \$850 ⁹
	<u>Nonresidential</u> Palo Alto - \$2316 ⁹	<u>Nonresidential</u> Palo Alto - \$2316 ⁹

Please let us know if there are any follow-up questions or clarifications.

Best regards,

⁷ Frontier Energy, Inc., Misti Bruceri & Associates, LLC. 2019. "2019 Cost-effectiveness Study: Low Rise Residential New Construction." Available at: <https://localenergycodes.com/content/performance-ordinances>

⁸ TRC, EnergySoft. 2019. "2019 Nonresidential New Construction Reach Code Cost Effectiveness Study." Available at: <https://localenergycodes.com/content/performance-ordinances>

⁹ TRC. 2018. "City of Palo Alto 2019 Title 24 Energy Reach Code Cost Effectiveness Analysis Draft." Available at: <http://cityofpaloalto.org/civicax/filebank/documents/66742>

6.4 Appendix D – Detailed Results - Mixed Fuel

Table 22: Mixed-Fuel Efficiency Only Package Results (Savings/Cost Per Dwelling Unit)^a

Climate Zone	Elec Utility	Gas Utility	Dwelling Units		Central Water Heating			Total On-Bill Utility Savings			On-Bill		2019 TDV		2022 TDV	
			Elec Savings (kWh)	Year 1 Utility Cost Savings	Gas Savings (therm)	Elec Savings (kWh)	Year 1 Utility Cost Savings	GHG Savings (lb CO ₂)	(2020 PV\$)	Inc. Cost (2020 PV\$)	B/C Ratio	NPV	B/C Ratio	NPV	B/C Ratio	NPV
1	PGE	PGE	39	\$8	0.0	0	\$0	26	\$199	\$216	0.9	(\$17)	0.6	(\$83)	0.8	(\$42)
2	PGE	PGE	79	\$24	0.0	0	\$0	45	\$570	\$144	4.0	\$426	3.0	\$289	2.7	\$247
3	PGE	PGE	60	\$18	0.0	0	\$0	33	\$420	\$144	2.9	\$276	2.3	\$184	1.9	\$131
4	PGE	PGE	95	\$29	0.0	0	\$0	54	\$678	\$144	4.7	\$534	3.2	\$321	3.2	\$313
4	CPAU	CPAU	95	\$17	0.0	0	\$0	54	\$394	\$144	2.7	\$250	3.2	\$321	3.2	\$313
5	PGE	PGE	71	\$20	0.0	0	\$0	39	\$484	\$144	3.4	\$340	2.3	\$180	1.9	\$122
5	PGE	SCG	71	\$20	0.0	0	\$0	39	\$484	\$144	3.4	\$340	2.3	\$180	1.9	\$122
6	SCE	SCG	113	\$26	0.0	0	\$0	62	\$619	\$144	4.3	\$475	3.4	\$344	3.2	\$315
7	SDGE	SDGE	105	\$33	0.0	0	\$0	59	\$789	\$144	5.5	\$645	3.4	\$339	2.8	\$264
8	SCE	SCG	128	\$31	0.0	0	\$0	72	\$728	\$144	5.1	\$585	3.9	\$413	3.9	\$421
9	SCE	SCG	125	\$29	0.0	0	\$0	70	\$695	\$144	4.8	\$551	4.2	\$461	3.9	\$413
10	SCE	SCG	130	\$26	0.0	0	\$0	73	\$623	\$144	4.3	\$479	4.2	\$457	3.9	\$415
10	SDGE	SDGE	130	\$41	0.0	0	\$0	73	\$972	\$144	6.8	\$828	4.2	\$457	3.9	\$415
11	PGE	PGE	148	\$38	0.0	0	\$0	91	\$897	\$216	4.1	\$681	3.7	\$584	3.4	\$523
12	PGE	PGE	122	\$31	0.0	0	\$0	74	\$736	\$216	3.4	\$519	3.1	\$448	2.8	\$397
12	SMUD	PGE	122	\$17	0.0	0	\$0	74	\$401	\$216	1.9	\$185	3.1	\$448	2.8	\$397
13	PGE	PGE	152	\$39	0.0	0	\$0	93	\$923	\$216	4.3	\$706	3.4	\$523	3.5	\$534
14	SCE	SCG	152	\$31	0.0	0	\$0	91	\$735	\$216	3.4	\$518	3.6	\$556	3.5	\$532
14	SDGE	SDGE	152	\$45	0.0	0	\$0	91	\$1,055	\$216	4.9	\$838	3.6	\$556	3.5	\$532
15	SCE	SCG	213	\$43	0.0	0	\$0	124	\$1,021	\$216	4.7	\$804	4.5	\$768	4.4	\$725
16	PGE	PGE	115	\$29	0.0	0	\$0	73	\$679	\$216	3.1	\$463	2.3	\$279	2.1	\$244

^a Values in red indicate B/C ratios less than 1.

Table 23: Mixed-Fuel Efficiency + 0.1 kW_{DC} PV per Dwelling Unit Results (Savings/Cost Per Dwelling Unit)^a

Climate Zone	Elec Utility	Gas Utility	Dwelling Units		Central Water Heating			Total			On-Bill		2019 TDV		2022 TDV	
			Elec Savings (kWh)	Year 1 Utility Cost Savings	Gas Savings (therm)	Elec Savings (kWh)	Year 1 Utility Cost Savings	GHG Savings (lb CO ₂)	On-Bill Utility Savings (2020 PV\$)	Inc. Cost (2020 PV\$)	B/C Ratio	NPV	B/C Ratio	NPV	B/C Ratio	NPV
1	PGE	PGE	172	\$40	0.0	0	\$0	81	\$955	\$533	1.8	\$422	1.2	\$93	1.0	\$21
2	PGE	PGE	236	\$67	0.0	0	\$0	112	\$1,597	\$460	3.5	\$1,137	2.2	\$574	1.9	\$417
3	PGE	PGE	222	\$62	0.0	0	\$0	102	\$1,472	\$460	3.2	\$1,011	2.0	\$455	1.6	\$290
4	PGE	PGE	261	\$74	0.0	0	\$0	125	\$1,762	\$460	3.8	\$1,302	2.4	\$628	2.2	\$538
4	CPAU	CPAU	261	\$43	0.0	0	\$0	125	\$1,025	\$460	2.2	\$565	2.4	\$628	2.2	\$538
5	PGE	PGE	245	\$67	0.0	0	\$0	113	\$1,596	\$460	3.5	\$1,136	2.1	\$498	1.7	\$312
5	PGE	SCG	245	\$67	0.0	0	\$0	113	\$1,596	\$460	3.5	\$1,136	2.1	\$498	1.7	\$312
6	SCE	SCG	290	\$63	0.0	0	\$0	138	\$1,489	\$460	3.2	\$1,029	2.4	\$650	2.2	\$558
7	SDGE	SDGE	270	\$81	0.0	0	\$0	130	\$1,918	\$460	4.2	\$1,458	2.4	\$664	2.0	\$441
8	SCE	SCG	299	\$66	0.0	0	\$0	146	\$1,573	\$460	3.4	\$1,113	2.6	\$750	2.5	\$712
9	SCE	SCG	303	\$63	0.0	0	\$0	147	\$1,502	\$460	3.3	\$1,042	2.8	\$807	2.5	\$697
10	SCE	SCG	308	\$58	0.0	0	\$0	150	\$1,376	\$460	3.0	\$916	2.7	\$779	2.5	\$682
10	SDGE	SDGE	308	\$90	0.0	0	\$0	150	\$2,132	\$460	4.6	\$1,671	2.7	\$779	2.5	\$682
11	PGE	PGE	307	\$76	0.0	0	\$0	160	\$1,800	\$533	3.4	\$1,267	2.7	\$903	2.3	\$695
12	PGE	PGE	286	\$70	0.0	0	\$0	144	\$1,663	\$533	3.1	\$1,130	2.4	\$755	2.1	\$579
12	SMUD	PGE	286	\$37	0.0	0	\$0	144	\$874	\$533	1.6	\$341	2.4	\$755	2.1	\$579
13	PGE	PGE	317	\$78	0.0	0	\$0	164	\$1,858	\$533	3.5	\$1,325	2.5	\$811	2.4	\$729
14	SCE	SCG	343	\$65	0.0	0	\$0	172	\$1,542	\$533	2.9	\$1,009	2.8	\$980	2.6	\$854
14	SDGE	SDGE	343	\$95	0.0	0	\$0	172	\$2,247	\$533	4.2	\$1,714	2.8	\$980	2.6	\$854
15	SCE	SCG	390	\$75	0.0	0	\$0	199	\$1,768	\$533	3.3	\$1,235	3.1	\$1,123	2.8	\$981
16	PGE	PGE	284	\$69	0.0	0	\$0	147	\$1,641	\$533	3.1	\$1,108	2.1	\$595	1.8	\$428

^a Values in red indicate B/C ratios less than 1 or negative values.

6.5 Appendix E – Detailed Results - All-Electric

Table 24: All-Electric Central Recirculating HPWH Efficiency Package Results (Savings/Cost Per Dwelling Unit)^{a, b}

Climate Zone	Elec Utility	Gas Utility	Dwelling Units		Central Water Heating			Total			On-Bill		2019 TDV		2022 TDV	
			Elec Savings (kWh)	Year 1 Utility Cost Savings	Gas Savings (therm)	Elec Savings (kWh)	Year 1 Utility Cost Savings	GHG Savings (lb CO ₂)	Utility Savings (2020 PV\$)	Inc. Cost (2020 PV\$)	B/C Ratio	NPV	B/C Ratio	NPV	B/C Ratio	NPV
1	PGE	PGE	39	\$8	95.7	(710)	(\$38)	838	(\$493)	\$775	0.0	(\$1,268)	0.0	(\$744)	2.1	\$850
2	PGE	PGE	78	\$24	86.9	(635)	(\$32)	785	\$5	\$702	0.0	(\$697)	0.5	(\$371)	2.5	\$1,067
3	PGE	PGE	70	\$20	86.7	(618)	(\$29)	788	(\$33)	\$888	0.0	(\$921)	0.3	(\$635)	1.9	\$763
4	PGE	PGE	95	\$29	81.4	(590)	(\$29)	750	\$174	\$702	0.2	(\$528)	0.5	(\$317)	2.5	\$1,084
4	CPAU	CPAU	95	\$17	81.4	(590)	(\$5)	750	\$447	\$702	0.6	(\$255)	0.5	(\$317)	2.5	\$1,084
5	PGE	PGE	80	\$22	86.7	(616)	(\$29)	792	\$30	\$888	0.0	(\$858)	0.3	(\$608)	1.7	\$656
5	PGE	SCG	80	\$22	86.7	(616)	(\$49)	792	(\$324)	\$888	0.0	(\$1,212)	0.3	(\$608)	1.7	\$656
6	SCE	SCG	113	\$26	78.3	(560)	(\$21)	732	\$399	\$702	0.6	(\$303)	0.7	(\$214)	2.4	\$960
7	SDGE	SDGE	105	\$33	78.0	(558)	(\$37)	727	\$174	\$702	0.2	(\$528)	0.7	(\$237)	2.2	\$810
8	SCE	SCG	128	\$31	75.5	(544)	(\$21)	715	\$501	\$702	0.7	(\$201)	0.9	(\$65)	2.7	\$1,174
9	SCE	SCG	125	\$29	76.3	(552)	(\$21)	721	\$463	\$702	0.7	(\$239)	0.9	(\$64)	2.7	\$1,217
10	SCE	SCG	130	\$26	63.2	(552)	(\$36)	555	\$10	\$484	0.0	(\$474)	0.4	(\$279)	2.5	\$745
10	SDGE	SDGE	130	\$41	63.2	(552)	(\$55)	555	(\$116)	\$484	0.0	(\$600)	0.4	(\$279)	2.5	\$745
11	PGE	PGE	147	\$38	64.8	(582)	(\$47)	580	(\$66)	\$557	0.0	(\$623)	0.7	(\$150)	2.4	\$767
12	PGE	PGE	122	\$31	67.7	(596)	(\$48)	589	(\$238)	\$557	0.0	(\$795)	0.5	(\$254)	2.2	\$682
12	SMUD	PGE	122	\$17	67.7	(596)	\$12	589	\$849	\$557	1.5	\$292	0.5	(\$254)	2.2	\$682
13	PGE	PGE	152	\$39	62.8	(562)	(\$45)	566	(\$9)	\$557	0.0	(\$566)	0.6	(\$200)	2.4	\$801
14	SCE	SCG	152	\$31	65.3	(585)	(\$39)	581	\$53	\$557	0.1	(\$503)	0.8	(\$126)	2.6	\$892
14	SDGE	SDGE	152	\$44	65.3	(585)	(\$59)	581	(\$121)	\$557	0.0	(\$678)	0.8	(\$126)	2.6	\$892
15	SCE	SCG	213	\$43	51.2	(465)	(\$31)	507	\$481	\$557	0.9	(\$76)	1.4	\$239	2.7	\$950
16	PGE	PGE	115	\$29	77.8	(737)	(\$66)	642	(\$696)	\$557	0.0	(\$1,252)	0.0	(\$997)	1.3	\$170

^a Values in red indicate B/C ratios less than 1 or negative values. Values in grey indicate cases which are cost-effective but are not code compliant and cannot be used to support a reach code.

^b ">1" indicates cases where there are both incremental measure cost savings and energy cost savings.

Table 25: All-Electric Central Recirculating HPWH + 0.1 kW_{DC} PV per Dwelling Unit Results (Savings/Cost Per Dwelling Unit)^{a, b}

Climate Zone	Elec Utility	Gas Utility	Dwelling Units		Central Water Heating			Total On-Bill Utility Savings			On-Bill		2019 TDV		2022 TDV	
			Elec Savings (kWh)	Year 1 Utility Cost Savings	Gas Savings (therm)	Elec Savings (kWh)	Year 1 Utility Cost Savings	GHG Savings (lb CO ₂)	(2020 PV\$)	Inc. Cost (2020 PV\$)	B/C Ratio	NPV	B/C Ratio	NPV	B/C Ratio	NPV
1	PGE	PGE	171	\$40	95.7	(710)	(\$38)	894	\$262	\$1,091	0.2	(\$829)	0.5	(\$569)	1.8	\$914
2	PGE	PGE	236	\$67	86.9	(635)	(\$32)	852	\$1,032	\$1,018	1.0	\$14	0.9	(\$87)	2.2	\$1,237
3	PGE	PGE	232	\$64	86.7	(618)	(\$29)	857	\$1,019	\$1,205	0.8	(\$185)	0.7	(\$364)	1.8	\$922
4	PGE	PGE	261	\$74	81.4	(590)	(\$29)	821	\$1,258	\$1,018	1.2	\$239	1.0	(\$10)	2.3	\$1,309
4	CPAU	CPAU	261	\$43	81.4	(590)	(\$5)	821	\$1,079	\$1,018	1.1	\$60	1.0	(\$10)	2.3	\$1,309
5	PGE	PGE	254	\$69	86.7	(616)	(\$29)	867	\$1,142	\$1,205	0.9	(\$62)	0.8	(\$290)	1.7	\$847
5	PGE	SCG	254	\$69	86.7	(616)	(\$49)	867	\$789	\$1,205	0.7	(\$416)	0.8	(\$290)	1.7	\$847
6	SCE	SCG	290	\$63	78.3	(560)	(\$21)	808	\$1,269	\$1,018	1.2	\$251	1.1	\$92	2.2	\$1,203
7	SDGE	SDGE	270	\$81	78.0	(558)	(\$37)	798	\$1,303	\$1,018	1.3	\$284	1.1	\$88	2.0	\$987
8	SCE	SCG	299	\$66	75.5	(544)	(\$21)	789	\$1,345	\$1,018	1.3	\$327	1.3	\$272	2.4	\$1,465
9	SCE	SCG	303	\$63	76.3	(552)	(\$21)	797	\$1,270	\$1,018	1.2	\$251	1.3	\$281	2.5	\$1,501
10	SCE	SCG	308	\$58	63.2	(552)	(\$36)	632	\$763	\$801	1.0	(\$37)	1.1	\$43	2.3	\$1,013
10	SDGE	SDGE	308	\$90	63.2	(552)	(\$55)	632	\$1,044	\$801	1.3	\$243	1.1	\$43	2.3	\$1,013
11	PGE	PGE	307	\$76	64.8	(582)	(\$47)	648	\$837	\$873	1.0	(\$36)	1.2	\$169	2.1	\$939
12	PGE	PGE	285	\$70	67.7	(596)	(\$48)	659	\$690	\$873	0.8	(\$184)	1.1	\$53	2.0	\$864
12	SMUD	PGE	285	\$37	67.7	(596)	\$12	659	\$1,321	\$873	1.5	\$448	1.1	\$53	2.0	\$864
13	PGE	PGE	317	\$78	62.8	(562)	(\$45)	637	\$926	\$873	1.1	\$52	1.1	\$87	2.1	\$997
14	SCE	SCG	343	\$65	65.3	(585)	(\$39)	663	\$861	\$873	1.0	(\$13)	1.3	\$299	2.4	\$1,214
14	SDGE	SDGE	343	\$95	65.3	(585)	(\$59)	663	\$1,071	\$873	1.2	\$198	1.3	\$299	2.4	\$1,214
15	SCE	SCG	390	\$75	51.2	(465)	(\$31)	582	\$1,228	\$873	1.4	\$354	1.7	\$594	2.4	\$1,206
16	PGE	PGE	284	\$69	77.8	(737)	(\$66)	716	\$266	\$873	0.3	(\$607)	0.2	(\$681)	1.4	\$353

^a Values in red indicate B/C ratios less than 1 or negative values. Values in grey indicate cases which are cost-effective but are not code compliant and cannot be used to support a reach code.

^b ">1" indicates cases where there are both incremental measure cost savings and energy cost savings.

Table 26: All-Electric Central Recirculating HPWH + 0.2 kW_{DC} PV per Dwelling Unit Results (Savings/Cost Per Dwelling Unit)^{a, b}

Climate Zone	Elec Utility	Gas Utility	Dwelling Units		Central Water Heating			Total On-Bill Utility Savings			On-Bill		2019 TDV		2022 TDV	
			Elec Savings (kWh)	Year 1 Utility Cost Savings	Gas Savings (therm)	Elec Savings (kWh)	Year 1 Utility Cost Savings	GHG Savings (lb CO ₂)	Inc. Cost (2020 PV\$)	Inc. Cost (2020 PV\$)	B/C Ratio	NPV	B/C Ratio	NPV	B/C Ratio	NPV
1	PGE	PGE	304	\$72	95.7	(710)	(\$38)	949	\$1,018	\$1,408	0.72	(\$390)	0.7	(\$393)	1.7	\$977
2	PGE	PGE	393	\$111	86.9	(635)	(\$32)	920	\$2,060	\$1,335	1.54	\$725	1.1	\$197	2.1	\$1,407
3	PGE	PGE	395	\$109	86.7	(618)	(\$29)	926	\$2,071	\$1,521	1.36	\$550	0.9	(\$93)	1.7	\$1,080
4	PGE	PGE	427	\$120	81.4	(590)	(\$29)	892	\$2,342	\$1,335	1.75	\$1,007	1.2	\$297	2.1	\$1,534
4	CPAU	CPAU	427	\$68	81.4	(590)	(\$5)	892	\$1,669	\$1,335	1.25	\$334	1.2	\$297	2.1	\$1,534
5	PGE	PGE	428	\$116	86.7	(616)	(\$29)	941	\$2,255	\$1,521	1.48	\$734	1.0	\$27	1.7	\$1,037
5	PGE	SCG	428	\$116	86.7	(616)	(\$49)	941	\$1,901	\$1,521	1.25	\$380	1.0	\$27	1.7	\$1,037
6	SCE	SCG	466	\$100	78.3	(560)	(\$21)	884	\$2,140	\$1,335	1.60	\$805	1.3	\$397	2.1	\$1,446
7	SDGE	SDGE	435	\$127	78.0	(558)	(\$37)	869	\$2,404	\$1,335	1.80	\$1,069	1.3	\$414	1.9	\$1,164
8	SCE	SCG	470	\$102	75.5	(544)	(\$21)	863	\$2,190	\$1,335	1.64	\$855	1.5	\$609	2.3	\$1,755
9	SCE	SCG	480	\$95	76.3	(552)	(\$21)	874	\$2,027	\$1,335	1.52	\$692	1.5	\$627	2.3	\$1,785
10	SCE	SCG	485	\$90	63.2	(552)	(\$36)	708	\$1,517	\$1,117	1.36	\$400	1.3	\$365	2.1	\$1,280
10	SDGE	SDGE	485	\$138	63.2	(552)	(\$55)	708	\$2,184	\$1,117	1.96	\$1,067	1.3	\$365	2.1	\$1,280
11	PGE	PGE	466	\$114	64.8	(582)	(\$47)	717	\$1,740	\$1,190	1.46	\$550	1.4	\$488	1.9	\$1,111
12	PGE	PGE	449	\$109	67.7	(596)	(\$48)	729	\$1,617	\$1,190	1.36	\$427	1.3	\$361	1.9	\$1,046
12	SMUD	PGE	449	\$57	67.7	(596)	\$12	729	\$1,793	\$1,190	1.51	\$604	1.3	\$361	1.9	\$1,046
13	PGE	PGE	482	\$118	62.8	(562)	(\$45)	708	\$1,861	\$1,190	1.56	\$671	1.3	\$375	2.0	\$1,192
14	SCE	SCG	534	\$99	65.3	(585)	(\$39)	744	\$1,668	\$1,190	1.40	\$478	1.6	\$723	2.3	\$1,537
14	SDGE	SDGE	534	\$145	65.3	(585)	(\$59)	744	\$2,263	\$1,190	1.90	\$1,073	1.6	\$723	2.3	\$1,537
15	SCE	SCG	567	\$106	51.2	(465)	(\$31)	657	\$1,975	\$1,190	1.66	\$785	1.8	\$949	2.2	\$1,463
16	PGE	PGE	454	\$110	77.8	(737)	(\$66)	789	\$1,228	\$1,190	1.03	\$38	0.7	(\$366)	1.5	\$537

^a Values in red indicate B/C ratios less than 1 or negative values. Values in grey indicate cases which are cost-effective but are not code compliant and cannot be used to support a reach code.

^b ">1" indicates cases where there are both incremental measure cost savings and energy cost savings.

Table 27: All-Electric Clustered HPWH Efficiency Only Package Results (Savings/Cost Per Dwelling Unit)^{a, b}

Climate Zone	Elec Utility	Gas Utility	Dwelling Units		Central Water Heating			Total			On-Bill		2019 TDV		2022 TDV	
			Elec Savings (kWh)	Year 1 Utility Cost Savings	Gas Savings (therm)	Elec Savings (kWh)	Year 1 Utility Cost Savings	GHG Savings (lb CO ₂)	On-Bill Savings (2020 PV\$)	Inc. Cost (2020 PV\$)	B/C Ratio	NPV	B/C Ratio	NPV	B/C Ratio	NPV
1	PGE	PGE	39	\$8	95.7	(809)	(\$64)	838	(\$1,096)	(\$643)	0.6	(\$453)	1.9	\$297	>1	\$1,793
2	PGE	PGE	78	\$24	86.9	(726)	(\$55)	785	(\$535)	(\$715)	1.3	\$180	>1	\$843	>1	\$2,069
3	PGE	PGE	70	\$20	86.7	(711)	(\$53)	788	(\$583)	(\$529)	0.9	(\$54)	>1	\$542	>1	\$1,786
4	PGE	PGE	95	\$29	81.4	(673)	(\$50)	750	(\$317)	(\$715)	2.3	\$399	>1	\$908	>1	\$2,025
4	CPAU	CPAU	95	\$17	81.4	(673)	(\$19)	750	\$97	(\$715)	>1	\$813	>1	\$908	>1	\$2,025
5	PGE	PGE	80	\$22	86.7	(711)	(\$53)	792	(\$527)	(\$529)	1.0	\$2	>1	\$539	>1	\$1,782
5	PGE	SCG	80	\$22	86.7	(711)	(\$73)	792	(\$881)	(\$529)	0.6	(\$352)	>1	\$539	>1	\$1,782
6	SCE	SCG	113	\$26	78.3	(645)	(\$41)	732	(\$67)	(\$715)	10.7	\$649	>1	\$928	>1	\$2,042
7	SDGE	SDGE	105	\$33	78.0	(642)	(\$61)	727	(\$388)	(\$715)	1.8	\$328	>1	\$947	>1	\$2,080
8	SCE	SCG	128	\$31	75.5	(620)	(\$39)	715	\$71	(\$715)	>1	\$786	>1	\$994	>1	\$2,123
9	SCE	SCG	125	\$29	76.3	(628)	(\$40)	721	\$26	(\$715)	>1	\$742	>1	\$1,062	>1	\$2,202
10	SCE	SCG	130	\$26	63.2	(624)	(\$53)	555	(\$415)	(\$933)	2.2	\$518	>1	\$936	>1	\$1,832
10	SDGE	SDGE	130	\$41	63.2	(624)	(\$77)	555	(\$621)	(\$933)	1.5	\$313	>1	\$936	>1	\$1,832
11	PGE	PGE	147	\$38	64.8	(643)	(\$63)	580	(\$439)	(\$861)	2.0	\$421	>1	\$884	>1	\$1,926
12	PGE	PGE	122	\$31	67.7	(672)	(\$67)	589	(\$691)	(\$861)	1.2	\$170	10.9	\$781	>1	\$1,896
12	SMUD	PGE	122	\$17	67.7	(672)	(\$2)	589	\$515	(\$861)	>1	\$1,375	10.9	\$781	>1	\$1,896
13	PGE	PGE	152	\$39	62.8	(618)	(\$60)	566	(\$354)	(\$861)	2.4	\$506	7.1	\$740	>1	\$1,954
14	SCE	SCG	152	\$31	65.3	(650)	(\$56)	581	(\$363)	(\$861)	2.4	\$498	>1	\$942	>1	\$1,863
14	SDGE	SDGE	152	\$44	65.3	(650)	(\$80)	581	(\$610)	(\$861)	1.4	\$250	>1	\$942	>1	\$1,863
15	SCE	SCG	213	\$43	51.2	(492)	(\$42)	507	\$201	(\$861)	>1	\$1,062	>1	\$1,288	>1	\$2,068
16	PGE	PGE	115	\$29	77.8	(813)	(\$85)	642	(\$1,163)	(\$861)	0.7	(\$302)	1.3	\$189	>1	\$1,462

^a Values in red indicate B/C ratios less than 1 or negative values. Values in grey indicate cases which are cost-effective but are not code compliant and cannot be used to support a reach code.

^b ">1" indicates cases where there are both incremental measure cost savings and energy cost savings.

Table 28: All-Electric Clustered HPWH + 0.1 kW_{DC} PV per Dwelling Unit Results (Savings/Cost Per Dwelling Unit)^{a, b}

			Dwelling Units	Central Water Heating	Total	On-Bill	2019 TDV	2022 TDV
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Climate Zone	Elec Utility	Gas Utility	Elec Savings (kWh)	Year 1 Utility Cost Savings	Gas Savings (therm)	Elec Savings (kWh)	Year 1 Utility Cost Savings	GHG Savings (lb CO ₂)	On-Bill Utility Savings (2020 PV\$)	Inc. Cost (2020 PV\$)	B/C Ratio	NPV	B/C Ratio	NPV	B/C Ratio	NPV
1	PGE	PGE	171	\$32	95.7	(809)	(\$64)	894	-\$341	(\$326)	0.96	(\$14)	>1	\$472	>1	\$1,856
2	PGE	PGE	236	\$43	86.9	(726)	(\$55)	852	\$492	(\$399)	>1	\$891	>1	\$1,127	>1	\$2,239
3	PGE	PGE	232	\$46	86.7	(711)	(\$53)	857	\$469	(\$213)	>1	\$682	>1	\$814	>1	\$1,945
4	PGE	PGE	261	\$46	81.4	(673)	(\$50)	821	\$768	(\$399)	>1	\$1,166	>1	\$1,215	>1	\$2,250
4	CPAU	CPAU	261	\$27	81.4	(673)	(\$19)	821	\$729	(\$399)	>1	\$1,128	>1	\$1,215	>1	\$2,250
5	PGE	PGE	254	\$49	86.7	(711)	(\$53)	867	\$585	(\$213)	>1	\$798	>1	\$856	>1	\$1,973
5	PGE	SCG	254	\$49	86.7	(711)	(\$73)	867	\$232	(\$213)	>1	\$445	>1	\$856	>1	\$1,973
6	SCE	SCG	290	\$37	78.3	(645)	(\$41)	808	\$803	(\$399)	>1	\$1,202	>1	\$1,233	>1	\$2,285
7	SDGE	SDGE	270	\$48	78.0	(642)	(\$61)	798	\$742	(\$399)	>1	\$1,141	>1	\$1,273	>1	\$2,256
8	SCE	SCG	299	\$36	75.5	(620)	(\$39)	789	\$915	(\$399)	>1	\$1,314	>1	\$1,331	>1	\$2,414
9	SCE	SCG	303	\$34	76.3	(628)	(\$40)	797	\$833	(\$399)	>1	\$1,232	>1	\$1,407	>1	\$2,486
10	SCE	SCG	308	\$32	63.2	(624)	(\$53)	632	\$338	(\$617)	>1	\$955	>1	\$1,258	>1	\$2,100
10	SDGE	SDGE	308	\$49	63.2	(624)	(\$77)	632	\$539	(\$617)	>1	\$1,156	>1	\$1,258	>1	\$2,100
11	PGE	PGE	307	\$38	64.8	(643)	(\$63)	648	\$464	(\$544)	>1	\$1,008	>1	\$1,203	>1	\$2,098
12	PGE	PGE	285	\$39	67.7	(672)	(\$67)	659	\$237	(\$544)	>1	\$781	>1	\$1,089	>1	\$2,078
12	SMUD	PGE	285	\$20	67.7	(672)	(\$2)	659	\$987	(\$544)	>1	\$1,531	>1	\$1,089	>1	\$2,078
13	PGE	PGE	317	\$39	62.8	(618)	(\$60)	637	\$581	(\$544)	>1	\$1,125	>1	\$1,027	>1	\$2,149
14	SCE	SCG	343	\$34	65.3	(650)	(\$56)	663	\$445	(\$544)	>1	\$989	>1	\$1,366	>1	\$2,185
14	SDGE	SDGE	343	\$50	65.3	(650)	(\$80)	663	\$582	(\$544)	>1	\$1,126	>1	\$1,366	>1	\$2,185
15	SCE	SCG	390	\$32	51.2	(492)	(\$42)	582	\$948	(\$544)	>1	\$1,492	>1	\$1,643	>1	\$2,324
16	PGE	PGE	284	\$41	77.8	(813)	(\$85)	716	-\$201	(\$544)	2.7	\$343	13.6	\$504	>1	\$1,645

^a Values in red indicate B/C ratios less than 1 or negative values. Values in grey indicate cases which are cost-effective but are not code compliant and cannot be used to support a reach code.

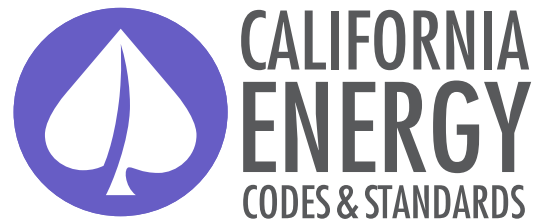
^b ">1" indicates cases where there are both incremental measure cost savings and energy cost savings.

Table 29: All-Electric Clustered HPWH + 0.2 kW_{DC} PV per Dwelling Unit Results (Savings/Cost Per Dwelling Unit)^{a, b}

Climate Zone	Elec Utility	Gas Utility	Dwelling Units		Central Water Heating			Total On-Bill Utility Savings			On-Bill		2019 TDV		2022 TDV	
			Elec Savings (kWh)	Year 1 Utility Cost Savings	Gas Savings (therm)	Elec Savings (kWh)	Year 1 Utility Cost Savings	GHG Savings (lb CO ₂)	(2020 PV\$)	Inc. Cost (2020 PV\$)	B/C Ratio	NPV	B/C Ratio	NPV	B/C Ratio	NPV
1	PGE	PGE	304	\$64	95.7	(809)	(\$64)	949	\$415	(\$10)	>1	\$425	>1	\$648	>1	\$1,919
2	PGE	PGE	393	\$87	86.9	(726)	(\$55)	920	\$1,520	(\$82)	>1	\$1,602	>1	\$1,411	>1	\$2,410
3	PGE	PGE	395	\$91	86.7	(711)	(\$53)	926	\$1,521	\$104	14.7	\$1,417	11.5	\$1,085	21.3	\$2,104
4	PGE	PGE	427	\$92	81.4	(673)	(\$50)	892	\$1,852	(\$82)	>1	\$1,934	>1	\$1,523	>1	\$2,474
4	CPAU	CPAU	427	\$52	81.4	(673)	(\$19)	892	\$1,319	(\$82)	>1	\$1,401	>1	\$1,523	>1	\$2,474
5	PGE	PGE	428	\$96	86.7	(711)	(\$53)	941	\$1,698	\$104	16.4	\$1,594	12.3	\$1,173	21.9	\$2,163
5	PGE	SCG	428	\$96	86.7	(711)	(\$73)	941	\$1,344	\$104	13.0	\$1,241	12.3	\$1,173	21.9	\$2,163
6	SCE	SCG	466	\$74	78.3	(645)	(\$41)	884	\$1,674	(\$82)	>1	\$1,756	>1	\$1,539	>1	\$2,528
7	SDGE	SDGE	435	\$94	78.0	(642)	(\$61)	869	\$1,842	(\$82)	>1	\$1,925	>1	\$1,598	>1	\$2,433
8	SCE	SCG	470	\$71	75.5	(620)	(\$39)	863	\$1,760	(\$82)	>1	\$1,842	>1	\$1,668	>1	\$2,705
9	SCE	SCG	480	\$66	76.3	(628)	(\$40)	874	\$1,590	(\$82)	>1	\$1,673	>1	\$1,752	>1	\$2,771
10	SCE	SCG	485	\$64	63.2	(624)	(\$53)	708	\$1,092	(\$300)	>1	\$1,392	>1	\$1,580	>1	\$2,368
10	SDGE	SDGE	485	\$97	63.2	(624)	(\$77)	708	\$1,680	(\$300)	>1	\$1,980	>1	\$1,580	>1	\$2,368
11	PGE	PGE	466	\$76	64.8	(643)	(\$63)	717	\$1,367	(\$228)	>1	\$1,594	>1	\$1,521	>1	\$2,270
12	PGE	PGE	449	\$78	67.7	(672)	(\$67)	729	\$1,164	(\$228)	>1	\$1,392	>1	\$1,396	>1	\$2,260
12	SMUD	PGE	449	\$40	67.7	(672)	(\$2)	729	\$1,459	(\$228)	>1	\$1,687	>1	\$1,396	>1	\$2,260
13	PGE	PGE	482	\$79	62.8	(618)	(\$60)	708	\$1,516	(\$228)	>1	\$1,743	>1	\$1,315	>1	\$2,344
14	SCE	SCG	534	\$68	65.3	(650)	(\$56)	744	\$1,252	(\$228)	>1	\$1,480	>1	\$1,791	>1	\$2,507
14	SDGE	SDGE	534	\$101	65.3	(650)	(\$80)	744	\$1,774	(\$228)	>1	\$2,002	>1	\$1,791	>1	\$2,507
15	SCE	SCG	567	\$63	51.2	(492)	(\$42)	657	\$1,695	(\$228)	>1	\$1,923	>1	\$1,998	>1	\$2,580
16	PGE	PGE	454	\$81	77.8	(813)	(\$85)	789	\$760	(\$228)	>1	\$988	>1	\$820	>1	\$1,829

^a Values in red indicate B/C ratios less than 1 or negative values. Values in grey indicate cases which are cost-effective but are not code compliant and cannot be used to support a reach code.

^b ">1" indicates cases where there are both incremental measure cost savings and energy cost savings.



A STATEWIDE UTILITY PROGRAM

Title 24, Parts 6 and 11
Local Energy Efficiency Ordinances

2019 Nonresidential New Construction Reach Code Cost Effectiveness Study

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1 Introduction

The California Building Energy Efficiency Standards Title 24, Part 6 (Title 24) (CEC, 2019) is maintained and updated every three years by two state agencies: the California Energy Commission (the Energy Commission) and the Building Standards Commission (BSC). In addition to enforcing the code, local jurisdictions have the authority to adopt local energy efficiency ordinances—or reach codes—that exceed the minimum standards defined by Title 24 (as established by Public Resources Code Section 25402.1(h)2 and Section 10-106 of the Building Energy Efficiency Standards). Local jurisdictions must demonstrate that the requirements of the proposed ordinance are cost-effective and do not result in buildings consuming more energy than is permitted by Title 24. In addition, the jurisdiction must obtain approval from the Energy Commission and file the ordinance with the BSC for the ordinance to be legally enforceable. This report was developed in coordination with the California Statewide Investor Owned Utilities (IOUs) Codes and Standards Program, key consultants, and engaged cities—collectively known as the Reach Code Team.

This report documents cost-effective combinations of measures that exceed the minimum state requirements for design in newly-constructed nonresidential buildings. Buildings specifically examined include medium office, medium retail, and small hotels. Measures include energy efficiency, solar photovoltaics (PV), and battery storage. In addition, the report includes a comparison between a baseline mixed-fuel design and all-electric design for each occupancy type.

The Reach Code team analyzed the following seven packages as compared to 2019 code compliant mixed-fuel design baseline:

- ◆ **Package 1A – Mixed-Fuel + Energy Efficiency (EE):** Mixed-fuel design with energy efficiency measures and federal minimum appliance efficiencies.
- ◆ **Package 1B – Mixed-Fuel + EE + PV + Battery (B):** Same as Package 1A, plus solar PV and batteries.
- ◆ **Package 1C – Mixed-fuel + High Efficiency (HE):** Baseline code-minimum building with high efficiency appliances, triggering federal preemption. The intent of this package is to assess the standalone contribution that high efficiency appliances would make toward achieving high performance thresholds.
- ◆ **Package 2 – All-Electric Federal Code-Minimum Reference:** All-electric design with federal code minimum appliance efficiency. No solar PV or battery.
- ◆ **Package 3A – All-Electric + EE:** Package 2 all-electric design with energy efficiency measures and federal minimum appliance efficiencies.
- ◆ **Package 3B – All-Electric + EE + PV + B:** Same as Package 3A, plus solar PV and batteries.
- ◆ **Package 3C – All-Electric + HE:** All-electric design with high efficiency appliances, triggering federal preemption.

Figure 1 summarizes the baseline and measure packages. Please refer to *Section 3* for more details on the measure descriptions.



Figure 1. Measure Category and Package Overview

Measure Category	Report Section	Mixed Fuel				All-Electric			
		Baseline	1A	1B	1C	2	3A	3B	3C
		Fed Code Minimum Efficiency	EE	EE+ PV + B	HE	Fed Code Minimum Efficiency	EE	EE+ PV + B	HE
Energy Efficiency Measures	3.1		X	X			X	X	
Solar PV + Battery	3.2			X				X	
All-Electric Measures	3.3					X	X	X	X
Preemptive Appliance Measures	3.4				X				X

The team separately developed cost effectiveness results for PV-only and PV+Battery packages, excluding any efficiency measures. For these packages, the PV is modeled as a “minimal” size of 3 kW and a larger size based on the available roof area and electric load of the building. PV sizes are combined with two sizes of battery storage for both mixed fuel and all electric buildings to form eight different package combinations as outlined below:

- ◆ **Mixed-Fuel + 3 kW PV Only**
- ◆ **Mixed-Fuel + 3 kW PV + 5 kWh Battery**
- ◆ **Mixed-Fuel + PV Only:** PV sized per the roof size of the building, or to offset the annual electricity consumption, whichever is smaller
- ◆ **Mixed-Fuel + PV + 50 kWh Battery:** PV sized per the roof size of the building, or to offset the annual electricity consumption, whichever is smaller, along with 50 kWh battery
- ◆ **All-Electric + 3 kW PV Only**
- ◆ **All-Electric + 3 kW PV + 5 kWh Battery**
- ◆ **All-Electric + PV Only:** PV sized per the roof size of the building, or to offset the annual electricity consumption, whichever is smaller
- ◆ **All-Electric + PV + 50 kWh Battery:** PV sized per the roof size of the building, or to offset the annual electricity consumption, whichever is smaller, along with 50 kWh battery.

Each of the eight packages are evaluated against a baseline model designed as per 2019 Title 24 Part 6 requirements. The Standards baseline for all occupancies in this report is a mixed-fuel design.

The Department of Energy (DOE) sets minimum efficiency standards for equipment and appliances that are federally regulated under the National Appliance Energy Conservation Act (NAECA), including heating, cooling, and water heating equipment.¹ Since state and local governments are prohibited from adopting

¹ https://www.ecfr.gov/cgi-bin/retrieveECFR?gp=&SID=8de751f141aaa1c1c9833b36156faf67&mc=true&n=pt10.3.431&r=PART&ty=HTML#se10.3.431_197



higher minimum efficiencies than the federal standards require, the focus of this study is to identify and evaluate cost-effective packages that do not include high efficiency equipment. However, because high efficiency appliances are often the easiest and most affordable measures to increase energy performance, this study provides an analysis of high efficiency appliances for informational purposes. While federal preemption would limit a reach code, in practice, builders may install any package of compliant measures to achieve the performance requirements, including higher efficiency appliances that are federally regulated.

2 Methodology and Assumptions

With input from several stakeholders, the Reach Codes team selected three building types—medium office, medium retail, and small hotel—to represent a predominant segment of nonresidential new construction in the state.

This analysis used both on-bill and time dependent valuation of energy (TDV) based approaches to evaluate cost-effectiveness. Both methodologies require estimating and quantifying the energy savings associated with energy efficiency measures, as well as quantifying the costs associated with the measures. The main difference between the methodologies is the valuation of energy and thus the cost savings of reduced or avoided energy use. TDV was developed by the Energy Commission to reflect the time dependent value of energy including long-term projected costs of energy such as the cost of providing energy during peak periods of demand and other societal costs including projected costs for carbon emissions. With the TDV approach, electricity used (or saved) during peak periods has a much higher value than electricity used (or saved) during off-peak periods.²

The Reach Code Team performed energy simulations using EnergyPro 8.0 software for 2019 Title 24 code compliance analysis, which uses CBECC-Com 2019.1.0 for the calculation engine. The baseline prototype models in all climate zones have been designed to have compliance margins as close as possible to 0 to reflect a prescriptively-built building.³

2.1 Building Prototypes

The DOE provides building prototype models which, when modified to comply with 2019 Title 24 requirements, can be used to evaluate the cost effectiveness of efficiency measures. These prototypes have historically been used by the California Energy Commission to assess potential code enhancements. The Reach Code Team performed analysis on a medium office, a medium retail, and a small hotel prototype.

Water heating includes both service water heating (SWH) for office and retail buildings and domestic hot water for hotels. In this report, water heating or SWH is used to refer to both. The Standard Design HVAC and SWH systems are based on the system maps included in the 2019 Nonresidential Alternate

² Horii, B., E. Cutter, N. Kapur, J. Arent, and D. Conotyannis. 2014. "Time Dependent Valuation of Energy for Developing Building Energy Efficiency Standards." Available at: http://www.energy.ca.gov/title24/2016standards/prerulemaking/documents/2014-07-09_workshop/2017_TDV_Documents

³ EnergySoft and TRC were able to develop most baseline prototypes to achieve a compliance margin of less than +/-1 percent except for few models that were at +/- 6 percent. This indicates these prototypes are not exactly prescriptive according to compliance software calculations. To calculate incremental impacts, TRC conservatively compared the package results to that of the proposed design of baseline prototypes (not the standard design).

Calculation Method Reference Manual.⁴ The Standard Design is the baseline for all nonresidential projects and assumes a mixed-fuel design using natural gas as the space heating source in all cases. Baseline HVAC and SWH system characteristics are described below and in Figure 2:

- ◆ The baseline medium office HVAC design package includes two gas hot water boilers, three packaged rooftop units (one for each floor), and variable air volume (VAV) terminal boxes with hot water reheat coils. The SWH design includes one 8.75 kW electric resistance hot water heater with a 30-gallon storage tank.
- ◆ The baseline medium retail HVAC design includes five single zone packaged rooftop units (variable flow and constant flow depending on the zone) with gas furnaces for heating. The SWH design includes one 8.75 kW electric resistance hot water heater with a 30-gallon storage tank.
- ◆ The small hotel has two baseline equipment systems, one for the nonresidential spaces and one for the guest rooms.
 - ◆ The nonresidential HVAC design includes two gas hot water boilers, four packaged rooftop units and twelve VAV terminal boxes with hot water reheat coils. The SWH design include a small electric resistance water heater with 30-gallon storage tank.
 - ◆ The residential HVAC design includes one single zone air conditioner (AC) unit with gas furnace for each guest room and the water heating design includes one central gas water heater with a recirculation pump for all guest rooms.

Figure 2. Prototype Characteristics Summary

	Medium Office	Medium Retail	Small Hotel
Conditioned Floor Area	53,628	24,691	42,552
Number of Stories	3	1	4
Number of Guest Rooms	0	0	78
Window-to-Wall Area Ratio	0.33	0.07	0.11
Baseline HVAC System	Packaged DX VAV with gas furnaces + VAV terminal units with hot water reheat. Central gas hot water boilers	Single zone packaged DX units with gas furnaces	<u>Nonresidential</u> : Packaged DX VAV with hot water coil + VAV terminal units with hot water reheat. Central gas hot water boilers. <u>Residential</u> : Single zone DX AC unit with gas furnaces
Baseline Water Heating System	30-gallon electric resistance water heater	30-gallon electric resistance water heater	<u>Nonresidential</u> : 30-gallon electric resistance water heater <u>Residential</u> : Central gas water heater with recirculation loop

⁴ Nonresidential Alternative Calculation Method Reference Manual For the 2019 Building Energy Efficiency Standards. Available at: <https://www.energy.ca.gov/2019publications/CEC-400-2019-006/CEC-400-2019-006-CMF.pdf>

2.2 Cost Effectiveness

The Reach Code Team analyzed the cost effectiveness of the packages by applying them to building prototypes (as applicable) using the life cycle cost methodology, which is approved and used by the Energy Commission to establish cost effective building energy standards (Title 24, Part 6).⁵

Per Energy Commission's methodology, the Reach Code Team assessed the incremental costs of the energy efficiency measure packages and compared them to the energy cost savings over the measure life of 15 years. Incremental costs represent the equipment, installation, replacements, and maintenance costs of the proposed measure relative to the 2019 Title 24 Standards minimum requirements. The energy savings benefits are estimated using both TDV of energy and typical utility rates for each building type:

- ◆ **Time Dependent Valuation:** TDV is a normalized monetary format developed and used by the Energy Commission for comparing electricity and natural gas savings, and it considers the cost of electricity and natural gas consumed during different times of the day and year. Simulation outputs are translated to TDV savings benefits using 2019 TDV multipliers and 15-year discounted costs for the nonresidential measure packages.
- ◆ **Utility bill impacts (On-bill):** Utility energy costs are estimated by applying appropriate IOU rates to estimated annual electricity and natural gas consumption. The energy bill savings are calculated as the difference in utility costs between the baseline and proposed package over a 15-year duration accounting for discount rate and energy cost escalation.

In coordination with the IOU rate team, and rate experts at a few electric publicly owned utilities (POUs), the Reach Code Team used the current nonresidential utility rates publicly available at the time of analysis to analyze the cost effectiveness for each proposed package. The utility tariffs, summarized in Figure 3, were determined based on the annual load profile of each prototype, and the most prevalent rate in each territory. For some prototypes there are multiple options for rates because of the varying load profiles of mixed-fuel buildings versus all-electric buildings. Tariffs were integrated in EnergyPro software to be applied to the hourly electricity and gas outputs. The Reach Code Team did not attempt to compare or test a variety of tariffs to determine their impact on cost effectiveness.

The currently available and applicable time-of-use (TOU) nonresidential rates are applied to both the base and proposed cases with PV systems.⁶ Any annual electricity production in excess of annual electricity consumption is credited at the applicable wholesale rate based on the approved NEM tariffs for that utility. For a more detailed breakdown of the rates selected refer to *Appendix 6.4 Utility Rate Schedules*. Note that most utility time-of-use rates will be updated in the near future, which can affect cost effectiveness results. For example, Pacific Gas and Electric Company (PG&E) will introduce new rates for new service connections in late 2019, and existing accounts will be automatically rolled over to new rates in November 2020.

⁵ Architectural Energy Corporation (January 2011) Life-Cycle Cost Methodology. California Energy Commission. Available at: http://www.energy.ca.gov/title24/2013standards/prerulemaking/documents/general_cec_documents/2011-01-14_LCC_Methodology_2013.pdf

⁶ Under NEM rulings by the CPUC (D-16-01-144, 1/28/16), all new PV customers shall be in an approved TOU rate structure. As of March 2016, all new PG&E net energy metering (NEM) customers are enrolled in a time-of-use rate. (<http://www.pge.com/en/myhome/saveenergymoney/plans/tou/index.page?>).



Figure 3. Utility Tariffs used based on Climate Zone

Climate Zones	Electric / Gas Utility	Electricity (Time-of-use)	Natural Gas
IOUs			
1-5,11-13,16	PG&E	A-1/A-10	G-NR1
5	PG&E / Southern California Gas Company	A-1/A-10	G-10 (GN-10)
6,8-10,14,15	SCE / Southern California Gas Company	TOU-GS-1/TOU-GS-2/TOU-GS-3	G-10 (GN-10)
7,10,14	San Diego Gas and Electric Company (SDG&E)	A-1/A-10	GN-3
Electric POUs			
4	City of Palo Alto (CPAU)	E-2	n/a
12	Sacramento Municipal Utility District (SMUD)	GS	n/a
6,7,8,16	Los Angeles Department of Water and Power (LADWP)	A-2 (B)	n/a

The Reach Code Team obtained measure costs through interviews with contractors and California distributors and review of online sources, such as Home Depot and RS Means. Taxes and contractor markups were added as appropriate. Maintenance costs were not included because there is no assumed maintenance on the envelope measures. For HVAC and SWH measures the study assumes there are no additional maintenance cost for a more efficient version of the same system type as the baseline. Replacement costs for inverters were included for PV systems, but the useful life all other equipment exceeds the study period.

The Reach Code Team compared the energy benefits with incremental measure cost data to determine cost effectiveness for each measure package. The calculation is performed for a duration of 15 years for all nonresidential prototypes with a 3 percent discount rate and fuel escalation rates based on the most recent General Rate Case filings and historical escalation rates.⁷ Cost effectiveness is presented using net present value and benefit-to-cost ratio metrics.

- ◆ **Net Present Value (NPV):** The Reach Code Team uses net savings (NPV benefits *minus* NPV costs) as the cost effectiveness metric. If the net savings of a measure or package is positive, it is considered cost effective. Negative savings represent net costs. A measure that has negative energy cost benefits (energy cost increase) can still be cost effective if the costs to implement the measure are more negative (i.e., material and maintenance cost savings).
- ◆ **Benefit-to-Cost Ratio (B/C):** Ratio of the present value of all benefits to the present value of all costs over 15 years (NPV benefits *divided by* NPV costs). The criteria for cost effectiveness is a B/C greater than 1.0. A value of one indicates the savings over the life of the measure are equivalent to the incremental cost of that measure.

⁷ 2019 TDV Methodology Report, California Energy Commission, Docket number: 16-BSTD-06
<https://efiling.energy.ca.gov/GetDocument.aspx?tn=216062>



There are several special circumstances to consider when reviewing these results:

- ◆ Improving the efficiency of a project often requires an initial incremental investment. However, some packages result in initial construction cost savings (negative incremental cost), and either energy cost savings (positive benefits), or increased energy costs (negative benefits). Typically, utility bill savings are categorized as a 'benefit' while incremental construction costs are treated as 'costs.' In cases where both construction costs are negative and utility bill savings are negative, the construction cost savings are treated as the 'benefit' while the utility bill negative savings are the 'cost.'
- ◆ In cases where a measure package is cost effective immediately (i.e., there are upfront cost savings and lifetime energy cost savings), cost effectiveness is represented by ">1".
- ◆ The B/C ratios sometimes appear very high even though the cost numbers are not very high (for example, an upfront cost of \$1 but on-bill savings of \$200 over 30 years would equate to a B/C ratio of 200). NPV is also displayed to clarify these potentially confusing conclusions – in the example, the NPV would be equal to a modest \$199.

3 Measure Description and Cost

Using the 2019 Title 24 code baseline as the starting point, The Reach Code Team identified potential measure packages to determine the projected energy (therm and kWh) and compliance impacts. The Reach Code Team developed an initial measure list based on experience with designers and contractors along with general knowledge of the relative acceptance and preferences of many measures, as well as their incremental costs.

The measures are categorized into energy efficiency, solar PV and battery, all-electric, and preempted high efficiency measures in subsections below.

3.1 Energy Efficiency Measures

This section describes all the energy efficiency measures considered for this analysis to develop a non-preempted, cost-effective efficiency measure package. The Reach Code Team assessed the cost-effectiveness of measures for all climate zones individually and found that the packages did not need to vary by climate zone, with the exception of a solar heat gain coefficient measure in hotels, as described in more detail below. The measures were developed based on reviews of proposed 2022 Title 24 codes and standards enhancement measures, as well as ASHRAE 90.1 and ASHRAE 189.1 Standards. Please refer to *Appendix Section 6.86.7* for a list of efficiency measures that were considered but not implemented.

Figure 4 provides a summary of the cost of each measure and the applicability of each measure to the prototype buildings.

3.1.1 Envelope

◆ **Modify Solar Heat Gain Coefficient (SHGC) fenestration**

- ◆ Office and Retail - All Climate Zones: reduce window SHGC from the prescriptive value of 0.25 to 0.22
- ◆ Hotel
 - ◆ Climate zones 1, 2, 3, 5, and 16: Increase the SHGC for all nonresidential spaces from the prescriptive value of 0.25 to 0.45 in both common and guest room spaces.
 - ◆ Climate zones 4, and 6-15: Reduce window SHGC from the prescriptive value of 0.25 to 0.22, only for common spaces.

In all cases, the fenestration visible transmittance and U-factor remain at prescriptive values.

- ◆ **Fenestration as a function of orientation:** Limit the amount of fenestration area as a function of orientation. East-facing and west-facing windows are each limited to one-half of the average amount of north-facing and south-facing windows.

3.1.2 HVAC and SWH

- ◆ **Drain water heat recovery (DWHR):** Add shower drain heat recovery in hotel guest rooms. DWHR captures waste heat from a shower drain line and uses it to preheat hot water. Note that this measure cannot currently be modeled on hotel/motel spaces, and the Reach Code Team integrated estimated savings outside of modeling software based on SWH savings in residential scenarios. Please see *Appendix Section 6.3* for details on energy savings analysis.
- ◆ **VAV box minimum flow:** Reduce VAV box minimum airflows from the current T24 prescriptive requirement of 20 percent of maximum (design) airflow to the T24 zone ventilation minimums.
- ◆ **Economizers on small capacity systems:** Require economizers and staged fan control in units with cooling capacity $\geq 33,000$ Btu/hr and $\leq 54,000$ Btu/hr, which matches the requirement in the 2018 International Green Construction Code and adopts ANSI/ASHRAE/ICC/USGBC/IES Standard 189.1. This measure reduces the T24 prescriptive threshold on air handling units that are required to have economizers, which is $> 54,000$ Btu/hr.
- ◆ **Solar thermal hot water:** For all-electric hotel only, add solar thermal water heating to supply the following portions of the water heating load, measured in solar savings fraction (SSF):
 - ◆ 20 percent SSF in CZs 2, 3, and 5-9
 - ◆ 25 percent in CZ4
 - ◆ 35 percent SSF in CZs 1 and 10-16.



3.1.3 Lighting

- ◆ **Interior lighting reduced lighting power density (LPD):** Reduce LPD by 15 percent for Medium Office, 10 percent for Medium Retail and by 10 percent for the nonresidential areas of the Small Hotel.
- ◆ **Institutional tuning:** Limit the maximum output or maximum power draw of lighting to 85 percent of full light output or full power draw.
- ◆ **Daylight dimming plus off:** Turn daylight-controlled lights completely off when the daylight available in the daylit zone is greater than 150 percent of the illuminance received from the general lighting system at full power. There is no associated cost with this measure, as the 2019 T24 Standards already require multilevel lighting and daylight sensors in primary and secondary daylit spaces. This measure is simply a revised control strategy and does not increase the number of sensors required or labor to install and program a sensor.
- ◆ **Occupant sensing in open plan offices:** In an open plan office area greater than 250 ft², control lighting based on occupant sensing controls. Two workstations per occupancy sensor.

Details on the applicability and impact of each measure by building type and by space function can be found in *Appendices 6.2*. The appendix also includes the resulting LPD that is modeled as the proposed by building type and by space function.



Figure 4. Energy Efficiency Measures - Specification and Cost

Measure	Baseline T24 Requirement	Measure Applicability				Incremental Cost	Sources & Notes
		● Included in Packages 1A, 1B, 3A, 3C — Not applicable					
		Med Office	Med Retail	Small Hotel			
Guest rooms	Comm Spaces						
Envelope							
Modify SHGC Fenestration	SHGC of 0.25	●	●	●	●	\$1.60 /ft ² window for SHGC decreases, \$0/ft ² for SHGC increases	Costs from one manufacturer.
Fenestration as a Function of Orientation	Limit on total window area and west-facing window area as a function of wall area.	●	—	—	—	\$0	No additional cost associated with the measure which is a design consideration not an equipment cost.
HVAC and SHW							
Drain Water Heat Recovery	No heat recovery required	—	—	●	—	\$841 /unit	Assume 1 heat recovery unit for every 3 guestrooms. Costs from three manufacturers.
VAV Box Minimum Flow	20 percent of maximum (design) airflow	●	—	—	●	\$0	No additional cost associated with the measure which is a design consideration not an equipment cost.
Economizers on Small Capacity Systems	Economizers required for units > 54,000 Btu/hr	—	●	—	—	\$2,857 /unit	Costs from one manufacturer's representative and one mechanical contractor.



Measure	Baseline T24 Requirement	Measure Applicability				Incremental Cost	Sources & Notes
		● Included in Packages 1A, 1B, 3A, 3C — Not applicable					
		Med Office	Med Retail	Small Hotel			
Guest rooms	Comm Spaces						
Solar Thermal Hot Water	For central heat pump water heaters, there is no prescriptive baseline requirement.	—	—	● (electric only)	—	\$33/therm-yr	Installed costs reported in the California Solar Initiative Thermal Program Database, 2015-present. ⁸ Costs include tank and were only available for gas backup systems. Costs are reduced by 19 percent per federal income tax credit average through 2022.
Lighting							
Interior Lighting Reduced LPD	Per Area Category Method, varies by Primary Function Area. Office area 0.60 – 0.70 W/ft ² depending on area of space. Hotel function area 0.85 W/ft ² . Retail Merchandise Sales 1.00 W/ft ²	●	●	—	●	\$0	Industry report on LED pricing analysis shows that costs are not correlated with efficacy. ⁹

⁸ <http://www.csithermalstats.org/download.html>

⁹ http://calmac.org/publications/LED_Pricing_Analysis_Report_-_Revised_1.19.2018_Final.pdf



Measure	Baseline T24 Requirement	Measure Applicability				Incremental Cost	Sources & Notes
		● Included in Packages 1A, 1B, 3A, 3C — Not applicable					
		Med Office	Med Retail	Small Hotel			
Guest rooms	Comm Spaces						
Institutional Tuning	No requirement, but Power Adjustment Factor (PAF) credit of 0.10 available for luminaires in non-daylit areas and 0.05 for luminaires in daylit areas ¹⁰	●	●	—	●	\$0.06/ft²	Industry report on institutional tuning ¹¹
Daylight Dimming Plus Off	No requirement, but PAF credit of 0.10 available.	●	—	—	—	\$0	Given the amount of lighting controls already required, this measure is no additional cost.
Occupant Sensing in Open Plan Offices	No requirement, but PAF credit of 0.30 available.	●	—	—	—	\$189 /sensor; \$74 /powered relay; \$108 /secondary relay	2 workstations per sensor; 1 fixture per workstation; 4 workstations per master relay; 120 ft²/workstation in open office area, which is 53% of total floor area of the medium office

¹⁰ Power Adjustment Factors allow designers to tradeoff increased lighting power densities for more efficient designs. In this study, PAF-related measures assume that the more efficient design is incorporated without a tradeoff for increased lighting power density.

¹¹ <https://slipstreaminc.org/sites/default/files/2018-12/task-tuning-report-mndoc-2015.pdf>



3.2 Solar Photovoltaics and Battery Measures

This section describes the PV and battery measures considered for this analysis. The Reach Code Team estimated the required PV sizes for each building prototype for the efficiency measure packages and the stand alone PV and battery options.

3.2.1 Solar Photovoltaics

2019 Title 24 requires nonresidential buildings to reserve at least 15 percent of the roof area as a “solar zone,” but does not include any requirements or compliance credits for the installation of photovoltaic systems. The Reach Code Team analyzed a range of PV system sizes to determine cost effectiveness. To determine upper end of potential PV system size, the Reach Code Team assumed a PV generation capacity of either

- ◆ 15 W/ft² covering 50 percent of the roof area, or
- ◆ Enough to nearly offset the annual energy consumption.

The medium office and small hotel prototypes had small roof areas compared to their annual electricity demand, thus the PV system capacity at 50 percent of the roof area was less than the estimated annual usage. The medium office and small hotel had a 135 kW and 80 kW array, respectively. The medium retail building has a substantially large roof area that would accommodate a PV array that generates more than the annual electricity load of the building. The PV array for the medium retail building was sized at 110 kW to not exceed the annual electricity consumption of the building when accounting for the minimum annual energy demand across climate zones with efficiency packages.

The modeling software for nonresidential buildings does not allow auto-sizing of PV based on a desired percent offset of electricity use. Moreover, the PV size is also constrained by the availability of roof area. Hence, a common size of PV is modeled for all the packages including all electric design. Figure 5 through Figure 7 below demonstrate the percent of electricity offset by PV for both mixed fuel and all electric buildings over their respective federal minimum design package.

Figure 5. Medium Office – Annual Percent kWh Offset with 135 kW Array

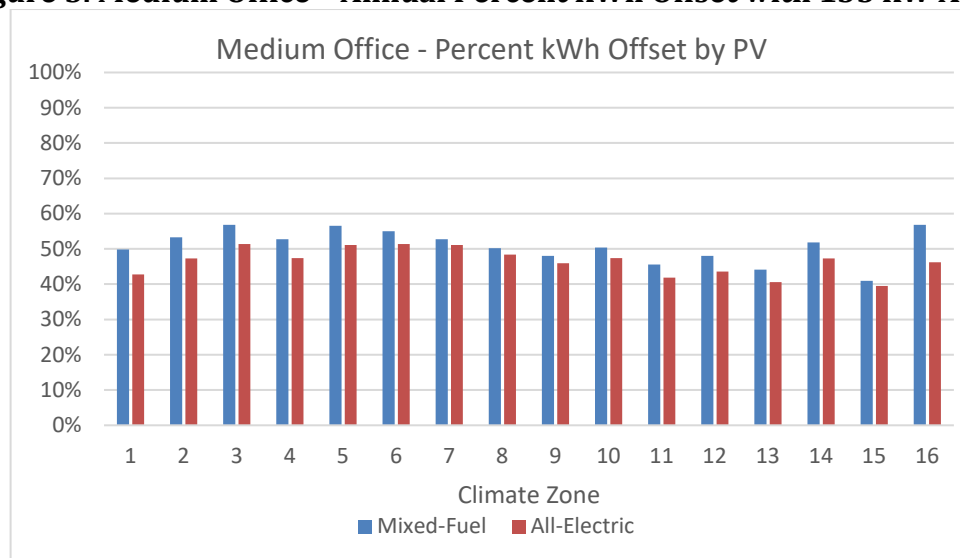


Figure 6. Medium Retail – Annual Percent kWh Offset with 110 kW Array

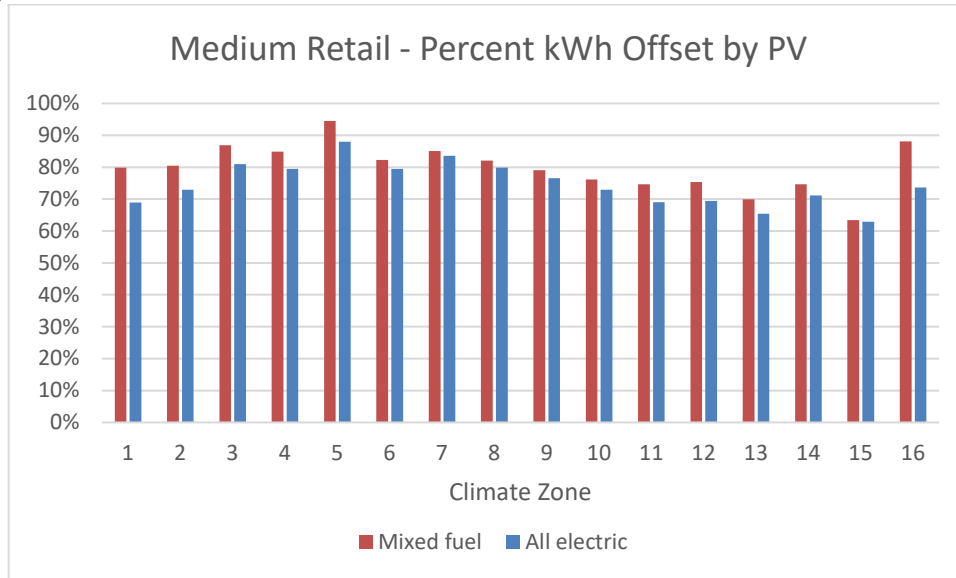
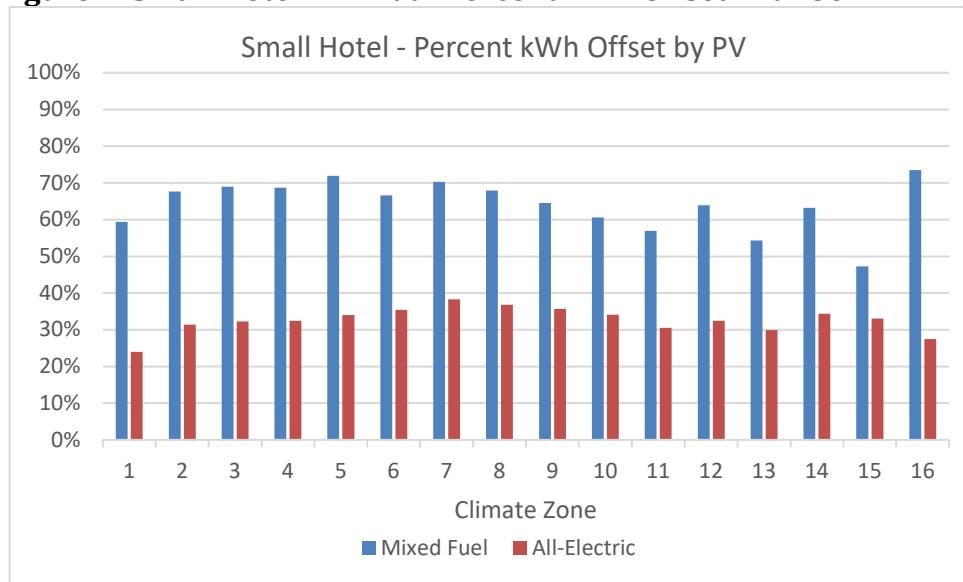


Figure 7. Small Hotel – Annual Percent kWh Offset with 80 kW Array



The costs for PV include first cost to purchase and install the system, inverter replacement costs, and annual maintenance costs. A summary of the medium office costs and sources is given in Figure 8. Upfront solar PV system costs are reduced by the federal income tax credit (ITC), approximately 19 percent due to a phased reduction in the credit through the year 2022.¹²

¹² The federal credit drops to 26% in 2020, and 22% in 2021 before dropping permanently to 10% for commercial projects and 0% for residential projects in 2022. More information on federal Investment Tax Credits available at: <https://www.seia.org/initiatives/solar-investment-tax-credit-itc>

Figure 8. Medium Office Upfront PV Costs

	Unit Cost	Cost	Useful Life (yrs.)	Source
Solar PV System	\$2.30 / Wdc	\$310,500	30	National Renewable Energy Laboratory (NREL) Q1 2016 ¹³ E3 Rooftop Solar PV System Report ¹⁴
Inverter Replacement	\$0.15 / Wdc	\$20,250	10	
Maintenance Costs	\$0.02 / Wdc	\$2,700	1	

PV energy output is built into CBECC-Com and is based on NREL's PVWatts calculator, which includes long term performance degradation estimates.¹⁵

3.2.2 ***Battery Storage***

This measure includes installation of batteries to allow energy generated through PV to be stored and used later, providing additional energy cost benefits. This report does not focus on optimizing battery sizes or controls for each prototype and climate zone, though the Reach Code Team ran test simulations to assess the impact of battery sizes on TDV savings and found diminishing returns as the battery size increased.

The team set battery control to the Time of Use Control (TOU) method, which assumes batteries are charged anytime PV generation is greater than the building load but discharges to the electric grid beginning during the highest priced hours of the day (the "First Hour of the Summer Peak"). Because there is no default hour available in CBECC-Com, the team applied the default hour available in CBECC-Res to start discharging (hour 19 in CZs 2, 4, and 8-15, and hour 20 in other CZs). This control option is most reflective of the current products on the market. While this control strategy is being used in the analysis, there would be no mandate on the control strategy used in practice.

The current simulation software has approximations of how performance characteristics change with environmental conditions, charge/discharge rates, and degradation with age and use. More information is on the software battery control capabilities and associated qualification requirements are available in the Residential Alternative Calculation Method Reference Manual and the 2019 Reference Appendices for the 2019 Title 24 Standards.^{16,17}

The Reach Code Team used costs of \$558 kWh based on a 2018 IOU Codes and Standards Program report, assuming a replacement is necessary in year 15.¹⁸ Batteries are also eligible for the ITC if they are installed at the same time as the renewable generation source and at least 75 percent of the energy used to charge

¹³ Available at: <https://www.nrel.gov/docs/fy16osti/66532.pdf>

¹⁴ Available at: <https://efiling.energy.ca.gov/getdocument.aspx?tn=221366>

¹⁵ More information available at: <https://pvwatts.nrel.gov/downloads/pvwattsv5.pdf>

¹⁶ Battery controls are discussed in Sections 2.1.5.4 and Appendix D of the Residential Alternative Calculation Method Reference Manual, available here: <https://ww2.energy.ca.gov/2019publications/CEC-400-2019-005/CEC-400-2019-005-CMF.pdf>

¹⁷ Qualification Requirements for Battery Storage Systems are available in JA12 of the 2019 Reference Appendices: <https://ww2.energy.ca.gov/2018publications/CEC-400-2018-021/CEC-400-2018-021-CMF.pdf>

¹⁸ Available at: http://localenergycodes.com/download/430/file_path/fieldList/PV%20Plus%20Battery%20Storage%20Report



the battery comes from a renewable source. Thus, the Reach Code Team also applied a 19 percent cost reduction to battery costs.

3.2.3 PV-only and PV+Battery Packages

The Reach Code Team analyzed solar PV and battery storage only, without other efficiency measures in both mixed-fuel and all-electric building designs. Two different sizes of solar PV and battery storage were analyzed.

- ◆ **Small PV Size:** 3 kW, assumed to be the minimal PV system considered for installation in a nonresidential building.
- ◆ **Large PV Size:** PV capacity equal to 15 W/ft² over 50 percent of the roof area, or sized to nearly offset annual electricity consumption, as described in Section 3.2.1.
- ◆ **Small Battery Size:** 5 kWh, assumed to be the minimal battery system considered for installation in a nonresidential building, and representative of smaller products currently available on the market.
- ◆ **Large Battery Size:** 50 kWh, assumed to be a substantially large size for a nonresidential setting. Generally, the reach code team found diminishing on-bill and TDV benefits as the battery size increased.

As described in Section 1 and Section 4.4, each PV size was run as a standalone measure. When packaged with a battery measure, the small PV size was paired with the small battery size, and the large PV size was paired with the large battery size.

3.3 All Electric Measures

The Reach Code Team investigated the cost and performance impacts and associated infrastructure costs associated with changing the baseline HVAC and water heating systems to all-electric equipment. This includes heat pump space heating, electric resistance reheat coils, electric water heater with storage tank, heat pump water heating, increasing electrical capacity, and eliminating natural gas connections that would have been present in mixed-fuel new construction. The Reach Code Team selected electric systems that would be installed instead of gas-fueled systems in each prototype.

3.3.1 HVAC and Water Heating

The nonresidential standards use a mixed-fuel baseline for the Standard Design systems. In most nonresidential occupancies, the baseline is natural gas space heating. Hotel/motels and high-rise residential occupancies also assume natural gas baseline water heating systems for the guest rooms and dwelling units. In the all-electric scenario, gas equipment serving these end-uses is replaced with electric equipment, as described in Figure 9.

Figure 9. All-Electric HVAC and Water Heating Characteristics Summary.

		Medium Office	Medium Retail	Small Hotel
HVAC System	Baseline	Packaged DX + VAV with HW reheat. Central gas boilers.	Single zone packaged DX with gas furnaces	<u>NonRes</u> : Packaged DX + VAV with HW reheat. Central gas boilers. <u>Res</u> : Single zone DX AC unit with gas furnaces
	Proposed All-Electric	Packaged DX + VAV with electric resistance reheat.	Single zone packaged heat pumps	<u>NonRes</u> : Packaged DX + VAV with electric resistance reheat <u>Res</u> : Single zone heat pumps
Water Heating System	Baseline	Electric resistance with storage	Electric resistance with storage	<u>NonRes</u> : Electric resistance storage <u>Res</u> : Central gas storage with recirculation
	Proposed All-Electric	Electric resistance with storage	Electric resistance with storage	<u>NonRes</u> : Electric resistance storage <u>Res</u> : Individual heat pumps

The Reach Code Team received cost data for baseline mixed-fuel equipment as well as electric equipment from an experienced mechanical contractor in the San Francisco Bay Area. The total construction cost includes equipment and material, labor, subcontractors (for example, HVAC and SHW control systems), and contractor overhead.

3.3.1.1 Medium Office

The baseline HVAC system includes two gas hot water boilers, three packaged rooftop units, and VAV hot water reheat boxes. The SHW design includes one 8.75 kW electric resistance hot water heater with a 30-gallon storage tank.

For the medium office all-electric HVAC design, the Reach Code Team investigated several potential all-electric design options, including variable refrigerant flow, packaged heat pumps, and variable volume and temperature systems. After seeking feedback from the design community, the Reach Code Team determined that the most feasible all-electric HVAC system, given the software modeling constraints is a VAV system with an electric resistance reheat instead of hot water reheat coil. A parallel fan-powered box (PFPB) implementation of electric resistance reheat would further improve efficiency due to reducing ventilation requirements, but an accurate implementation of PFPBs is not currently available in compliance software.

Note that the actual natural gas consumption for the VAV hot water reheat baseline may be higher than the current simulation results due to a combination of boiler and hot water distribution losses. A recent research study shows that the total losses can account for as high as 80 percent of the boiler energy use.¹⁹

¹⁹ Raftery, P., A. Geronazzo, H. Cheng, and G. Paliaga. 2018. Quantifying energy losses in hot water reheat systems. *Energy and Buildings*, 179: 183-199. November. <https://doi.org/10.1016/j.enbuild.2018.09.020>. Retrieved from <https://escholarship.org/uc/item/3qs8f8qx>



If these losses are considered savings for the electric resistance reheat (which has zero associated distribution loss) may be higher.

The all-electric SHW system remains the same electric resistance water heater as the baseline and has no associated incremental costs.

Cost data for medium office designs are presented in Figure 10. The all-electric HVAC system presents cost savings compared to the hot water reheat system from elimination of the hot water boiler and associated hot water piping distribution. CZ10 and CZ15 all-electric design costs are slightly higher because they require larger size rooftop heat pumps than the other climate zones.

Figure 10. Medium Office HVAC System Costs

Climate Zone	Mixed Fuel Baseline	All Electric System	Incremental cost for All-Electric
CZ01	\$1,202,538	\$1,106,432	\$(96,106)
CZ02	\$1,261,531	\$1,178,983	\$(82,548)
CZ03	\$1,205,172	\$1,113,989	\$(91,183)
CZ04	\$1,283,300	\$1,205,434	\$(77,865)
CZ05	\$1,207,345	\$1,113,989	\$(93,356)
CZ06	\$1,216,377	\$1,131,371	\$(85,006)
CZ07	\$1,227,932	\$1,148,754	\$(79,178)
CZ08	\$1,250,564	\$1,172,937	\$(77,626)
CZ09	\$1,268,320	\$1,196,365	\$(71,955)
CZ10	\$1,313,580	\$1,256,825	\$(56,755)
CZ11	\$1,294,145	\$1,221,305	\$(72,840)
CZ12	\$1,274,317	\$1,197,121	\$(77,196)
CZ13	\$1,292,884	\$1,221,305	\$(71,579)
CZ14	\$1,286,245	\$1,212,236	\$(74,009)
CZ15	\$1,357,023	\$1,311,994	\$(45,029)
CZ16	\$1,295,766	\$1,222,817	\$(72,949)

3.3.1.2 Medium Retail

The baseline HVAC system includes five packaged single zone rooftop ACs with gas furnaces. Based on fan control requirements in section 140.4(m), units with cooling capacity $\geq 65,000$ Btu/h have variable air volume fans, while smaller units have constant volume fans. The SHW design includes one 8.75 kW electric resistance hot water heater with a 30-gallon storage tank.

For the medium retail all-electric HVAC design, the Reach Code Team assumed packaged heat pumps instead of the packaged ACs. The all-electric SHW system remains the same electric resistance water heater as the baseline and has no associated incremental costs.

Cost data for medium retail designs are presented in Figure 11. Costs for rooftop air-conditioning systems are very similar to rooftop heat pump systems.

Figure 11. Medium Retail HVAC System Costs

Climate Zone	Mixed Fuel Baseline	All Electric System	Incremental cost for All-Electric
CZ01	\$328,312	\$333,291	\$4,978
CZ02	\$373,139	\$373,702	\$563
CZ03	\$322,849	\$326,764	\$3,915
CZ04	\$329,900	\$335,031	\$5,131
CZ05	\$359,888	\$362,408	\$2,520
CZ06	\$335,728	\$341,992	\$6,265
CZ07	\$345,544	\$349,808	\$4,265
CZ08	\$368,687	\$369,792	\$1,104
CZ09	\$415,155	\$411,069	\$(4,087)
CZ10	\$345,993	\$346,748	\$755
CZ11	\$418,721	\$414,546	\$(4,175)
CZ12	\$405,110	\$400,632	\$(4,477)
CZ13	\$376,003	\$375,872	\$(131)
CZ14	\$405,381	\$406,752	\$1,371
CZ15	\$429,123	\$427,606	\$(1,517)
CZ16	\$401,892	\$404,147	\$2,256

3.3.1.3 Small Hotel

The small hotel has two different baseline equipment systems, one for the nonresidential spaces and one for the guest rooms. The nonresidential HVAC system includes two gas hot water boilers, four packaged rooftop units and twelve VAV terminal boxes with hot water reheat coil. The SHW design includes a small electric water heater with storage tank. The residential HVAC design includes one single zone AC unit with gas furnace for each guest room and the water heating design includes one central gas storage water heater with a recirculation pump for all guest rooms.

For the small hotel all-electric design, the Reach Code Team assumed the nonresidential HVAC system to be packaged heat pumps with electric resistance VAV terminal units, and the SHW system to remain a small electric resistance water heater.

For the guest room all-electric HVAC system, the analysis used a single zone (packaged terminal) heat pump and a central heat pump water heater serving all guest rooms. Central heat pump water heating with recirculation serving guest rooms cannot yet be modeled in CBECC-Com, and energy impacts were modeled by simulating individual heat pump water heaters in each guest room. The reach code team believes this is a conservative assumption, since individual heat pump water heaters will have much higher tank standby losses. The Reach Code Team attained costs for central heat pump water heating installation including storage tanks and controls and used these costs in the study.

Cost data for small hotel designs are presented in Figure 12. The all-electric design presents substantial cost savings because there is no hot water plant or piping distribution system serving the nonresidential spaces, as well as the lower cost of packaged terminal heat pumps serving the residential spaces compared to split DX/furnace systems with individual flues.

Figure 12. Small Hotel HVAC and Water Heating System Costs

Climate Zone	Mixed Fuel Baseline	All Electric System	Incremental cost for All-Electric
CZ01	\$2,337,531	\$1,057,178	\$(1,280,353)
CZ02	\$2,328,121	\$1,046,795	\$(1,281,326)
CZ03	\$2,294,053	\$1,010,455	\$(1,283,598)
CZ04	\$2,302,108	\$1,018,675	\$(1,283,433)
CZ05	\$2,298,700	\$1,015,214	\$(1,283,486)
CZ06	\$2,295,380	\$1,011,753	\$(1,283,627)
CZ07	\$2,308,004	\$1,026,029	\$(1,281,975)
CZ08	\$2,333,662	\$1,053,717	\$(1,279,946)
CZ09	\$2,312,099	\$1,030,355	\$(1,281,744)
CZ10	\$2,354,093	\$1,075,348	\$(1,278,745)
CZ11	\$2,347,980	\$1,068,426	\$(1,279,554)
CZ12	\$2,328,654	\$1,047,660	\$(1,280,994)
CZ13	\$2,348,225	\$1,068,858	\$(1,279,367)
CZ14	\$2,345,988	\$1,066,263	\$(1,279,725)
CZ15	\$2,357,086	\$1,079,241	\$(1,277,845)
CZ16	\$2,304,094	\$1,019,973	\$(1,284,121)

3.3.2 *Infrastructure Impacts*

Electric heating appliances and equipment often require a larger electrical connection than an equivalent natural gas appliance because of the higher voltage and amperage necessary to electrically generate heat. Thus, many buildings may require larger electrical capacity than a comparable building with natural gas appliances. This includes:

- ◆ Electric resistance VAV space heating in the medium office and common area spaces of the small hotel.
- ◆ Heat pump water heating for the guest room spaces of the small hotel.

3.3.2.1 *Electrical Panel Sizing and Wiring*

This section details the additional electrical panel sizing and wiring required for all-electric measures. In an all-electric new construction scenario, heat pumps replace packaged DX units which are paired with either a gas furnace or a hot water coil (supplied by a gas boiler). The electrical requirements of the replacement heat pump would be the same as the packaged DX unit it replaces, as the electrical requirements would be driven by the cooling capacity, which would remain the same between the two units.

VAV terminal units with hot water reheat coils that are replaced with electric resistance reheat coils require additional electrical infrastructure. In the case of electric resistance coils, the Reach Code Team assumed that on average, a VAV terminal unit serves around 900 ft² of conditioned space and has a heating capacity of 5 kW (15 kBtu/hr/ft²). The incremental electrical infrastructure costs were determined based on RS Means. Calculations for the medium office shown in Figure 13 include the cost to add electrical panels as well as the cost to add electrical lines to each VAV terminal unit electric resistance coil in the medium office prototype. Additionally, the Reach Code Team subtracted the electrical infrastructure costs associated with hot water pumps required in the mixed fuel baseline, which are not required in the all-electric measures.

The Reach Code Team calculated costs to increase electrical capacity for heat pump water heaters in the small hotel similarly.

Figure 13. Medium Office Electrical Infrastructure Costs for All-Electric Design

A	-	No. VAV Boxes	60
B	-	VAV box heating capacity (watts)	4,748
C	-	No. hot water pumps	2
D	-	Hot water pump power (watts)	398
E	-	Voltage	208
F	$(A \times B - C \times D) / E$	Panel ampacity required	1,366
G	$F / 400$	Number of 400-amp panels required	4
H	-	Cost per 400-amp panel	\$3,100
I	$G \times H$	Total panel cost	\$12,400
J	-	Total electrical line length required (ft)	4,320
K	-	Cost per linear foot of electrical line	\$3.62
L	$J \times K$	Total electrical line cost	\$15,402
	I + L	Total electrical infrastructure incremental cost	\$27,802

3.3.2.2 Natural Gas

This analysis assumes that in an all-electric new construction scenario natural gas would not be supplied to the site. Eliminating natural gas in new construction would save costs associated with connecting a service line from the street main to the building, piping distribution within the building, and monthly connection charges by the utility.

The Reach Code Team determined that for a new construction building with natural gas piping, there is a service line (branch connection) from the natural gas main to the building meter. In the medium office prototype, natural gas piping is routed to the boiler. The Reach Code Team assumed that the boiler is on the first floor, and that 30 feet of piping is required from the connection to the main to the boiler. The Reach Code Team assumed 1" corrugated stainless steel tubing (CSST) material is used for the plumbing distribution. The Reach Code Team included costs for a natural gas plan review, service extension, and a gas meter, as shown in Figure 14 below. The natural gas plan review cost is based on information received from the City of Palo Alto Utilities. The meter costs are from PG&E and include both material and labor. The service extension costs are based on guidance from PG&E, who noted that the cost range is highly varied and that there is no "typical" cost, with costs being highly dependent on length of extension, terrain, whether the building is in a developed or undeveloped area, and number of buildings to be served. While an actual service extension cost is highly uncertain, the team believes the costs assumed in this analysis are within a reasonable range based on a sample range of costs provided by PG&E. These costs assume development in a previously developed area.

Figure 14. Natural Gas Infrastructure Cost Savings for All-Electric Prototypes

Cost Type	Medium Office	Medium Retail	Small Hotel
Natural Gas Plan Review	\$2,316	\$2,316	\$2,316
Service Extension	\$13,000	\$13,000	\$13,000
Meter	\$3,000	\$3,000	\$3,000
Plumbing Distribution	\$633	\$9,711	\$37,704
Total Cost	\$18,949	\$28,027	\$56,020

3.4 Preempted High Efficiency Appliances

The Reach Code Team developed a package of high efficiency (HE) space and water heating appliances based on commonly available products for both the mixed-fuel and all-electric scenarios. This package assesses the standalone contribution that high efficiency measures would make toward achieving high performance thresholds. The Reach Code Team reviewed the Air Conditioning, Heating, and Refrigeration Institute (AHRI) certified product database to estimate appropriate efficiencies.²⁰

The Reach Code Team determined the efficiency increases to be appropriate based on equipment type, summarized in Figure 15, with cost premiums attained from a Bay Area mechanical contractor. The ranges in efficiency are indicative of varying federal standard requirements based on equipment size.

Figure 15. High Efficiency Appliance Assumptions

	Federal Minimum Efficiency	Preempted Efficiency	Cost Premium for HE Appliance
Gas space heating and water heating	80-82%	90-95%	10-15%
Large packaged rooftop cooling	9.8-12 EER 11.4-12.9 IEER	10.5-13 EER 15-15.5 IEER	10-15%
Single zone heat pump space heating	7.7 HSPF 3.2 COP	10 HSPF 3.5 COP	6-15%
Heat pump water heating	2.0 UEF	3.3 UEF	None (market does not carry 2.0 UEF)

3.5 Greenhouse Gas Emissions

The analysis uses the greenhouse gas (GHG) emissions estimates from Zero Code reports available in CBECC-Com.²¹ Zero Code uses 8760 hourly multipliers accounting for time dependent energy use and carbon emissions based on source emissions, including renewable portfolio standard projections. Fugitive

²⁰ Available at: <https://www.ahridirectory.org/Search/SearchHome?ReturnUrl=%2f>

²¹ More information available at: <https://zero-code.org/wp-content/uploads/2018/11/ZERO-Code-TSD-California.pdf>



emissions are not included. There are two strings of multipliers – one for Northern California climate zones, and another for Southern California climate zones.²²

4 Results

The Reach Code Team evaluated cost effectiveness of the following measure packages over a 2019 mixed-fuel code compliant baseline for all climate zones, as detailed in Sections 4.1 -- 4.3 and reiterated in Figure 16:

- ◆ **Package 1A – Mixed-Fuel + EE:** Mixed-fuel design with energy efficiency measures and federal minimum appliance efficiencies.
- ◆ **Package 1B – Mixed-Fuel + EE + PV + B:** Same as Package 1A, plus solar PV and batteries.
- ◆ **Package 1C – Mixed-fuel + HE:** Alternative design with high efficiency appliances, triggering federal preemption.
- ◆ **Package 2 – All-Electric Federal Code-Minimum Reference:** All-electric design with federal code minimum appliance efficiency. No solar PV or battery.
- ◆ **Package 3A – All-Electric + EE:** All-electric design with energy efficiency measures and federal minimum appliance efficiencies.
- ◆ **Package 3B – All-Electric + EE + PV + B:** Same as Package 3A, plus solar PV and batteries.
- ◆ **Package 3C – All-Electric + HE:** All-electric design with high efficiency appliances, triggering federal preemption.

Figure 16. Package Summary

Package	Fuel Type		Energy Efficiency Measures	PV & Battery (PV + B)	High Efficiency Appliances (HE)
	Mixed Fuel	All-Electric			
Mixed-Fuel Code Minimum Baseline	X				
1A – Mixed-Fuel + EE	X		X		
1B – Mixed-Fuel + EE + PV + B	X		X	X	
1C – Mixed-fuel + HE	X				X
2 – All-Electric Federal Code-Minimum Reference		X			
3A – All-Electric + EE		X	X		
3B – All-Electric + EE + PV + B		X	X	X	
3C – All-Electric + HE		X			X

²² CBECC-Com documentation does not state which climate zones fall under which region. CBECC-Res multipliers are the same for CZs 1-5 and 11-13 (presumed to be Northern California), while there is another set of multipliers for CZs 6-10 and 14-16 (assumed to be Southern California).



Section 4.4 presents the results of the PV-only and PV+Battery analysis.

The TDV and on-bill based cost effectiveness results are presented in terms of B/C ratio and NPV in this section. What constitutes a ‘benefit’ or a ‘cost’ varies with the scenarios because both energy savings and incremental construction costs may be negative depending on the package. Typically, utility bill savings are categorized as a ‘benefit’ while incremental construction costs are treated as ‘costs.’ In cases where both construction costs are negative and utility bill savings are negative, the construction cost savings are treated as the ‘benefit’ while the utility bill negative savings are as the ‘cost.’

Overarching factors to keep in mind when reviewing the results include:

- ◆ To pass the Energy Commission’s application process, local reach codes must both be cost effective and exceed the energy performance budget using TDV (i.e., have a positive compliance margin). To emphasize these two important factors, the figures in this Section highlight in green the modeling results that have **either** a positive compliance margin or are cost effective. This will allow readers to identify whether a scenario is fully or partially supportive of a reach code, and the opportunities/challenges that the scenario presents. Conversely, Section 4.4 only highlights results that **both** have a positive compliance margin and are cost effective, to allow readers to identify reach code-ready scenarios.
- ◆ **Note:** Compliance margin represents the proportion of energy usage that is saved compared to the baseline, measured on a TDV basis.
- ◆ The Energy Commission does not currently allow compliance credit for either solar PV or battery storage. Thus, the compliance margins in Packages 1A are the same as 1B, and Package 3A is the same as 3B. However, The Reach Code Team did include the impact of solar PV and battery when calculating TDV cost-effectiveness.
- ◆ When performance modeling residential buildings, the Energy Commission allows the Standard Design to be electric if the Proposed Design is electric, which removes TDV-related penalties and associated negative compliance margins. This essentially allows for a compliance pathway for all-electric residential buildings. Nonresidential buildings are not treated in the same way and are compared to a mixed-fuel standard design.
- ◆ Results do not include an analysis and comparison of utility rates. As mentioned in *Section 2.2*, The Reach Code Team coordinated with utilities to select tariffs for each prototype given the annual energy demand profile and the most prevalent rates in each utility territory. The Reach Code Team did not compare a variety of tariffs to determine their impact on cost effectiveness. Note that most utility time-of-use rates are continuously updated, which can affect cost effectiveness results.
- ◆ As a point of comparison, mixed-fuel baseline energy figures are provided in *Appendix 6.5*.

4.1 Cost Effectiveness Results – Medium Office

Figure 17 through Figure 23 contain the cost-effectiveness findings for the Medium Office packages. Notable findings for each package include:

- ◆ **1A – Mixed-Fuel + EE:** Packages achieve +12 to +20 percent compliance margins depending on climate zone. All packages are cost effective in all climate zones using the TDV approach. All packages are cost effective using the On-Bill approach except for LADWP territory.

- ◆ **1B – Mixed-Fuel + EE + PV + B:** All packages are cost effective using the On-Bill and TDV approaches, except On-Bill in LADWP territory. When compared to 1A, the B/C ratio changes depending on the utility and climate zone (some increase while others decrease). However, NPV savings are increased across the board, suggesting that larger investments yield larger returns.
- ◆ **1C – Mixed-Fuel + HE:** Packages achieve +3 to +5 percent compliance margins depending on climate zone, but no packages were cost effective. The incremental costs of a high efficiency condensing boiler compared to a non-condensing boiler contributes to 26-47% of total incremental cost depending on boiler size. Benefits of condensing boiler efficiency come from resetting hot water return temperature as boiler efficiency increases at lower hot water temperature. However, hot water temperature reset control cannot currently be implemented in the software. In addition, the natural gas energy cost constitutes no more than 5% of total cost for 15 climate zones, so improving boiler efficiency has limited contribution to reduction of total energy cost.
- ◆ **2 – All-Electric Federal Code-Minimum Reference:**
 - ◆ Packages achieve between -27 percent and +1 percent compliance margins depending on climate zone. This is likely because the modeled system is electric resistance, and TDV values electricity consumption more heavily than natural gas. This all-electric design without other efficiency measures does not comply with the Energy Commission’s TDV performance budget.
 - ◆ All incremental costs are negative due to the elimination of natural gas infrastructure.
 - ◆ Packages achieve utility cost savings and are cost effective using the On-Bill approach in CZs 6-10 and 14-15. Packages do not achieve savings and are not cost effective using the On-Bill approach in most of PG&E territory (CZs 1,2,4, 11-13, and 16). Packages achieve savings and are cost effective using TDV in all climate zones except CZ16.
- ◆ **3A – All-Electric + EE:** Packages achieve positive compliance margins except -15 percent in CZ16, which has a higher space heating load than other climate zones. All packages are cost effective in all climate zones except CZ16.
- ◆ **3B – All-Electric + EE + PV + B:** Packages achieve positive compliance margins except -15 percent in CZ16. All packages are cost-effective from a TDV perspective in all climate zones. All packages are cost effective from an On-Bill perspective in all climate zones except in CZ 2 and CZ 16 in LADWP territory.
- ◆ **3C – All-Electric + HE:** Packages achieve between -26 percent and +2 percent compliance margins depending on climate zone. The only packages that are cost effective and with a positive compliance margin are in CZs 7-9 and 15. As described in Package 1C results, space heating is a relatively low proportion of energy costs in most climate zones, limiting the costs gains for higher efficiency equipment.



Figure 17. Cost Effectiveness for Medium Office Package 1A – Mixed-Fuel + EE

CZ	Utility	Elec Savings (kWh)	Gas Savings (therms)	GHG Reductions (mtons)	Compliance Margin	Incremental Package Cost	Lifecycle Utility Cost Savings	\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Package 1A: Mixed Fuel + EE												
CZ01	PG&E	34,421	-808	4.5	18%	\$66,649	\$125,902	\$71,307	1.9	1.1	\$59,253	\$4,658
CZ02	PG&E	40,985	-505	8.1	17%	\$66,649	\$163,655	\$99,181	2.5	1.5	\$97,005	\$32,532
CZ03	PG&E	36,266	-463	7.0	20%	\$66,649	\$141,897	\$84,051	2.1	1.3	\$75,248	\$17,401
CZ04	PG&E	40,590	-547	7.7	14%	\$66,649	\$162,139	\$95,410	2.4	1.4	\$95,489	\$28,761
CZ04-2	CPAU	40,590	-547	7.7	14%	\$66,649	\$85,537	\$95,410	1.3	1.4	\$18,887	\$28,761
CZ05	PG&E	38,888	-499	7.4	18%	\$66,649	\$154,044	\$91,115	2.3	1.4	\$87,395	\$24,465
CZ05-2	SCG	38,888	-499	7.4	18%	\$66,649	\$156,315	\$91,115	2.3	1.4	\$89,665	\$24,465
CZ06	SCE	39,579	-305	8.7	20%	\$66,649	\$86,390	\$100,469	1.3	1.5	\$19,741	\$33,820
CZ06-2	LADWP	39,579	-305	8.7	20%	\$66,649	\$51,828	\$100,469	0.8	1.5	(\$14,821)	\$33,820
CZ07	SDG&E	41,817	-6	11.3	20%	\$66,649	\$204,394	\$112,497	3.1	1.7	\$137,745	\$45,848
CZ08	SCE	41,637	-60	10.8	18%	\$66,649	\$89,783	\$113,786	1.3	1.7	\$23,134	\$47,137
CZ08-2	LADWP	41,637	-60	10.8	18%	\$66,649	\$54,876	\$113,786	0.8	1.7	(\$11,773)	\$47,137
CZ09	SCE	42,539	-210	10.1	16%	\$66,649	\$95,636	\$115,647	1.4	1.7	\$28,987	\$48,998
CZ09-2	LADWP	42,539	-210	10.1	16%	\$66,649	\$58,168	\$115,647	0.9	1.7	(\$8,481)	\$48,998
CZ10	SDG&E	41,857	-216	9.8	17%	\$66,649	\$210,303	\$108,726	3.2	1.6	\$143,654	\$42,077
CZ10-2	SCE	41,857	-216	9.8	17%	\$66,649	\$92,736	\$108,726	1.4	1.6	\$26,087	\$42,077
CZ11	PG&E	42,523	-390	9.1	13%	\$66,649	\$166,951	\$104,001	2.5	1.6	\$100,301	\$37,352
CZ12	PG&E	41,521	-466	8.4	14%	\$66,649	\$161,594	\$100,135	2.4	1.5	\$94,945	\$33,486
CZ12-2	SMUD	41,521	-466	8.4	14%	\$66,649	\$71,734	\$100,135	1.1	1.5	\$5,085	\$33,486
CZ13	PG&E	42,898	-434	9.0	13%	\$66,649	\$169,107	\$99,992	2.5	1.5	\$102,457	\$33,343
CZ14	SDG&E	42,224	-441	8.6	14%	\$66,649	\$211,529	\$106,913	3.2	1.6	\$144,880	\$40,264
CZ14-2	SCE	42,224	-441	8.6	14%	\$66,649	\$95,809	\$106,913	1.4	1.6	\$29,160	\$40,264
CZ15	SCE	45,723	-147	11.2	12%	\$66,649	\$102,714	\$118,034	1.5	1.8	\$36,065	\$51,384
CZ16	PG&E	37,758	-736	5.8	14%	\$66,649	\$145,947	\$79,755	2.2	1.2	\$79,297	\$13,106
CZ16-2	LADWP	37,758	-736	5.8	14%	\$66,649	\$40,115	\$79,755	0.6	1.2	(\$26,534)	\$13,106



Figure 18. Cost Effectiveness for Medium Office Package 1B – Mixed-Fuel + EE + PV + B

CZ	Utility	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (mtons)	Compliance Margin (%)	Incremental Package Cost	Lifecycle Energy Cost Savings	\$-TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Mixed Fuel + PV + Battery												
CZ01	PG&E	211,225	-808	39.9	18%	\$397,405	\$645,010	\$454,284	1.6	1.1	\$247,605	\$56,879
CZ02	PG&E	255,787	-505	50.6	17%	\$397,405	\$819,307	\$573,033	2.1	1.4	\$421,902	\$175,628
CZ03	PG&E	245,421	-463	48.8	20%	\$397,405	\$777,156	\$536,330	2.0	1.3	\$379,751	\$138,925
CZ04	PG&E	267,612	-547	52.7	14%	\$397,405	\$836,221	\$597,471	2.1	1.5	\$438,816	\$200,066
CZ04-2	CPAU	267,612	-547	52.7	14%	\$397,405	\$621,879	\$597,471	1.6	1.5	\$224,474	\$200,066
CZ05	PG&E	264,581	-499	52.5	18%	\$397,405	\$897,216	\$578,856	2.3	1.5	\$499,811	\$181,451
CZ05-2	SCG	264,581	-499	52.5	18%	\$397,405	\$899,487	\$578,856	2.3	1.5	\$502,082	\$181,451
CZ06	SCE	257,474	-305	52.1	20%	\$397,405	\$484,229	\$594,416	1.2	1.5	\$86,824	\$197,011
CZ06-2	LA	257,474	-305	52.1	20%	\$397,405	\$282,360	\$594,416	0.7	1.5	(\$115,045)	\$197,011
CZ07	SDG&E	264,530	-6	55.7	20%	\$397,405	\$817,528	\$610,548	2.1	1.5	\$420,123	\$213,143
CZ08	SCE	258,348	-60	54.0	18%	\$397,405	\$479,073	\$625,249	1.2	1.6	\$81,668	\$227,844
CZ08-2	LA	258,348	-60	54.0	18%	\$397,405	\$275,704	\$625,249	0.7	1.6	(\$121,701)	\$227,844
CZ09	SCE	262,085	-210	54.3	16%	\$397,405	\$480,241	\$622,528	1.2	1.6	\$82,836	\$225,123
CZ09-2	LA	262,085	-210	54.3	16%	\$397,405	\$282,209	\$622,528	0.7	1.6	(\$115,196)	\$225,123
CZ10	SDG&E	258,548	-216	53.4	17%	\$397,405	\$839,931	\$595,323	2.1	1.5	\$442,526	\$197,918
CZ10-2	SCE	258,548	-216	53.4	17%	\$397,405	\$485,523	\$595,323	1.2	1.5	\$88,118	\$197,918
CZ11	PG&E	253,623	-390	50.9	13%	\$397,405	\$826,076	\$585,682	2.1	1.5	\$428,671	\$188,277
CZ12	PG&E	252,868	-466	50.3	14%	\$397,405	\$802,715	\$582,866	2.0	1.5	\$405,310	\$185,461
CZ12-2	SMUD	252,868	-466	50.3	14%	\$397,405	\$415,597	\$582,866	1.0	1.5	\$18,192	\$185,461
CZ13	PG&E	250,915	-434	50.4	13%	\$397,405	\$806,401	\$573,606	2.0	1.4	\$408,996	\$176,201
CZ14	SDG&E	283,684	-441	56.4	14%	\$397,405	\$874,753	\$676,271	2.2	1.7	\$477,348	\$278,866
CZ14-2	SCE	283,684	-441	56.4	14%	\$397,405	\$493,888	\$676,271	1.2	1.7	\$96,483	\$278,866
CZ15	SCE	274,771	-147	56.0	12%	\$397,405	\$476,327	\$640,379	1.2	1.6	\$78,922	\$242,974
CZ16	PG&E	266,490	-736	51.8	14%	\$397,405	\$842,205	\$575,563	2.1	1.4	\$444,800	\$178,158
CZ16-2	LA	266,490	-736	51.8	14%	\$397,405	\$260,372	\$575,563	0.7	1.4	(\$137,033)	\$178,158



Figure 19. Cost Effectiveness for Medium Office Package 1C – Mixed-Fuel + HE

CZ	Utility	Elec Savings (kWh)	Gas Savings (therms)	GHG Reductions (mtons)	Compliance Margin	Incremental Package Cost	Lifecycle Utility Cost Savings	\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Package 1C: Mixed Fuel + HE												
CZ01	PG&E	288	688	4.1	3%	\$61,253	\$18,656	\$12,314	0.3	0.2	(\$42,597)	(\$48,939)
CZ02	PG&E	3,795	550	4.3	4%	\$68,937	\$36,683	\$24,676	0.5	0.4	(\$32,254)	(\$44,261)
CZ03	PG&E	1,241	439	2.9	3%	\$57,529	\$20,150	\$11,885	0.4	0.2	(\$37,379)	(\$45,644)
CZ04	PG&E	5,599	529	4.7	5%	\$72,074	\$44,915	\$30,928	0.6	0.4	(\$27,158)	(\$41,145)
CZ04-2	CPAU	5,599	529	4.7	5%	\$72,074	\$24,175	\$30,928	0.3	0.4	(\$47,898)	(\$41,145)
CZ05	PG&E	3,470	453	3.6	4%	\$60,330	\$35,072	\$18,232	0.6	0.3	(\$25,258)	(\$42,097)
CZ05-2	SCG	3,470	453	3.6	4%	\$60,330	\$32,777	\$18,232	0.5	0.3	(\$27,553)	(\$42,097)
CZ06	SCE	3,374	298	2.6	3%	\$55,594	\$19,446	\$16,132	0.3	0.3	(\$36,148)	(\$39,462)
CZ06-2	LADWP	3,374	298	2.6	3%	\$55,594	\$13,450	\$16,132	0.2	0.3	(\$42,145)	(\$39,462)
CZ07	SDG&E	5,257	140	2.3	4%	\$54,111	\$41,086	\$19,903	0.8	0.4	(\$13,025)	(\$34,208)
CZ08	SCE	5,921	176	2.7	4%	\$60,497	\$22,210	\$24,055	0.4	0.4	(\$38,287)	(\$36,442)
CZ08-2	LADWP	5,921	176	2.7	4%	\$60,497	\$14,064	\$24,055	0.2	0.4	(\$46,434)	(\$36,442)
CZ09	SCE	7,560	224	3.5	4%	\$61,311	\$28,576	\$31,835	0.5	0.5	(\$32,735)	(\$29,476)
CZ09-2	LADWP	7,560	224	3.5	4%	\$61,311	\$18,262	\$31,835	0.3	0.5	(\$43,049)	(\$29,476)
CZ10	SDG&E	5,786	288	3.2	4%	\$62,685	\$50,717	\$24,628	0.8	0.4	(\$11,968)	(\$38,057)
CZ10-2	SCE	5,786	288	3.2	4%	\$62,685	\$24,575	\$24,628	0.4	0.4	(\$38,110)	(\$38,057)
CZ11	PG&E	8,128	441	4.9	5%	\$71,101	\$54,188	\$37,849	0.8	0.5	(\$16,912)	(\$33,252)
CZ12	PG&E	6,503	478	4.7	5%	\$68,329	\$47,329	\$34,556	0.7	0.5	(\$20,999)	(\$33,773)
CZ12-2	SMUD	6,503	478	4.7	5%	\$68,329	\$24,003	\$34,556	0.4	0.5	(\$44,325)	(\$33,773)
CZ13	PG&E	8,398	432	5.0	5%	\$69,474	\$51,347	\$37,229	0.7	0.5	(\$18,128)	(\$32,246)
CZ14	SDG&E	7,927	470	5.0	5%	\$69,463	\$62,744	\$37,133	0.9	0.5	(\$6,718)	(\$32,329)
CZ14-2	SCE	7,927	470	5.0	5%	\$69,463	\$32,517	\$37,133	0.5	0.5	(\$36,946)	(\$32,329)
CZ15	SCE	15,140	219	5.5	5%	\$66,702	\$43,773	\$52,359	0.7	0.8	(\$22,929)	(\$14,344)
CZ16	PG&E	3,111	912	6.3	5%	\$71,765	\$36,002	\$24,914	0.5	0.3	(\$35,763)	(\$46,851)
CZ16-2	LADWP	3,111	912	6.3	5%	\$71,765	\$23,057	\$24,914	0.3	0.3	(\$48,708)	(\$46,851)



Figure 20. Cost Effectiveness for Medium Office Package 2 – All-Electric Federal Code Minimum

CZ	Utility	Elec Savings (kWh)	Gas Savings (therms)	GHG Reductions (mtons)	Compliance Margin	Incremental Package Cost*	Lifecycle Utility Cost Savings	\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Package 2: All-Electric Federal Code Minimum												
CZ01	PG&E	-53,657	4967	10.1	-15%	(\$87,253)	(\$98,237)	(\$58,420)	0.9	1.5	(\$10,984)	\$28,833
CZ02	PG&E	-49,684	3868	5.0	-7%	(\$73,695)	(\$101,605)	(\$41,429)	0.7	1.8	(\$27,910)	\$32,266
CZ03	PG&E	-35,886	3142	5.6	-7%	(\$82,330)	(\$57,345)	(\$29,592)	1.4	2.8	\$24,986	\$52,738
CZ04	PG&E	-48,829	3759	4.7	-6%	(\$69,012)	(\$90,527)	(\$40,570)	0.8	1.7	(\$21,515)	\$28,443
CZ04-2	CPAU	-48,829	3759	4.7	-6%	(\$69,012)	(\$19,995)	(\$40,570)	3.5	1.7	\$49,018	\$28,443
CZ05	PG&E	-40,531	3240	4.5	-8%	(\$84,503)	(\$63,663)	(\$39,997)	1.3	2.1	\$20,840	\$44,506
CZ06	SCE	-26,174	2117	3.1	-4%	(\$76,153)	\$24,908	(\$20,571)	>1	3.7	\$101,061	\$55,581
CZ06-2	LADWP	-26,174	2117	3.1	-4%	(\$76,153)	\$26,366	(\$20,571)	>1	3.7	\$102,518	\$55,581
CZ07	SDG&E	-12,902	950	0.9	-2%	(\$70,325)	\$46,879	(\$11,407)	>1	6.2	\$117,204	\$58,918
CZ08	SCE	-15,680	1219	1.5	-2%	(\$68,774)	\$17,859	(\$12,648)	>1	5.4	\$86,633	\$56,125
CZ08-2	LADWP	-15,680	1219	1.5	-2%	(\$68,774)	\$18,603	(\$12,648)	>1	5.4	\$87,376	\$56,125
CZ09	SCE	-19,767	1605	2.4	-2%	(\$63,102)	\$20,920	(\$14,462)	>1	4.4	\$84,022	\$48,640
CZ09-2	LADWP	-19,767	1605	2.4	-2%	(\$63,102)	\$21,929	(\$14,462)	>1	4.4	\$85,030	\$48,640
CZ10	SDG&E	-27,414	2053	2.2	-4%	(\$47,902)	\$38,918	(\$23,339)	>1	2.1	\$86,820	\$24,562
CZ10-2	SCE	-27,414	2053	2.2	-4%	(\$47,902)	\$20,765	(\$23,339)	>1	2.1	\$68,666	\$24,562
CZ11	PG&E	-40,156	3062	3.6	-4%	(\$63,987)	(\$72,791)	(\$32,837)	0.9	1.9	(\$8,804)	\$31,150
CZ12	PG&E	-43,411	3327	4.1	-5%	(\$68,343)	(\$85,856)	(\$35,463)	0.8	1.9	(\$17,512)	\$32,880
CZ12-2	SMUD	-43,411	3327	4.1	-5%	(\$68,343)	(\$5,109)	(\$35,463)	13.4	1.9	\$63,234	\$32,880
CZ13	PG&E	-39,649	3063	3.8	-4%	(\$62,726)	(\$70,705)	(\$32,408)	0.9	1.9	(\$7,980)	\$30,318
CZ14	SDG&E	-44,322	3266	3.4	-5%	(\$65,156)	\$6,043	(\$38,422)	>1	1.7	\$71,199	\$26,735
CZ14-2	SCE	-44,322	3266	3.4	-5%	(\$65,156)	\$4,798	(\$38,422)	>1	1.7	\$69,954	\$26,735
CZ15	SCE	-19,917	1537	1.8	-2%	(\$36,176)	\$12,822	(\$15,464)	>1	2.3	\$48,998	\$20,711
CZ16	PG&E	-94,062	6185	5.6	-27%	(\$64,096)	(\$212,158)	(\$150,871)	0.3	0.4	(\$148,062)	(\$86,775)
CZ16-2	LADWP	-94,062	6185	5.6	-27%	(\$64,096)	\$1,493	(\$150,871)	>1	0.4	\$65,589	(\$86,775)

*The Incremental Package Cost is equal to the sum of the incremental HVAC and water heating equipment costs from

Figure 10, the electrical infrastructure incremental cost of \$27,802 (see section 3.3.2.1), and the natural gas infrastructure incremental costs of \$(18,949) (see section 3.3.2.2).



Figure 21. Cost Effectiveness for Medium Office Package 3A – All-Electric + EE

CZ	Utility	Elec Savings (kWh)	Gas Savings (therms)	GHG Reductions (mtons)	Compliance Margin	Incremental Package Cost	Lifecycle Utility Cost Savings	\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Package 3A: All-Electric + EE												
CZ01	PG&E	-19,115	4967	19.4	7%	(\$20,604)	\$20,630	\$28,112	>1	>1	\$41,234	\$48,716
CZ02	PG&E	-11,811	3868	15.2	10%	(\$7,046)	\$39,260	\$58,563	>1	>1	\$46,306	\$65,609
CZ03	PG&E	2,530	3142	16.2	16%	(\$15,681)	\$85,241	\$68,682	>1	>1	\$100,922	\$84,363
CZ04	PG&E	-10,839	3759	14.8	9%	(\$2,363)	\$59,432	\$58,420	>1	>1	\$61,795	\$60,783
CZ04-2	CPAU	-10,839	3759	14.8	9%	(\$2,363)	\$70,680	\$58,420	>1	>1	\$73,043	\$60,783
CZ05	PG&E	-2,316	3240	14.6	12%	(\$17,854)	\$85,380	\$58,802	>1	>1	\$103,234	\$76,656
CZ06	SCE	15,399	2117	14.3	18%	(\$9,503)	\$114,962	\$89,921	>1	>1	\$124,466	\$99,425
CZ06-2	LADWP	15,399	2117	14.3	18%	(\$9,503)	\$82,389	\$89,921	>1	>1	\$91,893	\$99,425
CZ07	SDG&E	33,318	950	13.8	20%	(\$3,676)	\$256,704	\$111,399	>1	>1	\$260,380	\$115,076
CZ08	SCE	30,231	1219	14.2	18%	(\$2,124)	\$110,144	\$111,781	>1	>1	\$112,268	\$113,906
CZ08-2	LADWP	30,231	1219	14.2	18%	(\$2,124)	\$76,069	\$111,781	>1	>1	\$78,194	\$113,906
CZ09	SCE	24,283	1605	14.3	15%	\$3,547	\$119,824	\$108,249	33.8	30.5	\$116,277	\$104,702
CZ09-2	LADWP	24,283	1605	14.3	15%	\$3,547	\$83,549	\$108,249	23.6	30.5	\$80,001	\$104,702
CZ10	SDG&E	12,344	2053	12.6	13%	\$18,748	\$230,553	\$82,905	12.3	4.4	\$211,806	\$64,158
CZ10-2	SCE	12,344	2053	12.6	13%	\$18,748	\$105,898	\$82,905	5.6	4.4	\$87,150	\$64,158
CZ11	PG&E	929	3062	14.5	10%	\$2,662	\$85,988	\$75,030	32.3	28.2	\$83,326	\$72,368
CZ12	PG&E	-3,419	3327	14.8	10%	(\$1,694)	\$68,866	\$69,589	>1	>1	\$70,560	\$71,283
CZ12-2	SMUD	-3,419	3327	14.8	10%	(\$1,694)	\$71,761	\$69,589	>1	>1	\$73,455	\$71,283
CZ13	PG&E	1,398	3063	14.8	9%	\$3,923	\$89,799	\$71,307	22.9	18.2	\$85,875	\$67,384
CZ14	SDG&E	-5,469	3266	13.5	9%	\$1,493	\$206,840	\$69,016	138.6	46.2	\$205,347	\$67,523
CZ14-2	SCE	-5,469	3266	13.5	9%	\$1,493	\$94,143	\$69,016	63.1	46.2	\$92,650	\$67,523
CZ15	SCE	25,375	1537	13.7	10%	\$30,474	\$114,909	\$104,335	3.8	3.4	\$84,435	\$73,862
CZ16	PG&E	-65,877	6185	12.7	-15%	\$2,553	(\$91,477)	(\$85,673)	-35.8	-33.6	(\$94,030)	(\$88,226)
CZ16-2	LADWP	-65,877	6185	12.7	-15%	\$2,553	\$72,780	(\$85,673)	28.5	-33.6	\$70,227	(\$88,226)



Figure 22. Cost Effectiveness for Medium Office Package 3B – All-Electric + EE + PV + B

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (mtons)	Compliance Margin (%)	Incremental Package Cost	Lifecycle Energy Cost Savings	\$-TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
All-Electric + PV + B												
CZ01	PG&E	157,733	4967	54.9	7%	\$310,152	\$518,421	\$410,946	1.7	1.3	\$208,269	\$100,794
CZ02	PG&E	203,026	3868	57.8	10%	\$323,710	\$692,336	\$532,273	2.1	1.6	\$368,626	\$208,563
CZ03	PG&E	211,706	3142	58.0	16%	\$315,075	\$708,235	\$520,866	2.2	1.7	\$393,160	\$205,791
CZ04	PG&E	216,204	3759	59.9	9%	\$328,393	\$741,382	\$560,576	2.3	1.7	\$412,989	\$232,183
CZ04-2	CPAU	216,204	3759	59.9	9%	\$328,393	\$607,074	\$560,576	1.8	1.7	\$278,681	\$232,183
CZ05	PG&E	223,399	3240	59.8	12%	\$312,902	\$799,992	\$546,592	2.6	1.7	\$487,090	\$233,690
CZ06	SCE	233,299	2117	57.7	18%	\$321,252	\$509,969	\$583,963	1.6	1.8	\$188,716	\$262,711
CZ06-2	LA	233,299	2117	57.7	18%	\$321,252	\$311,931	\$583,963	1.0	1.8	(\$9,322)	\$262,711
CZ07	SDG&E	256,034	950	58.3	20%	\$327,079	\$870,156	\$609,498	2.7	1.9	\$543,076	\$282,419
CZ08	SCE	246,944	1219	57.4	18%	\$328,631	\$499,506	\$623,292	1.5	1.9	\$170,874	\$294,661
CZ08-2	LA	246,944	1219	57.4	18%	\$328,631	\$296,991	\$623,292	0.9	1.9	(\$31,640)	\$294,661
CZ09	SCE	243,838	1605	58.5	15%	\$334,303	\$504,498	\$615,178	1.5	1.8	\$170,195	\$280,875
CZ09-2	LA	243,838	1605	58.5	15%	\$334,303	\$307,626	\$615,178	0.9	1.8	(\$26,677)	\$280,875
CZ10	SDG&E	229,044	2053	56.2	13%	\$349,503	\$851,810	\$569,549	2.4	1.6	\$502,306	\$220,046
CZ10-2	SCE	229,044	2053	56.2	13%	\$349,503	\$491,383	\$569,549	1.4	1.6	\$141,880	\$220,046
CZ11	PG&E	212,047	3062	56.4	10%	\$333,418	\$743,403	\$556,758	2.2	1.7	\$409,985	\$223,340
CZ12	PG&E	207,955	3327	56.7	10%	\$329,062	\$713,054	\$552,415	2.2	1.7	\$383,993	\$223,353
CZ12-2	SMUD	207,955	3327	56.7	10%	\$329,062	\$414,371	\$552,415	1.3	1.7	\$85,310	\$223,353
CZ13	PG&E	209,431	3063	56.3	9%	\$334,679	\$728,822	\$544,969	2.2	1.6	\$394,143	\$210,289
CZ14	SDG&E	236,002	3266	61.3	9%	\$332,249	\$865,181	\$638,517	2.6	1.9	\$532,933	\$306,269
CZ14-2	SCE	236,002	3266	61.3	9%	\$332,249	\$488,163	\$638,517	1.5	1.9	\$155,914	\$306,269
CZ15	SCE	254,426	1537	58.5	10%	\$361,229	\$487,715	\$626,728	1.4	1.7	\$126,486	\$265,499
CZ16	PG&E	162,915	6185	58.6	-15%	\$333,309	\$580,353	\$406,746	1.7	1.2	\$247,044	\$73,437
CZ16-2	LA	162,915	6185	58.6	-15%	\$333,309	\$290,566	\$406,746	0.9	1.2	(\$42,742)	\$73,437



Figure 23. Cost Effectiveness for Medium Office Package 3C – All-Electric + HE

CZ	Utility	Elec Savings (kWh)	Gas Savings (therms)	GHG Reductions (mtons)	Compliance Margin	Incremental Package Cost	Lifecycle Utility Cost Savings	\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Package 3C: All-Electric + HE												
CZ01	PG&E	-53,390	4967	10.2	-14%	(\$43,987)	(\$93,740)	(\$57,752)	0.5	0.8	(\$49,753)	(\$13,765)
CZ02	PG&E	-45,916	3868	6.1	-5%	(\$22,722)	(\$77,212)	(\$26,394)	0.3	0.9	(\$54,490)	(\$3,672)
CZ03	PG&E	-34,656	3142	6.0	-6%	(\$38,261)	(\$45,796)	(\$25,153)	0.8	1.5	(\$7,535)	\$13,108
CZ04	PG&E	-43,248	3759	6.3	-3%	(\$15,229)	(\$56,932)	(\$18,996)	0.3	0.8	(\$41,703)	(\$3,767)
CZ04-2	CPAU	-43,248	3759	6.3	-3%	(\$15,229)	(\$5,298)	(\$18,996)	2.9	0.8	\$9,932	(\$3,767)
CZ05	PG&E	-37,068	3240	5.4	-6%	(\$40,434)	(\$38,330)	(\$29,544)	1.1	1.4	\$2,104	\$10,890
CZ06	SCE	-22,805	2117	4.0	-2%	(\$30,237)	\$39,812	(\$9,594)	>1	3.2	\$70,050	\$20,644
CZ06-2	LADWP	-22,805	2117	4.0	-2%	(\$30,237)	\$35,414	(\$9,594)	>1	3.2	\$65,651	\$20,644
CZ07	SDG&E	-7,646	950	2.5	1%	(\$22,564)	\$86,159	\$6,062	>1	>1	\$108,722	\$28,625
CZ08	SCE	-9,761	1219	3.2	1%	(\$18,443)	\$37,375	\$8,305	>1	>1	\$55,818	\$26,748
CZ08-2	LADWP	-9,761	1219	3.2	1%	(\$18,443)	\$29,973	\$8,305	>1	>1	\$48,416	\$26,748
CZ09	SCE	-12,211	1605	4.5	2%	(\$10,282)	\$46,335	\$13,364	>1	>1	\$56,617	\$23,646
CZ09-2	LADWP	-12,211	1605	4.5	2%	(\$10,282)	\$37,030	\$13,364	>1	>1	\$47,313	\$23,646
CZ10	SDG&E	-21,642	2053	3.7	-1%	\$11,340	\$84,901	(\$3,818)	7.5	-0.3	\$73,561	(\$15,158)
CZ10-2	SCE	-21,642	2053	3.7	-1%	\$11,340	\$40,659	(\$3,818)	3.6	-0.3	\$29,319	(\$15,158)
CZ11	PG&E	-32,052	3062	5.9	0%	(\$8,519)	(\$29,013)	(\$3,007)	0.3	2.8	(\$20,495)	\$5,512
CZ12	PG&E	-36,926	3327	6.0	-1%	(\$15,443)	(\$48,955)	(\$9,546)	0.3	1.6	(\$33,511)	\$5,898
CZ12-2	SMUD	-36,926	3327	6.0	-1%	(\$15,443)	\$9,916	(\$9,546)	>1	1.6	\$25,359	\$5,898
CZ13	PG&E	-31,253	3063	6.3	0%	(\$7,257)	(\$27,782)	(\$3,055)	0.3	2.4	(\$20,525)	\$4,202
CZ14	SDG&E	-36,402	3266	5.7	-1%	(\$10,651)	\$61,605	(\$9,832)	>1	1.1	\$72,256	\$819
CZ14-2	SCE	-36,402	3266	5.7	-1%	(\$10,651)	\$30,625	(\$9,832)	>1	1.1	\$41,276	\$819
CZ15	SCE	-4,775	1537	6.0	3%	\$28,927	\$52,955	\$32,790	1.8	1.1	\$24,028	\$3,863
CZ16	PG&E	-90,949	6185	6.5	-26%	(\$8,467)	(\$194,115)	(\$142,041)	0.0	0.1	(\$185,648)	(\$133,574)
CZ16-2	LADWP	-90,949	6185	6.5	-26%	(\$8,467)	\$37,127	(\$142,041)	>1	0.1	\$45,594	(\$133,574)



4.2 Cost Effectiveness Results – Medium Retail

Figure 24 through Figure 30 contain the cost-effectiveness findings for the Medium Retail packages. Notable findings for each package include:

- ◆ **1A – Mixed-Fuel + EE:**
 - ◆ Packages achieve +9% to +18% compliance margins depending on climate zone, and all packages are cost effective in all climate zones.
 - ◆ Incremental package costs vary across climate zones because of the HVAC system size in some climate zones are small enough (<54 kBtu/h) to have the economizers measure applied.
 - ◆ B/C ratios are high compared to other prototypes because the measures applied are primarily low-cost lighting measures. This suggests room for the inclusion of other energy efficiency measures with lower cost-effectiveness to achieve even higher compliance margins for a cost effective package.
- ◆ **1B – Mixed-Fuel + EE + PV + B:** All packages are cost effective using both the On-Bill and TDV approach, except On-Bill in LADWP territory. Adding PV and battery to the efficiency packages reduces the B/C ratio but increases overall NPV savings.
- ◆ **1C – Mixed-fuel + HE:** Packages achieve +1 to +4% compliance margins depending on climate zone, and packages are cost effective in all climate zones except CZs 1, 3 and 5 using the TDV approach.
- ◆ **2 – All-Electric Federal Code-Minimum Reference:**
 - ◆ Packages achieve between -12% and +1% compliance margins depending on climate zone.
 - ◆ Packages achieve positive savings using both the On-Bill and TDV approaches in CZs 6-10 and 14-15. Packages do not achieve On-Bill or TDV savings in most of PG&E territory (CZs 1, 2, 4, 5, 12-13, and 16).
 - ◆ Packages are cost effective in all climate zones except CZ16.
 - ◆ All incremental costs are negative primarily due to elimination of natural gas infrastructure.
- ◆ **3A – All-Electric + EE:** Packages achieve between +3% and +16% compliance margins depending on climate zone. All packages are cost effective in all climate zones.
- ◆ **3B – All-Electric + EE + PV + B:** All packages are cost effective using both the On-Bill and TDV approaches, except On-Bill in LADWP territory. Adding PV and Battery to the efficiency package reduces the B/C ratio but increases overall NPV savings.
- ◆ **3C – All-Electric + HE:** Packages achieve between -8% and +5% compliance margins depending on climate zone, and packages are cost effective using both On-Bill and TDV approaches in all CZs except CZs 1 and 16.

Figure 24. Cost Effectiveness for Medium Retail Package 1A – Mixed-Fuel + EE

CZ	Utility	Elec Savings (kWh)	Gas Savings (therms)	GHG Reductions (mtons)	Compliance Margin	Incremental Package Cost	Lifecycle Utility Cost Savings	\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Package 1A: Mixed Fuel + EE												
CZ01	PG&E	15,210	1209	11.10	18%	\$2,712	\$68,358	\$60,189	25.2	22.2	\$65,646	\$57,478
CZ02	PG&E	18,885	613	8.73	13%	\$5,569	\$76,260	\$59,135	13.7	10.6	\$70,691	\$53,566
CZ03	PG&E	18,772	462	7.87	16%	\$5,569	\$66,813	\$57,135	12.0	10.3	\$61,244	\$51,566
CZ04	PG&E	19,100	439	7.84	14%	\$5,569	\$75,989	\$58,036	13.6	10.4	\$70,420	\$52,467
CZ04-2	CPAU	19,100	439	7.84	14%	\$5,569	\$51,556	\$58,036	9.3	10.4	\$45,987	\$52,467
CZ05	PG&E	17,955	415	7.41	16%	\$5,569	\$63,182	\$55,003	11.3	9.9	\$57,613	\$49,435
CZ05-2	SCG	17,955	415	7.41	16%	\$5,569	\$61,810	\$55,003	11.1	9.9	\$56,241	\$49,435
CZ06	SCE	12,375	347	5.54	10%	\$2,712	\$31,990	\$41,401	11.8	15.3	\$29,278	\$38,689
CZ06-2	LADWP	12,375	347	5.54	10%	\$2,712	\$21,667	\$41,401	8.0	15.3	\$18,956	\$38,689
CZ07	SDG&E	17,170	136	5.65	13%	\$5,569	\$73,479	\$49,883	13.2	9.0	\$67,910	\$44,314
CZ08	SCE	12,284	283	5.15	10%	\$2,712	\$30,130	\$41,115	11.1	15.2	\$27,419	\$38,403
CZ08-2	LADWP	12,284	283	5.15	10%	\$2,712	\$20,243	\$41,115	7.5	15.2	\$17,531	\$38,403
CZ09	SCE	13,473	302	5.51	10%	\$5,569	\$32,663	\$46,126	5.9	8.3	\$27,094	\$40,557
CZ09-2	LADWP	13,473	302	5.51	10%	\$5,569	\$22,435	\$46,126	4.0	8.3	\$16,866	\$40,557
CZ10	SDG&E	19,873	267	6.99	12%	\$5,569	\$83,319	\$58,322	15.0	10.5	\$77,751	\$52,753
CZ10-2	SCE	19,873	267	6.99	12%	\$5,569	\$39,917	\$58,322	7.2	10.5	\$34,348	\$52,753
CZ11	PG&E	21,120	578	9.14	13%	\$5,569	\$86,663	\$67,485	15.6	12.1	\$81,095	\$61,916
CZ12	PG&E	20,370	562	8.85	13%	\$5,569	\$81,028	\$64,409	14.6	11.6	\$75,459	\$58,840
CZ12-2	SMUD	20,370	562	8.85	13%	\$5,569	\$44,991	\$64,409	8.1	11.6	\$39,422	\$58,840
CZ13	PG&E	22,115	620	9.98	15%	\$2,712	\$109,484	\$83,109	40.4	30.6	\$106,772	\$80,398
CZ14	SDG&E	25,579	406	9.38	13%	\$2,712	\$116,354	\$80,055	42.9	29.5	\$113,643	\$77,343
CZ14-2	SCE	26,327	383	9.42	13%	\$2,712	\$57,290	\$83,065	21.1	30.6	\$54,578	\$80,354
CZ15	SCE	26,433	169	8.35	12%	\$2,712	\$57,152	\$79,506	21.1	29.3	\$54,440	\$76,794
CZ16	PG&E	15,975	752	8.72	13%	\$2,712	\$72,427	\$55,025	26.7	20.3	\$69,715	\$52,314
CZ16-2	LADWP	15,975	752	8.72	13%	\$2,712	\$31,906	\$55,025	11.8	20.3	\$29,194	\$52,314



Figure 25. Cost Effectiveness for Medium Retail Package 1B – Mixed-Fuel + EE + PV + B

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Compliance Margin (%)	Incremental Package Cost	Lifecycle Energy Cost Savings	\$-TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Mixed Fuel + PV + Battery												
CZ01	PG&E	158,584	1209	40.79	18%	\$277,383	\$509,092	\$383,683	1.8	1.4	\$231,709	\$106,300
CZ02	PG&E	189,400	613	43.75	13%	\$280,240	\$590,043	\$465,474	2.1	1.7	\$309,803	\$185,234
CZ03	PG&E	191,016	462	43.52	16%	\$280,240	\$578,465	\$452,795	2.1	1.6	\$298,224	\$172,554
CZ04	PG&E	195,014	439	44.14	14%	\$280,240	\$605,369	\$480,989	2.2	1.7	\$325,129	\$200,748
CZ04-2	CPAU	195,014	439	44.14	14%	\$280,240	\$451,933	\$480,989	1.6	1.7	\$171,693	\$200,748
CZ05	PG&E	196,654	415	44.30	16%	\$280,240	\$589,771	\$464,749	2.1	1.7	\$309,530	\$184,509
CZ05-2	SCG	196,654	415	44.30	16%	\$280,240	\$588,407	\$464,749	2.1	1.7	\$308,167	\$184,509
CZ06	SCE	185,903	347	41.61	10%	\$277,383	\$322,495	\$456,596	1.2	1.6	\$45,111	\$179,213
CZ06-2	LA	185,903	347	41.61	10%	\$277,383	\$191,428	\$456,596	0.7	1.6	(\$85,955)	\$179,213
CZ07	SDG&E	197,650	136	43.24	13%	\$280,240	\$496,786	\$477,582	1.8	1.7	\$216,545	\$197,342
CZ08	SCE	187,869	283	41.48	10%	\$277,383	\$326,810	\$478,132	1.2	1.7	\$49,427	\$200,749
CZ08-2	LA	187,869	283	41.48	10%	\$277,383	\$190,379	\$478,132	0.7	1.7	(\$87,004)	\$200,749
CZ09	SCE	191,399	302	42.32	10%	\$280,240	\$334,869	\$472,770	1.2	1.7	\$54,629	\$192,530
CZ09-2	LA	191,399	302	42.32	10%	\$280,240	\$201,759	\$472,770	0.7	1.7	(\$78,481)	\$192,530
CZ10	SDG&E	200,033	267	44.01	12%	\$280,240	\$547,741	\$472,880	2.0	1.7	\$267,501	\$192,640
CZ10-2	SCE	200,033	267	44.01	12%	\$280,240	\$340,822	\$472,880	1.2	1.7	\$60,582	\$192,640
CZ11	PG&E	192,846	578	44.07	13%	\$280,240	\$582,969	\$490,855	2.1	1.8	\$302,728	\$210,615
CZ12	PG&E	191,720	562	43.70	13%	\$280,240	\$586,836	\$485,076	2.1	1.7	\$306,596	\$204,836
CZ12-2	SMUD	191,720	562	43.70	13%	\$280,240	\$319,513	\$485,076	1.1	1.7	\$39,273	\$204,836
CZ13	PG&E	195,031	620	45.19	15%	\$277,383	\$605,608	\$486,285	2.2	1.8	\$328,225	\$208,901
CZ14	SDG&E	217,183	406	47.86	13%	\$277,383	\$559,148	\$534,915	2.0	1.9	\$281,765	\$257,532
CZ14-2	SCE	217,927	383	47.91	14%	\$277,383	\$354,757	\$538,058	1.3	1.9	\$77,373	\$260,674
CZ15	SCE	208,662	169	44.51	12%	\$277,383	\$338,772	\$496,107	1.2	1.8	\$61,389	\$218,724
CZ16	PG&E	210,242	752	48.76	13%	\$277,383	\$608,779	\$490,262	2.2	1.8	\$331,395	\$212,879
CZ16-2	LA	210,242	752	48.76	13%	\$277,383	\$207,160	\$490,262	0.7	1.8	(\$70,223)	\$212,879



Figure 26. Cost Effectiveness for Medium Retail Package 1C – Mixed-Fuel + HE

CZ	Utility	Elec Savings (kWh)	Gas Savings (therms)	GHG Reductions (mtons)	Compliance Margin	Incremental Package Cost	Lifecycle Utility Cost Savings	\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Package 1C: Mixed Fuel + HE												
CZ01	PG&E	57	346	2.04	2%	\$9,006	\$6,301	\$6,065	0.7	0.7	(\$2,705)	(\$2,941)
CZ02	PG&E	2,288	229	2.01	3%	\$9,726	\$23,016	\$13,998	2.4	1.4	\$13,291	\$4,273
CZ03	PG&E	1,087	171	1.31	2%	\$9,063	\$6,782	\$7,186	0.7	0.8	(\$2,282)	(\$1,877)
CZ04	PG&E	1,862	159	1.46	3%	\$9,004	\$17,891	\$10,878	2.0	1.2	\$8,887	\$1,874
CZ04-2	CPAU	1,862	159	1.46	3%	\$9,004	\$7,821	\$10,878	0.9	1.2	(\$1,182)	\$1,874
CZ05	PG&E	664	162	1.11	1%	\$9,454	\$5,119	\$4,725	0.5	0.5	(\$4,335)	(\$4,729)
CZ05-2	SCG	664	162	1.11	1%	\$9,454	\$4,558	\$4,725	0.5	0.5	(\$4,896)	(\$4,729)
CZ06	SCE	2,648	90	1.24	3%	\$8,943	\$11,646	\$11,427	1.3	1.3	\$2,703	\$2,484
CZ06-2	LADWP	2,648	90	1.24	3%	\$8,943	\$7,329	\$11,427	0.8	1.3	(\$1,614)	\$2,484
CZ07	SDG&E	2,376	49	0.95	2%	\$9,194	\$20,103	\$9,779	2.2	1.1	\$10,909	\$585
CZ08	SCE	2,822	72	1.20	3%	\$9,645	\$11,989	\$12,877	1.2	1.3	\$2,344	\$3,233
CZ08-2	LADWP	2,822	72	1.20	3%	\$9,645	\$7,427	\$12,877	0.8	1.3	(\$2,218)	\$3,233
CZ09	SCE	4,206	88	1.73	4%	\$10,446	\$16,856	\$18,745	1.6	1.8	\$6,410	\$8,299
CZ09-2	LADWP	4,206	88	1.73	4%	\$10,446	\$10,604	\$18,745	1.0	1.8	\$158	\$8,299
CZ10	SDG&E	4,226	119	1.88	4%	\$9,514	\$36,412	\$19,008	3.8	2.0	\$26,898	\$9,494
CZ10-2	SCE	4,226	119	1.88	4%	\$9,514	\$17,094	\$19,008	1.8	2.0	\$7,580	\$9,494
CZ11	PG&E	4,188	225	2.56	4%	\$10,479	\$31,872	\$22,393	3.0	2.1	\$21,392	\$11,913
CZ12	PG&E	3,675	214	2.34	4%	\$10,409	\$29,653	\$20,525	2.8	2.0	\$19,243	\$10,115
CZ12-2	SMUD	3,675	214	2.34	4%	\$10,409	\$12,823	\$20,525	1.2	2.0	\$2,414	\$10,115
CZ13	PG&E	4,818	180	2.46	4%	\$9,809	\$34,149	\$23,623	3.5	2.4	\$24,340	\$13,814
CZ14	SDG&E	6,439	153	2.71	4%	\$12,103	\$44,705	\$26,348	3.7	2.2	\$32,601	\$14,245
CZ14-2	SCE	6,439	153	2.71	4%	\$12,103	\$22,032	\$26,348	1.8	2.2	\$9,929	\$14,245
CZ15	SCE	8,802	48	2.76	5%	\$12,534	\$25,706	\$31,402	2.1	2.5	\$13,171	\$18,868
CZ16	PG&E	2,316	390	2.97	3%	\$11,999	\$22,663	\$13,888	1.9	1.2	\$10,665	\$1,890
CZ16-2	LADWP	2,316	390	2.97	3%	\$11,999	\$11,921	\$13,888	1.0	1.2	(\$78)	\$1,890



Figure 27. Cost Effectiveness for Medium Retail Package 2 – All-Electric Federal Code Minimum

CZ	Utility	Elec Savings (kWh)	Gas Savings (therms)	GHG Reductions (mtons)	Compliance Margin	Incremental Package Cost*	Lifecycle Utility Cost Savings	\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Package 2: All-Electric Federal Code Minimum												
CZ01	PG&E	-29,155	3893	13.85	-4.1%	(\$23,048)	(\$8,333)	(\$13,910)	2.8	1.7	\$14,715	\$9,138
CZ02	PG&E	-21,786	2448	7.49	-1.0%	(\$27,464)	(\$16,476)	(\$4,483)	1.7	6.1	\$10,987	\$22,981
CZ03	PG&E	-14,583	1868	6.26	-0.4%	(\$24,111)	\$263	(\$1,450)	>1	16.6	\$24,374	\$22,661
CZ04	PG&E	-14,186	1706	5.30	-0.1%	(\$22,896)	(\$8,753)	(\$220)	2.6	104.2	\$14,143	\$22,676
CZ04-2	CPAU	-14,186	1706	5.30	-0.1%	(\$22,896)	\$12,493	(\$220)	>1	104.2	\$35,389	\$22,676
CZ05	PG&E	-14,334	1746	5.47	-1.2%	(\$25,507)	(\$1,567)	(\$4,197)	16.3	6.1	\$23,940	\$21,309
CZ06	SCE	-7,527	1002	3.32	0.5%	(\$21,762)	\$18,590	\$1,868	>1	>1	\$40,351	\$23,630
CZ06-2	LADWP	-7,527	1002	3.32	0.5%	(\$21,762)	\$19,309	\$1,868	>1	>1	\$41,071	\$23,630
CZ07	SDG&E	-3,812	522	1.76	0.3%	(\$23,762)	\$54,345	\$1,318	>1	>1	\$78,107	\$25,080
CZ08	SCE	-5,805	793	2.70	0.4%	(\$26,922)	\$16,735	\$1,846	>1	>1	\$43,658	\$28,768
CZ08-2	LADWP	-5,805	793	2.70	0.4%	(\$26,922)	\$17,130	\$1,846	>1	>1	\$44,052	\$28,768
CZ09	SCE	-7,241	970	3.32	0.4%	(\$32,113)	\$18,582	\$1,978	>1	>1	\$50,695	\$34,091
CZ09-2	LADWP	-7,241	970	3.32	0.4%	(\$32,113)	\$19,089	\$1,978	>1	>1	\$51,202	\$34,091
CZ10	SDG&E	-10,336	1262	3.99	0.1%	(\$27,272)	\$54,453	\$505	>1	>1	\$81,724	\$27,777
CZ10-2	SCE	-10,336	1262	3.99	0.1%	(\$27,272)	\$20,996	\$505	>1	>1	\$48,268	\$27,777
CZ11	PG&E	-19,251	2415	7.95	0.5%	(\$32,202)	(\$7,951)	\$2,615	4.1	>1	\$24,251	\$34,817
CZ12	PG&E	-19,471	2309	7.28	-0.1%	(\$32,504)	(\$14,153)	(\$461)	2.3	70.4	\$18,351	\$32,042
CZ12-2	SMUD	-19,471	2309	7.28	-0.1%	(\$32,504)	\$12,939	(\$461)	>1	70.4	\$45,443	\$32,042
CZ13	PG&E	-16,819	1983	6.15	-0.4%	(\$28,158)	(\$10,575)	(\$2,022)	2.7	13.9	\$17,582	\$26,136
CZ14	SDG&E	-13,208	1672	5.44	0.7%	(\$26,656)	\$41,117	\$4,461	>1	>1	\$67,772	\$31,117
CZ14-2	SCE	-13,208	1672	5.44	0.7%	(\$26,656)	\$18,467	\$4,461	>1	>1	\$45,123	\$31,117
CZ15	SCE	-2,463	518	2.14	0.9%	(\$29,544)	\$16,796	\$5,823	>1	>1	\$46,339	\$35,367
CZ16	PG&E	-41,418	4304	13.23	-12.2%	(\$25,771)	(\$49,862)	(\$52,542)	0.5	0.5	(\$24,091)	(\$26,771)
CZ16-2	LADWP	-41,418	4304	13.23	-12.2%	(\$25,771)	\$39,319	(\$52,542)	>1	0.5	\$65,090	(\$26,771)

*The Incremental Package Cost is the addition of the incremental HVAC and water heating equipment costs from Figure 11 and the natural gas infrastructure incremental cost savings of \$28,027 (see section 3.3.2.2).



Figure 28. Cost Effectiveness for Medium Retail Package 3A – All-Electric + EE

CZ	Utility	Elec Savings (kWh)	Gas Savings (therms)	GHG Reductions (mtons)	Compliance Margin	Incremental Package Cost	Lifecycle Utility Cost Savings	\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Package 3A: All-Electric + EE												
CZ01	PG&E	-5,478	3893	20.64	15%	(\$20,336)	\$63,593	\$51,224	>1	>1	\$83,929	\$71,560
CZ02	PG&E	2,843	2448	14.58	13%	(\$21,895)	\$74,997	\$56,893	>1	>1	\$96,892	\$78,788
CZ03	PG&E	7,791	1868	12.73	16%	(\$18,542)	\$68,968	\$56,586	>1	>1	\$87,511	\$75,128
CZ04	PG&E	8,572	1706	11.89	14%	(\$17,327)	\$81,957	\$57,904	>1	>1	\$99,284	\$75,231
CZ04-2	CPAU	8,572	1706	11.89	14%	(\$17,327)	\$63,082	\$57,904	>1	>1	\$80,408	\$75,231
CZ05	PG&E	6,973	1746	11.68	15%	(\$19,938)	\$63,677	\$51,949	>1	>1	\$83,615	\$71,887
CZ06	SCE	7,431	1002	7.72	11%	(\$19,050)	\$47,072	\$42,610	>1	>1	\$66,122	\$61,660
CZ06-2	LADWP	7,431	1002	7.72	11%	(\$19,050)	\$37,078	\$42,610	>1	>1	\$56,128	\$61,660
CZ07	SDG&E	14,350	522	6.98	13%	(\$18,193)	\$127,461	\$50,828	>1	>1	\$145,654	\$69,021
CZ08	SCE	8,524	793	6.90	10%	(\$24,210)	\$43,679	\$42,258	>1	>1	\$67,890	\$66,468
CZ08-2	LADWP	8,524	793	6.90	10%	(\$24,210)	\$34,038	\$42,258	>1	>1	\$58,248	\$66,468
CZ09	SCE	8,403	970	7.81	10%	(\$26,545)	\$47,819	\$47,356	>1	>1	\$74,364	\$73,901
CZ09-2	LADWP	8,403	970	7.81	10%	(\$26,545)	\$37,934	\$47,356	>1	>1	\$64,478	\$73,901
CZ10	SDG&E	11,737	1262	10.23	12%	(\$21,703)	\$137,436	\$58,761	>1	>1	\$159,139	\$80,464
CZ10-2	SCE	11,737	1262	10.23	12%	(\$21,703)	\$58,257	\$58,761	>1	>1	\$79,959	\$80,464
CZ11	PG&E	5,892	2415	15.13	12%	(\$26,633)	\$85,256	\$65,859	>1	>1	\$111,889	\$92,492
CZ12	PG&E	5,548	2309	14.46	12%	(\$26,935)	\$80,631	\$63,903	>1	>1	\$107,566	\$90,838
CZ12-2	SMUD	5,548	2309	14.46	12%	(\$26,935)	\$59,311	\$63,903	>1	>1	\$86,246	\$90,838
CZ13	PG&E	10,184	1983	14.15	14%	(\$25,446)	\$110,105	\$80,604	>1	>1	\$135,551	\$106,050
CZ14	SDG&E	16,583	1672	13.83	15%	(\$23,944)	\$171,200	\$88,471	>1	>1	\$195,145	\$112,415
CZ14-2	SCE	16,583	1672	13.83	15%	(\$23,944)	\$656,178	\$159,604	>1	>1	\$680,122	\$183,548
CZ15	SCE	23,642	518	9.44	12%	(\$26,832)	\$65,573	\$76,781	>1	>1	\$92,404	\$103,612
CZ16	PG&E	-18,232	4304	19.80	3%	(\$23,059)	\$38,796	\$14,152	>1	>1	\$61,855	\$37,211
CZ16-2	LADWP	-18,232	4304	19.80	3%	(\$23,059)	\$67,793	\$14,152	>1	>1	\$90,852	\$37,211



Figure 29. Cost Effectiveness for Medium Retail Package 3B – All-Electric + EE + PV + B

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Compliance Margin (%)	Incremental Package Cost	Lifecycle Energy Cost Savings	\$-TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
All-Electric + PV + B												
CZ01	PG&E	137,956	3893	50.51	15%	\$254,335	\$510,831	\$374,432	2.0	1.5	\$256,496	\$120,097
CZ02	PG&E	173,387	2448	49.87	13%	\$252,777	\$590,112	\$463,431	2.3	1.8	\$337,336	\$210,654
CZ03	PG&E	180,055	1868	48.55	16%	\$256,129	\$585,861	\$452,399	2.3	1.8	\$329,732	\$196,270
CZ04	PG&E	184,499	1706	48.38	14%	\$257,345	\$608,814	\$481,011	2.4	1.9	\$351,470	\$223,666
CZ04-2	CPAU	184,499	1706	48.38	14%	\$257,345	\$465,690	\$481,011	1.8	1.9	\$208,345	\$223,666
CZ05	PG&E	185,690	1746	48.84	15%	\$254,734	\$600,933	\$461,804	2.4	1.8	\$346,199	\$207,071
CZ06	SCE	180,968	1002	43.91	11%	\$255,621	\$335,909	\$457,959	1.3	1.8	\$80,288	\$202,337
CZ06-2	LADWP	180,968	1002	43.91	11%	\$255,621	\$206,021	\$457,959	0.8	1.8	(\$49,601)	\$202,337
CZ07	SDG&E	194,837	522	44.67	13%	\$256,478	\$550,714	\$478,637	2.1	1.9	\$294,236	\$222,159
CZ08	SCE	184,120	793	43.32	10%	\$250,461	\$340,301	\$479,406	1.4	1.9	\$89,840	\$228,945
CZ08-2	LADWP	184,120	793	43.32	10%	\$250,461	\$203,813	\$479,406	0.8	1.9	(\$46,648)	\$228,945
CZ09	SCE	186,346	970	44.77	10%	\$248,127	\$349,524	\$474,176	1.4	1.9	\$101,397	\$226,049
CZ09-2	LADWP	186,346	970	44.77	10%	\$248,127	\$216,654	\$474,176	0.9	1.9	(\$31,473)	\$226,049
CZ10	SDG&E	191,923	1262	47.46	12%	\$252,969	\$593,514	\$473,605	2.3	1.9	\$340,545	\$220,636
CZ10-2	SCE	191,923	1262	47.46	12%	\$252,969	\$356,958	\$473,605	1.4	1.9	\$103,989	\$220,636
CZ11	PG&E	177,639	2415	50.26	12%	\$248,039	\$585,689	\$489,317	2.4	2.0	\$337,650	\$241,278
CZ12	PG&E	176,919	2309	49.46	12%	\$247,736	\$591,104	\$484,702	2.4	2.0	\$343,368	\$236,966
CZ12-2	SMUD	176,919	2309	49.46	12%	\$247,736	\$335,286	\$484,702	1.4	2.0	\$87,550	\$236,966
CZ13	PG&E	183,129	1983	49.48	14%	\$249,226	\$608,560	\$483,670	2.4	1.9	\$359,334	\$234,444
CZ14	SDG&E	208,183	1672	52.54	15%	\$250,727	\$593,232	\$544,079	2.4	2.2	\$342,505	\$293,351
CZ14-2	SCE	264,589	1672	80.97	15%	\$250,727	\$656,178	\$580,403	2.6	2.3	\$405,450	\$329,676
CZ15	SCE	205,869	518	45.67	12%	\$247,840	\$347,125	\$493,339	1.4	2.0	\$99,285	\$245,499
CZ16	PG&E	176,114	4304	60.13	3%	\$251,612	\$567,822	\$446,795	2.3	1.8	\$316,210	\$195,183
CZ16-2	LADWP	176,114	4304	60.13	3%	\$251,612	\$241,757	\$446,795	1.0	1.8	(\$9,856)	\$195,183



Figure 30. Cost Effectiveness for Medium Retail Package 3C – All-Electric + HE

CZ	Utility	Elec Savings (kWh)	Gas Savings (therms)	GHG Reductions (mtons)	Compliance Margin	Incremental Package Cost	Lifecycle Utility Cost Savings	\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Package 3C: All-Electric + HE												
CZ01	PG&E	-26,199	3893	14.76	-2%	(\$587)	\$369	(\$5,757)	>1	0.1	\$956	(\$5,170)
CZ02	PG&E	-16,989	2448	8.95	3%	(\$4,211)	\$12,323	\$11,251	>1	>1	\$16,534	\$15,463
CZ03	PG&E	-11,703	1868	7.15	2%	(\$2,213)	\$9,159	\$6,944	>1	>1	\$11,372	\$9,157
CZ04	PG&E	-10,675	1706	6.37	3%	(\$316)	\$14,317	\$11,383	>1	>1	\$14,633	\$11,700
CZ04-2	CPAU	-10,675	1706	6.37	3%	(\$316)	\$20,599	\$11,383	>1	>1	\$20,915	\$11,700
CZ05	PG&E	-11,969	1746	6.19	1%	(\$2,298)	\$5,592	\$1,824	>1	>1	\$7,890	\$4,122
CZ06	SCE	-3,919	1002	4.35	3%	\$1,418	\$29,751	\$13,734	21.0	9.7	\$28,333	\$12,316
CZ06-2	LADWP	-3,919	1002	4.35	3%	\$1,418	\$25,891	\$13,734	18.3	9.7	\$24,473	\$12,316
CZ07	SDG&E	-955	522	2.59	3%	(\$710)	\$74,518	\$11,229	>1	>1	\$75,227	\$11,939
CZ08	SCE	-2,224	793	3.74	4%	(\$3,719)	\$28,067	\$15,075	>1	>1	\$31,785	\$18,793
CZ08-2	LADWP	-2,224	793	3.74	4%	(\$3,719)	\$23,848	\$15,075	>1	>1	\$27,566	\$18,793
CZ09	SCE	-2,089	970	4.84	4%	(\$8,268)	\$34,648	\$21,162	>1	>1	\$42,916	\$29,430
CZ09-2	LADWP	-2,089	970	4.84	4%	(\$8,268)	\$28,837	\$21,162	>1	>1	\$37,105	\$29,430
CZ10	SDG&E	-4,868	1262	5.58	4%	(\$5,222)	\$91,136	\$20,041	>1	>1	\$96,358	\$25,263
CZ10-2	SCE	-4,868	1262	5.58	4%	(\$5,222)	\$37,200	\$20,041	>1	>1	\$42,422	\$25,263
CZ11	PG&E	-12,651	2415	9.95	5%	(\$8,217)	\$29,015	\$26,172	>1	>1	\$37,232	\$34,389
CZ12	PG&E	-13,479	2309	9.10	4%	(\$9,239)	\$20,839	\$21,228	>1	>1	\$30,078	\$30,466
CZ12-2	SMUD	-13,479	2309	9.10	4%	(\$9,239)	\$26,507	\$21,228	>1	>1	\$35,746	\$30,466
CZ13	PG&E	-9,935	1983	8.23	4%	(\$4,975)	\$30,123	\$24,063	>1	>1	\$35,097	\$29,037
CZ14	SDG&E	-5,407	1672	7.71	5%	\$121	\$88,669	\$31,029	732.5	256.3	\$88,547	\$30,908
CZ14-2	SCE	-5,407	1672	7.71	5%	\$121	\$40,709	\$31,029	336.3	256.3	\$40,588	\$30,908
CZ15	SCE	6,782	518	4.77	6%	(\$2,508)	\$42,238	\$37,379	>1	>1	\$44,745	\$39,887
CZ16	PG&E	-35,297	4304	15.03	-8%	\$1,102	(\$21,384)	(\$33,754)	-19.4	-30.6	(\$22,486)	(\$34,856)
CZ16-2	LADWP	-35,297	4304	15.03	-8%	\$1,102	\$48,625	(\$33,754)	44.1	-30.6	\$47,523	(\$34,856)



4.3 Cost Effectiveness Results – Small Hotel

The following issues must be considered when reviewing the Small Hotel results:

- ◆ The Small Hotel is a mix of residential and nonresidential space types, which results in different occupancy and load profiles than the office and retail prototypes.
- ◆ A potential laundry load has not been examined for the Small Hotel. The Reach Code Team attempted to characterize and apply the energy use intensity of laundry loads in hotels but did not find readily available data for use. Thus, cost effectiveness including laundry systems has not been examined.
- ◆ Contrary to the office and retail prototypes, the Small Hotel baseline water heater is a central gas storage type. Current compliance software cannot model central heat pump water heater systems with recirculation serving guest rooms.²³ The only modeling option for heat pump water heating is individual water heaters at each guest room even though this is a very uncommon configuration. TRC modeled individual heat pump water heaters but as a proxy for central heat pump water heating performance, but integrated costs associated with tank and controls for central heat pump water heating into cost effectiveness calculations.
- ◆ Assuming central heat pump water heating also enabled the inclusion of a solar hot water thermal collection system, which was a key efficiency measure to achieving compliance in nearly all climate zones.

Figure 31 through Figure 37 contain the cost-effectiveness findings for the Small Hotel packages. Notable findings for each package include:

- ◆ **1A – Mixed-Fuel + EE:**
 - ◆ Packages achieve +3 to +10% compliance margins depending on climate zone.
 - ◆ Packages are cost effective using either the On-Bill or TDV approach in all CZs except 12 (using SMUD rates), 14 (using SCE rates), and 15 (with SCE rates).
 - ◆ The hotel is primarily guest rooms with a smaller proportion of nonresidential space. Thus, the inexpensive VAV minimum flow measure and lighting measures that have been applied to the entirety of the Medium Office and Medium Retail prototypes have a relatively small impact in the Small Hotel.²⁴
- ◆ **1B – Mixed-Fuel + EE + PV + B:** Packages are cost effective using either the On-Bill or TDV approach in all CZs. Solar PV generally increases cost effectiveness compared to efficiency-only, particularly when using an NPV metric.
- ◆ **1C – Mixed-Fuel + HE:** Packages achieve +2 to +5% compliance margins depending on climate zone. The package is cost effective using the On-Bill approach in a minority of climate zones, and cost effective using TDV approach only in CZ15.

²³ The IOUs and CEC are actively working on including central heat pump water heater modeling with recirculation systems in early 2020.

²⁴ Title 24 requires that hotel/motel guest room lighting design comply with the residential lighting standards, which are all mandatory and are not awarded compliance credit for improved efficacy.



◆ **2 – All-Electric Federal Code-Minimum Reference:**

- ◆ This all-electric design does not comply with the Energy Commission's TDV performance budget. Packages achieve between -50% and -4% compliance margins depending on climate zone. This may be because the modeled HW system is constrained to having an artificially low efficiency to avoid triggering federal pre-emption, and the heat pump space heating systems must operate overnight when operation is less efficient.
- ◆ All packages are cost effective in all climate zones.

◆ **3A – All-Electric + EE:** Packages achieve positive compliance margins in all CZs ranging from 0% to +17%, except CZ16 which had a -18% compliance margin. All packages are cost effective in all climate zones. The improved degree of cost effectiveness outcomes in Package 3A compared to Package 1A appear to be due to the significant incremental package cost savings.

◆ **3B – All-Electric + EE + PV + B:** All packages are cost effective. Packages improve in B/C ratio when compared to 3A and increase in magnitude of overall NPV savings. PV appears to be more cost-effective with higher building electricity loads.

◆ **3C – All-Electric + HE:**

- ◆ Packages do not comply with Title 24 in all CZs except CZ15 which resulted in a +0.04% compliance margin.
- ◆ All packages are cost effective.

Figure 31. Cost Effectiveness for Small Hotel Package 1A – Mixed-Fuel + EE

CZ	Utility	Elec Savings (kWh)	Gas Savings (therms)	GHG Reductions (mtons)	Compliance Margin	Incremental Package Cost	Lifecycle Utility Cost Savings	\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Package 1A: Mixed Fuel + EE												
CZ01	PG&E	3,855	1288	5.65	9%	\$20,971	\$34,339	\$36,874	1.6	1.8	\$13,368	\$15,903
CZ02	PG&E	3,802	976	3.91	7%	\$20,971	\$26,312	\$29,353	1.3	1.4	\$5,341	\$8,381
CZ03	PG&E	4,153	1046	4.48	10%	\$20,971	\$31,172	\$35,915	1.5	1.7	\$10,201	\$14,944
CZ04	PG&E	5,007	395	0.85	6%	\$21,824	\$24,449	\$24,270	1.1	1.1	\$2,625	\$2,446
CZ04-2	CPAU	4,916	422	0.98	6%	\$21,824	\$18,713	\$24,306	0.9	1.1	(\$3,111)	\$2,483
CZ05	PG&E	3,530	1018	4.13	9%	\$20,971	\$28,782	\$34,448	1.4	1.6	\$7,810	\$13,477
CZ05-2	SCG	3,530	1018	4.13	9%	\$20,971	\$23,028	\$34,448	1.1	1.6	\$2,057	\$13,477
CZ06	SCE	5,137	418	1.16	8%	\$21,824	\$16,001	\$26,934	0.7	1.2	(\$5,823)	\$5,110
CZ06-2	LADWP	5,137	418	1.16	8%	\$21,824	\$11,706	\$26,934	0.5	1.2	(\$10,118)	\$5,110
CZ07	SDG&E	5,352	424	1.31	8%	\$21,824	\$26,699	\$27,975	1.2	1.3	\$4,876	\$6,152
CZ08	SCE	5,151	419	1.21	7%	\$21,824	\$15,931	\$23,576	0.7	1.1	(\$5,893)	\$1,752
CZ08-2	LADWP	5,151	419	1.21	7%	\$21,824	\$11,643	\$23,576	0.5	1.1	(\$10,180)	\$1,752
CZ09	SCE	5,229	406	1.16	6%	\$21,824	\$15,837	\$22,365	0.7	1.0	(\$5,987)	\$541
CZ09-2	LADWP	5,229	406	1.16	6%	\$21,824	\$11,632	\$22,365	0.5	1.0	(\$10,192)	\$541
CZ10	SDG&E	4,607	342	0.92	5%	\$21,824	\$25,506	\$22,219	1.2	1.0	\$3,683	\$396
CZ10-2	SCE	4,607	342	0.92	5%	\$21,824	\$13,868	\$22,219	0.6	1.0	(\$7,956)	\$396
CZ11	PG&E	4,801	325	0.87	4%	\$21,824	\$22,936	\$19,503	1.1	0.9	\$1,112	(\$2,321)
CZ12	PG&E	5,276	327	0.90	5%	\$21,824	\$22,356	\$21,305	1.0	0.98	\$532	(\$519)
CZ12-2	SMUD	5,276	327	0.90	5%	\$21,824	\$15,106	\$21,305	0.7	0.98	(\$6,717)	(\$519)
CZ13	PG&E	4,975	310	0.87	4%	\$21,824	\$23,594	\$19,378	1.1	0.9	\$1,770	(\$2,445)
CZ14	SDG&E	4,884	370	0.82	4%	\$21,824	\$24,894	\$21,035	1.1	0.96	\$3,070	(\$789)
CZ14-2	SCE	4,884	370	0.82	4%	\$21,824	\$14,351	\$21,035	0.7	0.96	(\$7,473)	(\$789)
CZ15	SCE	5,187	278	1.23	3%	\$21,824	\$13,645	\$18,089	0.6	0.8	(\$8,178)	(\$3,735)
CZ16	PG&E	2,992	1197	4.95	6%	\$20,971	\$27,813	\$30,869	1.3	1.5	\$6,842	\$9,898
CZ16-2	LADWP	2,992	1197	4.95	6%	\$20,971	\$19,782	\$30,869	0.9	1.5	(\$1,190)	\$9,898



Figure 32. Cost Effectiveness for Small Hotel Package 1B – Mixed-Fuel + EE + PV + B

CZ	Utility	Elec Savings (kWh)	Gas Savings (therms)	GHG Reductions (mtons)	Compliance Margin	Incremental Package Cost	Lifecycle Utility Cost Savings	\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Package 1B: Mixed Fuel + EE + PV + B												
CZ01	PG&E	107,694	1288	28.73	9%	\$228,341	\$366,509	\$295,731	1.6	1.3	\$138,168	\$67,390
CZ02	PG&E	130,144	976	31.14	7%	\$228,341	\$359,248	\$336,575	1.6	1.5	\$130,907	\$108,233
CZ03	PG&E	129,107	1046	31.57	10%	\$228,341	\$430,737	\$335,758	1.9	1.5	\$202,396	\$107,416
CZ04	PG&E	132,648	395	28.46	6%	\$229,194	\$355,406	\$338,455	1.6	1.5	\$126,212	\$109,262
CZ04-2	CPAU	132,556	422	28.59	6%	\$229,194	\$322,698	\$338,492	1.4	1.5	\$93,504	\$109,298
CZ05	PG&E	136,318	1018	32.73	9%	\$228,341	\$452,611	\$352,342	2.0	1.5	\$224,269	\$124,001
CZ05-2	SCG	136,318	1018	32.73	9%	\$228,341	\$446,858	\$352,342	2.0	1.5	\$218,516	\$124,001
CZ06	SCE	131,051	418	28.47	8%	\$229,194	\$217,728	\$336,843	0.9	1.5	(\$11,466)	\$107,649
CZ06-2	LADWP	131,051	418	28.47	8%	\$229,194	\$131,052	\$336,843	0.6	1.5	(\$98,142)	\$107,649
CZ07	SDG&E	136,359	424	29.63	8%	\$229,194	\$306,088	\$345,378	1.3	1.5	\$76,894	\$116,184
CZ08	SCE	132,539	419	28.85	7%	\$229,194	\$227,297	\$353,013	1.0	1.5	(\$1,897)	\$123,819
CZ08-2	LADWP	132,539	419	28.85	7%	\$229,194	\$134,739	\$353,013	0.6	1.5	(\$94,455)	\$123,819
CZ09	SCE	131,422	406	28.82	6%	\$229,194	\$230,791	\$343,665	1.0	1.5	\$1,597	\$114,471
CZ09-2	LADWP	131,422	406	28.82	6%	\$229,194	\$136,024	\$343,665	0.6	1.5	(\$93,170)	\$114,471
CZ10	SDG&E	134,146	342	29.05	5%	\$229,194	\$339,612	\$342,574	1.5	1.5	\$110,418	\$113,380
CZ10-2	SCE	134,146	342	29.05	5%	\$229,194	\$226,244	\$342,574	1.0	1.5	(\$2,949)	\$113,380
CZ11	PG&E	128,916	325	27.62	4%	\$229,194	\$352,831	\$337,208	1.5	1.5	\$123,637	\$108,014
CZ12	PG&E	131,226	327	28.04	5%	\$229,194	\$425,029	\$338,026	1.9	1.5	\$195,835	\$108,832
CZ12-2	SMUD	131,226	327	28.04	5%	\$229,194	\$213,176	\$338,026	0.9	1.5	(\$16,018)	\$108,832
CZ13	PG&E	127,258	310	27.33	4%	\$229,194	\$351,244	\$324,217	1.5	1.4	\$122,050	\$95,023
CZ14	SDG&E	147,017	370	30.96	4%	\$229,194	\$861,445	\$217,675	3.8	0.9	\$632,251	(\$11,518)
CZ14-2	SCE	147,017	370	30.96	4%	\$229,194	\$244,100	\$381,164	1.1	1.7	\$14,906	\$151,970
CZ15	SCE	137,180	278	29.12	3%	\$229,194	\$225,054	\$348,320	1.0	1.5	(\$4,140)	\$119,127
CZ16	PG&E	141,478	1197	34.60	6%	\$228,341	\$377,465	\$357,241	1.7	1.6	\$149,124	\$128,899
CZ16-2	LADWP	141,478	1197	34.60	6%	\$228,341	\$136,563	\$357,241	0.6	1.6	(\$91,778)	\$128,899



Figure 33. Cost Effectiveness for Small Hotel Package 1C – Mixed-Fuel + HE

CZ	Utility	Elec Savings (kWh)	Gas Savings (therms)	GHG Reductions (mtons)	Compliance Margin	Incremental Package Cost	Lifecycle Utility Cost Savings	\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Package 1C: Mixed Fuel + HE												
CZ01	PG&E	10	632	3.76	2%	\$22,839	\$11,015	\$10,218	0.5	0.4	(\$11,823)	(\$12,621)
CZ02	PG&E	981	402	2.69	3%	\$23,092	\$16,255	\$11,808	0.7	0.5	(\$6,837)	(\$11,284)
CZ03	PG&E	81	383	2.30	2%	\$20,510	\$7,066	\$6,850	0.3	0.3	(\$13,444)	(\$13,660)
CZ04	PG&E	161	373	2.26	2%	\$22,164	\$8,593	\$7,645	0.4	0.3	(\$13,571)	(\$14,519)
CZ04-2	CPAU	161	373	2.26	2%	\$22,164	\$7,097	\$7,645	0.3	0.3	(\$15,067)	(\$14,519)
CZ05	PG&E	154	361	2.19	2%	\$21,418	\$6,897	\$6,585	0.3	0.3	(\$14,521)	(\$14,833)
CZ05-2	SCG	154	361	2.19	2%	\$21,418	\$4,786	\$6,585	0.2	0.3	(\$16,632)	(\$14,833)
CZ06	SCE	237	201	1.27	2%	\$20,941	\$3,789	\$4,882	0.2	0.2	(\$17,152)	(\$16,059)
CZ06-2	LADWP	237	201	1.27	2%	\$20,941	\$3,219	\$4,882	0.2	0.2	(\$17,722)	(\$16,059)
CZ07	SDG&E	1,117	158	1.28	2%	\$19,625	\$13,771	\$7,342	0.7	0.4	(\$5,854)	(\$12,283)
CZ08	SCE	1,302	169	1.39	2%	\$20,678	\$8,378	\$8,591	0.4	0.4	(\$12,300)	(\$12,088)
CZ08-2	LADWP	1,302	169	1.39	2%	\$20,678	\$5,802	\$8,591	0.3	0.4	(\$14,877)	(\$12,088)
CZ09	SCE	1,733	178	1.56	3%	\$20,052	\$10,489	\$11,164	0.5	0.6	(\$9,563)	(\$8,888)
CZ09-2	LADWP	1,733	178	1.56	3%	\$20,052	\$7,307	\$11,164	0.4	0.6	(\$12,745)	(\$8,888)
CZ10	SDG&E	3,170	220	2.29	4%	\$22,682	\$35,195	\$19,149	1.6	0.8	\$12,513	(\$3,533)
CZ10-2	SCE	3,170	220	2.29	4%	\$22,682	\$16,701	\$19,149	0.7	0.8	(\$5,981)	(\$3,533)
CZ11	PG&E	3,343	323	2.96	4%	\$23,344	\$27,633	\$20,966	1.2	0.9	\$4,288	(\$2,379)
CZ12	PG&E	1,724	320	2.44	4%	\$22,302	\$11,597	\$15,592	0.5	0.7	(\$10,705)	(\$6,710)
CZ12-2	SMUD	1,724	320	2.44	4%	\$22,302	\$11,156	\$15,592	0.5	0.7	(\$11,146)	(\$6,710)
CZ13	PG&E	3,083	316	2.81	3%	\$22,882	\$23,950	\$17,068	1.0	0.7	\$1,068	(\$5,814)
CZ14	SDG&E	3,714	312	2.99	4%	\$23,299	\$35,301	\$21,155	1.5	0.9	\$12,002	(\$2,144)
CZ14-2	SCE	3,714	312	2.99	4%	\$23,299	\$18,460	\$21,155	0.8	0.9	(\$4,839)	(\$2,144)
CZ15	SCE	8,684	97	3.21	5%	\$20,945	\$26,738	\$31,600	1.3	1.5	\$5,792	\$10,655
CZ16	PG&E	836	700	4.42	3%	\$24,616	\$18,608	\$14,494	0.8	0.6	(\$6,007)	(\$10,121)
CZ16-2	LADWP	836	700	4.42	3%	\$24,616	\$15,237	\$14,494	0.6	0.6	(\$9,378)	(\$10,121)



Figure 34. Cost Effectiveness for Small Hotel Package 2 – All-Electric Federal Code Minimum

CZ	Utility	Elec Savings (kWh)	Gas Savings (therms)	GHG Reductions (mtons)	Compliance Margin	Incremental Package Cost*	Lifecycle Utility Cost Savings	\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Package 2: All-Electric Federal Code Minimum												
CZ01	PG&E	-159,802	16917	53.92	-28%	(\$1,296,784)	(\$582,762)	(\$115,161)	2.2	11.3	\$714,022	\$1,181,623
CZ02	PG&E	-118,739	12677	40.00	-12%	(\$1,297,757)	(\$245,434)	(\$51,620)	5.3	25.1	\$1,052,322	\$1,246,137
CZ03	PG&E	-110,595	12322	40.48	-14%	(\$1,300,029)	(\$326,633)	(\$51,166)	4.0	25.4	\$973,396	\$1,248,863
CZ04	PG&E	-113,404	11927	36.59	-13%	(\$1,299,864)	(\$225,307)	(\$53,134)	5.8	24.5	\$1,074,556	\$1,246,730
CZ04-2	CPAU	-113,404	11927	36.59	-13%	(\$1,299,864)	(\$17,768)	(\$53,134)	73.2	24.5	\$1,282,096	\$1,246,730
CZ05	PG&E	-108,605	11960	38.34	-15%	(\$1,299,917)	(\$350,585)	(\$54,685)	3.7	23.8	\$949,332	\$1,245,232
CZ06	SCE	-78,293	8912	29.36	-5%	(\$1,300,058)	(\$61,534)	(\$28,043)	21.1	46.4	\$1,238,524	\$1,272,015
CZ06-2	LA	-78,293	8912	29.36	-5%	(\$1,300,058)	\$43,200	(\$28,043)	>1	46.4	\$1,343,258	\$1,272,015
CZ07	SDG&E	-69,819	8188	28.04	-7%	(\$1,298,406)	(\$137,638)	(\$23,199)	9.4	56.0	\$1,160,768	\$1,275,207
CZ08	SCE	-71,914	8353	28.21	-6%	(\$1,296,376)	(\$53,524)	(\$22,820)	24.2	56.8	\$1,242,852	\$1,273,556
CZ08-2	LA	-71,914	8353	28.21	-6%	(\$1,296,376)	\$42,841	(\$22,820)	>1	56.8	\$1,339,217	\$1,273,556
CZ09	SCE	-72,262	8402	28.38	-6%	(\$1,298,174)	(\$44,979)	(\$21,950)	28.9	59.1	\$1,253,196	\$1,276,224
CZ09-2	LA	-72,262	8402	28.38	-6%	(\$1,298,174)	\$46,679	(\$21,950)	>1	59.1	\$1,344,853	\$1,276,224
CZ10	SDG&E	-80,062	8418	26.22	-8%	(\$1,295,176)	(\$172,513)	(\$36,179)	7.5	35.8	\$1,122,663	\$1,258,997
CZ10-2	SCE	-80,062	8418	26.22	-8%	(\$1,295,176)	(\$63,974)	(\$36,179)	20.2	35.8	\$1,231,202	\$1,258,997
CZ11	PG&E	-99,484	10252	30.99	-10%	(\$1,295,985)	(\$186,037)	(\$49,387)	7.0	26.2	\$1,109,948	\$1,246,598
CZ12	PG&E	-99,472	10403	32.08	-10%	(\$1,297,425)	(\$340,801)	(\$45,565)	3.8	28.5	\$956,624	\$1,251,860
CZ12-2	SMUD	-99,067	10403	32.21	-10%	(\$1,297,425)	\$5,794	(\$44,354)	>1	29.3	\$1,303,219	\$1,253,071
CZ13	PG&E	-96,829	10029	30.60	-10%	(\$1,295,797)	(\$184,332)	(\$50,333)	7.0	25.7	\$1,111,465	\$1,245,464
CZ14	SDG&E	-101,398	10056	29.68	-11%	(\$1,296,156)	(\$325,928)	(\$56,578)	4.0	22.9	\$970,228	\$1,239,578
CZ14-2	SCE	-101,398	10056	29.68	-11%	(\$1,296,156)	(\$121,662)	(\$56,578)	10.7	22.9	\$1,174,494	\$1,239,578
CZ15	SCE	-49,853	5579	18.07	-4%	(\$1,294,276)	\$209	(\$21,420)	>1	60.4	\$1,294,485	\$1,272,856
CZ16	PG&E	-216,708	17599	41.89	-50%	(\$1,300,552)	(\$645,705)	(\$239,178)	2.0	5.4	\$654,847	\$1,061,374
CZ16-2	LA	-216,708	17599	41.89	-50%	(\$1,300,552)	\$30,974	(\$239,178)	>1	5.4	\$1,331,526	\$1,061,374

*The Incremental Package Cost is the addition of the incremental HVAC and water heating equipment costs from Figure 12, the electrical infrastructure incremental cost of \$26,800 (see section 3.3.2.1), and the natural gas infrastructure incremental cost savings of \$56,020 (see section 3.3.2.2).



Figure 35. Cost Effectiveness for Small Hotel Package 3A – All-Electric + EE

CZ	Utility	Elec Savings (kWh)	Gas Savings (therms)	GHG Reductions (mtons)	Compliance Margin	Incremental Package Cost	Lifecycle Utility Cost Savings	\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Package 3A: All-Electric + EE												
CZ01	PG&E	-113,259	16917	62.38	1.3%	(\$1,251,544)	(\$200,367)	\$5,460	6.2	>1	\$1,051,177	\$1,257,005
CZ02	PG&E	-90,033	12677	45.46	4%	(\$1,265,064)	(\$108,075)	\$15,685	11.7	>1	\$1,156,989	\$1,280,749
CZ03	PG&E	-83,892	12322	45.93	6%	(\$1,267,509)	(\$198,234)	\$20,729	6.4	>1	\$1,069,274	\$1,288,237
CZ04	PG&E	-91,197	11927	40.36	0.2%	(\$1,263,932)	(\$112,892)	\$703	11.2	>1	\$1,151,041	\$1,264,635
CZ04-2	CPAU	-90,981	11927	40.42	0.2%	(\$1,263,932)	\$32,557	\$918	>1	>1	\$1,296,489	\$1,264,850
CZ05	PG&E	-82,491	11960	43.62	5%	(\$1,267,355)	(\$221,492)	\$18,488	5.7	>1	\$1,045,863	\$1,285,843
CZ06	SCE	-61,523	8912	32.45	7%	(\$1,267,916)	(\$33,475)	\$15,142	37.9	>1	\$1,234,441	\$1,283,057
CZ06-2	LADWP	-61,523	8912	32.45	7%	(\$1,267,916)	\$57,215	\$15,142	>1	>1	\$1,325,130	\$1,283,057
CZ07	SDG&E	-53,308	8188	31.22	7%	(\$1,266,354)	(\$81,338)	\$22,516	15.6	>1	\$1,185,015	\$1,288,870
CZ08	SCE	-55,452	8353	31.33	3%	(\$1,264,408)	(\$23,893)	\$9,391	52.9	>1	\$1,240,515	\$1,273,800
CZ08-2	LADWP	-55,452	8353	31.33	3%	(\$1,264,408)	\$57,058	\$9,391	>1	>1	\$1,321,466	\$1,273,800
CZ09	SCE	-55,887	8402	31.40	2%	(\$1,266,302)	(\$19,887)	\$9,110	63.7	>1	\$1,246,415	\$1,275,412
CZ09-2	LADWP	-55,887	8402	31.40	2%	(\$1,266,302)	\$60,441	\$9,110	>1	>1	\$1,326,743	\$1,275,412
CZ10	SDG&E	-60,239	8418	29.96	2%	(\$1,256,002)	(\$126,072)	\$7,365	10.0	>1	\$1,129,930	\$1,263,367
CZ10-2	SCE	-60,239	8418	29.96	2%	(\$1,256,002)	(\$33,061)	\$7,365	38.0	>1	\$1,222,940	\$1,263,367
CZ11	PG&E	-77,307	10252	35.12	1%	(\$1,256,149)	(\$80,187)	\$3,114	15.7	>1	\$1,175,962	\$1,259,263
CZ12	PG&E	-75,098	10403	36.73	2%	(\$1,256,824)	(\$234,275)	\$9,048	5.4	>1	\$1,022,550	\$1,265,872
CZ12-2	SMUD	-75,098	10403	36.73	2%	(\$1,256,824)	\$54,941	\$9,048	>1	>1	\$1,311,765	\$1,265,872
CZ13	PG&E	-75,052	10029	34.72	0.3%	(\$1,256,109)	(\$79,378)	\$1,260	15.8	>1	\$1,176,731	\$1,257,369
CZ14	SDG&E	-76,375	10056	34.28	0.1%	(\$1,255,704)	(\$170,975)	\$543	7.3	>1	\$1,084,729	\$1,256,247
CZ14-2	SCE	-76,375	10056	34.28	0.1%	(\$1,255,704)	(\$34,418)	\$543	36.5	>1	\$1,221,286	\$1,256,247
CZ15	SCE	-33,722	5579	21.43	2%	(\$1,257,835)	\$26,030	\$12,262	>1	>1	\$1,283,864	\$1,270,097
CZ16	PG&E	-139,676	17599	55.25	-14%	(\$1,255,364)	(\$197,174)	(\$66,650)	6.4	18.8	\$1,058,190	\$1,188,714
CZ16-2	LADWP	-139,676	17599	55.25	-14%	(\$1,255,364)	\$165,789	(\$66,650)	>1	18.8	\$1,421,153	\$1,188,714



Figure 36. Cost Effectiveness for Small Hotel Package 3B – All-Electric + EE + PV + B

CZ	Utility	Elec Savings (kWh)	Gas Savings (therms)	GHG Reductions (mtons)	Compliance Margin	Incremental Package Cost	Lifecycle Utility Cost Savings	\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Package 3B: All-Electric + EE + PV + B												
CZ01	PG&E	-8,900	16917	87.15	1%	(\$1,044,174)	\$90,964	\$324,376	>1	>1	\$1,135,139	\$1,368,551
CZ02	PG&E	36,491	12677	73.03	4%	(\$1,057,694)	\$242,514	\$313,711	>1	>1	\$1,300,208	\$1,371,405
CZ03	PG&E	41,239	12322	73.43	6%	(\$1,060,139)	\$155,868	\$308,385	>1	>1	\$1,216,007	\$1,368,524
CZ04	PG&E	36,628	11927	69.70	0.2%	(\$1,056,562)	\$240,799	\$308,682	>1	>1	\$1,297,361	\$1,365,244
CZ04-2	CPAU	36,844	11927	69.76	0.2%	(\$1,056,562)	\$336,813	\$418,836	>1	>1	\$1,393,375	\$1,475,398
CZ05	PG&E	36,365	11960	73.11	5%	(\$1,059,985)	\$119,173	\$317,952	>1	>1	\$1,179,158	\$1,377,937
CZ06	SCE	64,476	8912	60.47	7%	(\$1,060,545)	\$156,327	\$311,730	>1	>1	\$1,216,872	\$1,372,275
CZ06-2	LADWP	64,476	8912	60.47	7%	(\$1,060,545)	\$180,648	\$311,730	>1	>1	\$1,241,193	\$1,372,275
CZ07	SDG&E	77,715	8188	60.45	7%	(\$1,058,983)	\$197,711	\$330,458	>1	>1	\$1,256,694	\$1,389,441
CZ08	SCE	71,990	8353	59.49	3%	(\$1,057,038)	\$165,393	\$320,814	>1	>1	\$1,222,432	\$1,377,852
CZ08-2	LADWP	71,990	8353	60.24	3%	(\$1,057,038)	\$180,367	\$443,809	>1	>1	\$1,237,405	\$1,500,847
CZ09	SCE	70,465	8402	59.29	2%	(\$1,058,932)	\$175,602	\$301,459	>1	>1	\$1,234,534	\$1,360,391
CZ09-2	LADWP	70,465	8402	59.29	2%	(\$1,058,932)	\$183,220	\$301,459	>1	>1	\$1,242,152	\$1,360,391
CZ10	SDG&E	69,581	8418	58.04	2%	(\$1,048,632)	\$161,513	\$294,530	>1	>1	\$1,210,145	\$1,343,162
CZ10-2	SCE	69,581	8418	58.04	2%	(\$1,048,632)	\$164,837	\$294,530	>1	>1	\$1,213,469	\$1,343,162
CZ11	PG&E	47,260	10252	61.57	1%	(\$1,048,779)	\$253,717	\$286,797	>1	>1	\$1,302,496	\$1,335,576
CZ12	PG&E	51,115	10403	64.07	2%	(\$1,049,454)	\$104,523	\$305,446	>1	>1	\$1,153,977	\$1,354,900
CZ12-2	SMUD	51,115	10403	64.99	2%	(\$1,049,454)	\$253,197	\$430,977	>1	>1	\$1,302,651	\$1,480,431
CZ13	PG&E	47,757	10029	60.77	0.3%	(\$1,048,739)	\$251,663	\$281,877	>1	>1	\$1,300,402	\$1,330,616
CZ14	SDG&E	66,084	10056	64.54	0.1%	(\$1,048,334)	\$148,510	\$334,938	>1	>1	\$1,196,844	\$1,383,272
CZ14-2	SCE	66,084	10056	64.54	0.1%	(\$1,048,334)	\$185,018	\$334,938	>1	>1	\$1,233,352	\$1,383,272
CZ15	SCE	98,755	5579	49.04	2.1%	(\$1,050,465)	\$233,308	\$311,121	>1	>1	\$1,283,772	\$1,361,585
CZ16	PG&E	-873	17599	84.99	-14%	(\$1,047,994)	\$191,994	\$240,724	>1	>1	\$1,239,987	\$1,288,718
CZ16-2	LADWP	-873	17599	84.99	-14%	(\$1,047,994)	\$291,279	\$240,724	>1	>1	\$1,339,273	\$1,288,718



Figure 37. Cost Effectiveness for Small Hotel Package 3C – All-Electric + HE

CZ	Utility	Elec Savings (kWh)	Gas Savings (therms)	GHG Reductions (mtons)	Compliance Margin	Incremental Package Cost	Lifecycle Utility Cost Savings	\$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Package 3C: All-Electric + HE												
CZ01	PG&E	-154,840	16917	56.24	-24%	(\$1,281,338)	(\$606,619)	(\$101,272)	2.1	12.7	\$674,719	\$1,180,066
CZ02	PG&E	-118,284	12677	41.18	-11%	(\$1,283,243)	(\$395,641)	(\$44,505)	3.2	28.8	\$887,602	\$1,238,738
CZ03	PG&E	-113,413	12322	40.80	-14%	(\$1,288,782)	(\$522,458)	(\$51,582)	2.5	25.0	\$766,324	\$1,237,200
CZ04	PG&E	-115,928	11927	37.09	-13%	(\$1,287,878)	(\$383,177)	(\$53,285)	3.4	24.2	\$904,701	\$1,234,593
CZ04-2	CPAU	-115,928	11927	37.09	-13%	(\$1,287,878)	(\$24,170)	(\$53,285)	53.3	24.2	\$1,263,708	\$1,234,593
CZ05	PG&E	-111,075	11960	38.75	-15%	(\$1,288,242)	(\$530,740)	(\$56,124)	2.4	23.0	\$757,502	\$1,232,119
CZ06	SCE	-83,000	8912	29.41	-15%	(\$1,288,695)	(\$154,625)	(\$32,244)	8.3	40.0	\$1,134,069	\$1,256,451
CZ06-2	LADWP	-83,000	8912	29.41	-15%	(\$1,288,695)	(\$17,626)	(\$32,244)	73.1	40.0	\$1,271,068	\$1,256,451
CZ07	SDG&E	-73,823	8188	28.32	-7%	(\$1,285,759)	(\$268,207)	(\$24,069)	4.8	53.4	\$1,017,552	\$1,261,690
CZ08	SCE	-75,573	8353	28.56	-6%	(\$1,281,241)	(\$157,393)	(\$21,912)	8.1	58.5	\$1,123,848	\$1,259,329
CZ08-2	LADWP	-75,573	8353	28.56	-6%	(\$1,281,241)	(\$18,502)	(\$21,912)	69.2	58.5	\$1,262,739	\$1,259,329
CZ09	SCE	-74,790	8402	29.04	-4%	(\$1,285,139)	(\$138,746)	(\$16,992)	9.3	75.6	\$1,146,393	\$1,268,147
CZ09-2	LADWP	-74,790	8402	29.04	-4%	(\$1,285,139)	(\$6,344)	(\$16,992)	202.6	75.6	\$1,278,794	\$1,268,147
CZ10	SDG&E	-80,248	8418	27.57	-5%	(\$1,278,097)	(\$235,479)	(\$24,107)	5.4	53.0	\$1,042,617	\$1,253,990
CZ10-2	SCE	-80,248	8418	27.57	-5%	(\$1,278,097)	(\$123,371)	(\$24,107)	10.4	53.0	\$1,154,726	\$1,253,990
CZ11	PG&E	-98,041	10252	32.73	-7%	(\$1,279,528)	(\$278,242)	(\$35,158)	4.6	36.4	\$1,001,286	\$1,244,370
CZ12	PG&E	-100,080	10403	33.24	-9%	(\$1,282,834)	(\$480,347)	(\$38,715)	2.7	33.1	\$802,487	\$1,244,119
CZ12-2	SMUD	-100,080	10403	33.24	-9%	(\$1,282,834)	(\$23,362)	(\$38,715)	54.9	33.1	\$1,259,472	\$1,244,119
CZ13	PG&E	-94,607	10029	32.47	-7%	(\$1,279,301)	(\$276,944)	\$244,552	4.6	>1	\$1,002,357	\$1,523,853
CZ14	SDG&E	-97,959	10056	31.91	-7%	(\$1,279,893)	(\$302,123)	(\$37,769)	4.2	33.9	\$977,770	\$1,242,124
CZ14-2	SCE	-97,959	10056	31.91	-7%	(\$1,279,893)	(\$129,082)	(\$37,769)	9.9	33.9	\$1,150,811	\$1,242,124
CZ15	SCE	-45,226	5579	20.17	0.04%	(\$1,276,847)	(\$6,533)	\$227	195.4	>1	\$1,270,314	\$1,277,074
CZ16	PG&E	-198,840	17599	47.73	-39%	(\$1,288,450)	(\$605,601)	(\$185,438)	2.1	6.9	\$682,848	\$1,103,011
CZ16-2	LADWP	-198,840	17599	47.73	-39%	(\$1,288,450)	\$40,268	(\$185,438)	>1	6.9	\$1,328,718	\$1,103,011



4.4 Cost Effectiveness Results – PV-only and PV+Battery

The Reach Code Team ran packages of PV-only and PV+Battery measures, without any additional efficiency measures, to assess cost effectiveness on top of the mixed-fuel baseline building and the all-electric federal code minimum reference (Package 2 in Sections 4.1 – 4.3).

Jurisdictions interested in adopting PV-only reach codes should reference the mixed-fuel cost effectiveness results because a mixed-fuel building is the baseline for the nonresidential prototypes analyzed in this study. PV or PV+Battery packages are added to all-electric federal code minimum reference which (in many scenarios) do not have a positive compliance margin compared to the mixed-fuel baseline model, and are solely provided for informational purposes. Jurisdictions interested in reach codes requiring all-electric+PV or all-electric+PV+battery should reference package 3B results in Sections 4.1 – 4.3.²⁵

Each of the following eight packages were evaluated against a mixed fuel baseline designed as per 2019 Title 24 Part 6 requirements.

- ◆ **Mixed-Fuel + 3 kW PV Only:**
- ◆ **Mixed-Fuel + 3 kW PV + 5 kWh battery**
- ◆ **Mixed-Fuel + PV Only:** PV sized per the roof size of the building, or to offset the annual electricity consumption, whichever is smaller
- ◆ **Mixed-Fuel + PV + 50 kWh Battery:** PV sized per the roof size of the building, or to offset the annual electricity consumption, whichever is smaller, along with 50 kWh battery
- ◆ **All-Electric + 3 kW PV Only**
- ◆ **All-Electric + 3 kW PV + 5 kWh Battery**
- ◆ **All-Electric + PV Only:** PV sized per the roof size of the building, or to offset the annual electricity consumption, whichever is smaller
- ◆ **All-Electric + PV + 50 kWh Battery:** PV sized per the roof size of the building, or to offset the annual electricity consumption, whichever is smaller, along with 50 kWh battery

Figure 38 through Figure 40 summarize the on-bill and TDV B/C ratios for each prototype for the two PV only packages and the two PV plus battery packages. Compliance margins are 0 percent for all mixed-fuel packages. For all-electric packages, compliance margins are equal to those found in Package 2 for each prototype in Sections 4.1 – 4.3. The compliance margins are not impacted by renewables and battery storage measures and hence not shown in the tables. These figures are formatted in the following way:

- ◆ Cells highlighted in green have a B/C ratio greater than 1 and are cost-effective. The shade of green gets darker as cost effectiveness increases.
- ◆ Cells not highlighted have a B/C ratio less than one and are not cost effective.

²⁵ Because this study shows that the addition of battery generally reduces cost effectiveness, removing a battery measure would only increase cost effectiveness. Thus, a jurisdiction can apply the EE+PV+Battery cost effectiveness findings to support EE+PV reach codes, because EE+PV would still remain cost effective without a battery.

Please see Appendix 6.7 for results in full detail. Generally, for mixed-fuel packages across all prototypes, all climate zones were proven to have cost effective outcomes using TDV except in CZ1 with a 3 kW PV + 5 kWh Battery scenario. Most climate zones also had On-Bill cost effectiveness. The addition of a battery slightly reduces cost effectiveness.

In all-electric packages, the results for most climate zones were found cost effective using both TDV and On-Bill approaches with larger PV systems or PV+Battery systems. Most 3 kW PV systems were also found to be cost effective except in some scenarios analyzing the Medium Office using the On-Bill method. CZ16 results continue to show challenges being cost effective with all electric buildings, likely due to the high heating loads in this climate. The addition of a battery slightly reduces the cost effectiveness for all-electric buildings with PV.



Figure 38. Cost Effectiveness for Medium Office - PV and Battery

CZ	PV Battery Utility	Mixed Fuel								All-Electric							
		3kW		3kW		135kW		135kW		3kW		3kW		135kW		135kW	
		0		5kWh		0		50kWh		0		5kWh		0		50kWh	
		On-Bill	TDV	On-Bill	TDV	On-Bill	TDV	On-Bill	TDV	On-Bill	TDV	On-Bill	TDV	On-Bill	TDV	On-Bill	TDV
CZ01	PG&E	2.8	1.5	1.7	0.9	1.7	1.3	1.6	1.2	0.9	1.6	0.9	1.6	2.5	2.0	2.1	1.7
CZ02	PG&E	3.7	1.9	2.1	1.1	2.2	1.6	2.0	1.4	0.8	2.2	0.9	2.6	3.2	2.4	2.7	2.1
CZ03	PG&E	3.7	1.8	2.2	1.0	2.1	1.5	1.9	1.4	1.9	3.9	2.0	4.0	3.4	2.5	2.9	2.2
CZ04	PG&E	3.6	2.0	2.1	1.2	2.3	1.6	2.1	1.5	0.9	2.1	1.1	2.7	3.3	2.5	2.9	2.2
CZ04-2	CPAU	2.1	2.0	1.3	1.2	1.8	1.6	1.6	1.5	7.7	2.1	9.8	2.7	2.9	2.5	2.5	2.2
CZ05	PG&E	4.2	1.9	2.4	1.1	2.5	1.6	2.3	1.5	1.8	2.7	1.9	2.7	4.0	2.7	3.4	2.3
CZ05-2	SCG	4.2	1.9	2.4	1.1	2.5	1.6	2.3	1.5	>1	>1	>1	>1	>1	3.0	9.4	2.6
CZ06	SCE	2.0	2.0	1.2	1.1	1.3	1.6	1.2	1.5	>1	7.2	>1	8.2	2.4	2.7	2.1	2.3
CZ06-2	LA	1.2	2.0	0.7	1.1	0.8	1.6	0.7	1.5	>1	7.2	>1	8.2	1.5	2.7	1.3	2.3
CZ07	SDG&E	3.2	2.0	1.9	1.2	2.1	1.6	1.9	1.5	>1	>1	>1	>1	3.7	2.7	3.2	2.3
CZ08	SCE	1.9	2.0	1.1	1.2	1.3	1.7	1.2	1.5	>1	>1	>1	>1	2.2	2.7	1.9	2.4
CZ08-2	LA	1.2	2.0	0.7	1.2	0.7	1.7	0.7	1.5	>1	>1	>1	>1	1.3	2.7	1.1	2.4
CZ09	SCE	1.9	2.0	1.1	1.2	1.3	1.7	1.2	1.5	>1	>1	>1	>1	2.2	2.6	1.9	2.3
CZ09-2	LA	1.1	2.0	0.7	1.2	0.7	1.7	0.7	1.5	>1	>1	>1	>1	1.3	2.6	1.2	2.3
CZ10	SDG&E	3.8	1.9	2.2	1.1	2.1	1.6	1.9	1.5	>1	3.3	>1	6.3	3.3	2.3	2.9	2.0
CZ10-2	SCE	2.1	1.9	1.2	1.1	1.3	1.6	1.2	1.5	>1	3.3	>1	6.3	2.0	2.3	1.8	2.0
CZ11	PG&E	3.6	1.9	2.1	1.1	2.2	1.6	2.0	1.5	1.1	2.6	1.5	3.6	3.2	2.4	2.8	2.1
CZ12	PG&E	3.5	1.9	2.1	1.1	2.2	1.6	2.0	1.5	0.9	2.5	1.2	3.2	3.1	2.4	2.7	2.1
CZ12-2	SMUD	1.4	1.9	0.8	1.1	1.1	1.6	1.04	1.5	>1	2.5	>1	3.2	1.9	2.4	1.6	2.1
CZ13	PG&E	3.5	1.8	2.0	1.1	2.2	1.5	2.0	1.4	1.1	2.5	1.5	3.6	3.1	2.3	2.7	2.0
CZ14	SDG&E	3.4	2.3	2.0	1.3	2.2	1.9	2.0	1.7	>1	2.3	>1	3.1	3.6	2.8	3.2	2.5
CZ14-2	SCE	1.9	2.3	1.1	1.3	1.3	1.9	1.2	1.7	>1	2.3	>1	3.1	2.2	2.8	1.9	2.5
CZ15	SCE	1.8	2.1	1.1	1.2	1.2	1.7	1.1	1.6	>1	7.5	>1	>1	1.8	2.4	1.6	2.1
CZ16	PG&E	3.9	2.0	2.3	1.1	2.3	1.6	2.1	1.5	0.3	0.4	0.4	0.6	2.5	1.8	2.2	1.6
CZ16-2	LA	1.2	2.0	0.7	1.1	0.7	1.6	0.7	1.5	>1	0.4	>1	0.6	1.3	1.8	1.2	1.6



Figure 39. Cost Effectiveness for Medium Retail - PV and Battery

CZ		Mixed Fuel								All-Electric							
		3kW		3kW		90 kW		90 kW		3kW		3kW		90 kW		90 kW	
		0		5kWh		0		50kWh		0		5kWh		0		50kWh	
		On-Bill	TDV	On-Bill	TDV	On-Bill	TDV	On-Bill	TDV	On-Bill	TDV	On-Bill	TDV	On-Bill	TDV	On-Bill	TDV
CZ01	PG&E	2.3	1.5	1.3	0.9	1.8	1.3	1.6	1.2	>1	3.0	>1	2.7	2.5	1.6	2.2	1.5
CZ02	PG&E	3.2	1.8	1.9	1.1	1.9	1.5	1.8	1.5	>1	>1	>1	>1	2.7	2.1	2.3	1.9
CZ03	PG&E	2.7	1.8	1.6	1.1	2.2	1.5	2.0	1.4	>1	>1	>1	>1	3.0	2.1	2.6	1.9
CZ04	PG&E	3.3	1.9	1.9	1.1	2.0	1.6	1.9	1.5	>1	>1	>1	>1	2.7	2.1	2.5	2.0
CZ04-2	CPAU	2.1	1.9	1.2	1.1	1.7	1.6	1.5	1.5	>1	>1	>1	>1	2.4	2.1	2.1	2.0
CZ05	PG&E	2.8	1.9	1.6	1.1	2.3	1.6	2.0	1.5	>1	>1	>1	>1	3.2	2.1	2.7	2.0
CZ05-2	SCG	2.8	1.9	1.6	1.1	2.3	1.6	2.0	1.5	>1	>1	>1	>1	3.7	1.9	3.2	1.6
CZ06	SCE	2.0	1.9	1.2	1.1	1.2	1.6	1.1	1.5	>1	>1	>1	>1	1.7	2.2	1.5	2.0
CZ06-2	LA	1.3	1.9	0.7	1.1	0.7	1.6	0.6	1.5	>1	>1	>1	>1	1.01	2.2	0.9	2.0
CZ07	SDG&E	4.0	2.0	2.4	1.2	1.5	1.6	1.6	1.6	>1	>1	>1	>1	2.4	2.3	2.3	2.1
CZ08	SCE	2.1	2.0	1.2	1.2	1.2	1.7	1.1	1.6	>1	>1	>1	>1	1.7	2.4	1.5	2.1
CZ08-2	LA	1.3	2.0	0.8	1.2	0.7	1.7	0.6	1.6	>1	>1	>1	>1	1.01	2.4	0.9	2.1
CZ09	SCE	2.0	2.0	1.2	1.2	1.2	1.7	1.1	1.5	>1	>1	>1	>1	1.8	2.4	1.6	2.1
CZ09-2	LA	1.2	2.0	0.7	1.2	0.7	1.7	0.7	1.5	>1	>1	>1	>1	1.1	2.4	0.99	2.1
CZ10	SDG&E	3.8	2.0	2.2	1.2	1.7	1.6	1.7	1.5	>1	>1	>1	>1	2.6	2.3	2.5	2.0
CZ10-2	SCE	2.0	2.0	1.2	1.2	1.2	1.6	1.1	1.5	>1	>1	>1	>1	1.8	2.3	1.6	2.0
CZ11	PG&E	2.8	1.9	1.6	1.1	1.9	1.6	1.8	1.5	>1	>1	>1	>1	2.7	2.3	2.5	2.1
CZ12	PG&E	3.0	1.9	1.7	1.1	1.9	1.6	1.8	1.5	>1	>1	>1	>1	2.7	2.3	2.5	2.1
CZ12-2	SMUD	1.5	1.9	0.9	1.1	1.1	1.6	0.997	1.5	>1	>1	>1	>1	1.7	2.3	1.4	2.1
CZ13	PG&E	3.0	1.9	1.7	1.1	1.9	1.6	1.8	1.4	>1	>1	>1	>1	2.7	2.2	2.4	1.9
CZ14	SDG&E	3.5	2.2	2.1	1.3	1.6	1.8	1.5	1.6	>1	>1	>1	>1	2.5	2.6	2.2	2.2
CZ14-2	SCE	1.8	2.2	1.1	1.3	1.2	1.8	1.1	1.6	>1	>1	>1	>1	1.7	2.6	1.5	2.2
CZ15	SCE	1.9	2.0	1.1	1.2	1.1	1.7	1.02	1.5	>1	>1	>1	>1	1.7	2.4	1.5	2.1
CZ16	PG&E	3.7	2.0	2.1	1.2	2.1	1.7	1.9	1.6	0.6	0.5	0.5	0.4	2.7	2.0	2.3	1.8
CZ16-2	LA	1.3	2.0	0.7	1.2	0.7	1.7	0.6	1.6	>1	0.5	>1	0.4	1.2	2.0	1.0	1.8



Figure 40. Cost Effectiveness for Small Hotel - PV and Battery

CZ		Mixed Fuel								All-Electric							
		3kW		3kW		80kW		80kW		3kW		3kW		80kW		80kW	
		0		5kWh		0		50kWh		0		5kWh		0		50kWh	
		On-Bill	TDV	On-Bill	TDV	On-Bill	TDV	On-Bill	TDV	On-Bill	TDV	On-Bill	TDV	On-Bill	TDV	On-Bill	TDV
CZ01	PG&E	2.3	1.5	1.3	0.9	1.9	1.2	1.6	1.1	2.3	>1	2.3	>1	4.8	>1	4.7	>1
CZ02	PG&E	2.3	1.9	1.3	1.1	1.8	1.5	1.6	1.4	5.6	>1	5.6	>1	>1	>1	>1	>1
CZ03	PG&E	2.7	1.8	1.6	1.05	2.3	1.5	1.9	1.4	4.2	>1	4.2	>1	>1	>1	>1	>1
CZ04	PG&E	2.4	1.9	1.4	1.1	1.8	1.6	1.6	1.5	6.2	>1	6.2	>1	>1	>1	>1	>1
CZ04-2	CPAU	2.1	1.9	1.2	1.1	1.7	1.6	1.5	1.5	>1	>1	>1	>1	>1	>1	>1	>1
CZ05	PG&E	2.9	1.9	1.7	1.1	2.4	1.6	2.0	1.5	3.9	>1	3.9	>1	>1	>1	>1	>1
CZ05-2	SCG	2.9	1.9	1.7	1.1	2.4	1.6	2.0	1.5	>1	>1	>1	>1	>1	>1	>1	>1
CZ06	SCE	1.8	1.9	1.1	1.1	1.1	1.6	0.9	1.4	>1	>1	>1	>1	>1	>1	>1	>1
CZ06-2	LA	1.1	1.9	0.7	1.1	0.7	1.6	0.6	1.4	>1	>1	>1	>1	>1	>1	>1	>1
CZ07	SDG&E	2.6	2.0	1.5	1.1	1.4	1.6	1.3	1.5	>1	>1	>1	>1	>1	>1	>1	>1
CZ08	SCE	1.9	2.0	1.1	1.2	1.2	1.7	1.0	1.5	>1	>1	>1	>1	>1	>1	>1	>1
CZ08-2	LA	1.2	2.0	0.7	1.2	0.7	1.7	0.6	1.5	>1	>1	>1	>1	>1	>1	>1	>1
CZ09	SCE	1.9	1.9	1.1	1.1	1.2	1.6	0.997	1.4	>1	>1	>1	>1	>1	>1	>1	>1
CZ09-2	LA	1.1	1.9	0.7	1.1	0.7	1.6	0.6	1.4	>1	>1	>1	>1	>1	>1	>1	>1
CZ10	SDG&E	2.9	1.9	1.7	1.1	1.5	1.6	1.4	1.4	8.2	>1	8.2	>1	>1	>1	>1	>1
CZ10-2	SCE	1.7	1.9	0.99	1.1	1.2	1.6	0.99	1.4	>1	>1	>1	>1	>1	>1	>1	>1
CZ11	PG&E	2.6	1.9	1.5	1.1	1.8	1.6	1.5	1.4	7.6	>1	7.6	>1	>1	>1	>1	>1
CZ12	PG&E	2.7	1.9	1.6	1.1	2.3	1.6	1.9	1.4	4.0	>1	4.0	>1	>1	>1	>1	>1
CZ12-2	SMUD	1.4	1.9	0.8	1.1	1.1	1.6	0.95	1.4	>1	>1	>1	>1	>1	>1	>1	>1
CZ13	PG&E	2.6	1.8	1.5	1.1	1.8	1.5	1.5	1.4	7.7	>1	7.7	>1	>1	>1	>1	>1
CZ14	SDG&E	3.0	2.2	1.7	1.3	1.7	1.8	1.5	1.6	4.2	>1	4.2	>1	>1	>1	>1	>1
CZ14-2	SCE	1.8	2.2	1.1	1.3	1.3	1.8	1.1	1.6	>1	>1	>1	>1	>1	>1	>1	>1
CZ15	SCE	1.7	2.0	1.002	1.2	1.2	1.7	1.003	1.4	>1	>1	>1	>1	>1	>1	>1	>1
CZ16	PG&E	2.7	2.0	1.6	1.2	1.9	1.6	1.7	1.5	2.1	5.7	2.1	5.6	5.8	>1	5.8	>1
CZ16-2	LA	1.02	2.0	0.6	1.2	0.6	1.6	0.6	1.5	>1	5.7	>1	5.6	>1	>1	>1	>1



5 Summary, Conclusions, and Further Considerations

The Reach Codes Team developed packages of energy efficiency measures as well as packages combining energy efficiency with PV generation and battery storage systems, simulated them in building modeling software, and gathered costs to determine the cost effectiveness of multiple scenarios. The Reach Codes team coordinated assumptions with multiple utilities, cities, and building community experts to develop a set of assumptions considered reasonable in the current market. Changing assumptions, such as the period of analysis, measure selection, cost assumptions, energy escalation rates, or utility tariffs are likely to change results.

5.1 Summary

Figure 41 through Figure 43 summarize results for each prototype and depict the compliance margins achieved for each climate zone and package. Because local reach codes must both exceed the Energy Commission performance budget (i.e., have a positive compliance margin) and be cost-effective, the Reach Code Team highlighted cells meeting these two requirements to help clarify the upper boundary for potential reach code policies:

- ◆ Cells highlighted in green depict a positive compliance margin and cost-effective results using both On-Bill and TDV approaches.
- ◆ Cells highlighted in yellow depict a positive compliance and cost-effective results using either the On-Bill or TDV approach.
- ◆ Cells not highlighted either depict a negative compliance margin or a package that was not cost effective using either the On-Bill or TDV approach.

For more detail on the results in the Figures, please refer to *Section 4 Results*. As described in Section 4.4, PV-only and PV+Battery packages in the mixed-fuel building were found to be cost effective across all prototypes, climate zones, and packages using the TDV approach, and results are not reiterated in the following figures.



Figure 41. Medium Office Summary of Compliance Margin and Cost Effectiveness

CZ	Utility	Mixed Fuel			All Electric			
		EE	EE + PV + B	HE	Fed Code	EE	EE + PV + B	HE
CZ01	PG&E	18%	18%	3%	-15%	7%	7%	-14%
CZ02	PG&E	17%	17%	4%	-7%	10%	10%	-5%
CZ03	PG&E	20%	20%	3%	-7%	16%	16%	-6%
CZ04	PG&E	14%	14%	5%	-6%	9%	9%	-3%
CZ04-2	CPAU	14%	14%	5%	-6%	9%	9%	-3%
CZ05	PG&E	18%	18%	4%	-8%	12%	12%	-6%
CZ05-2	SCG	18%	18%	4%	NA	NA	NA	NA
CZ06	SCE	20%	20%	3%	-4%	18%	18%	-2%
CZ06-2	LADWP	20%	20%	3%	-4%	18%	18%	-2%
CZ07	SDG&E	20%	20%	4%	-2%	20%	20%	1%
CZ08	SCE	18%	18%	4%	-2%	18%	18%	1%
CZ08-2	LADWP	18%	18%	4%	-2%	18%	18%	1%
CZ09	SCE	16%	16%	4%	-2%	15%	15%	2%
CZ09-2	LADWP	16%	16%	4%	-2%	15%	15%	2%
CZ10	SDG&E	17%	17%	4%	-4%	13%	13%	-1%
CZ10-2	SCE	17%	17%	4%	-4%	13%	13%	-1%
CZ11	PG&E	13%	13%	5%	-4%	10%	10%	0%
CZ12	PG&E	14%	14%	5%	-5%	10%	10%	-1%
CZ12-2	SMUD	14%	14%	5%	-5%	10%	10%	-1%
CZ13	PG&E	13%	13%	5%	-4%	9%	9%	0%
CZ14	SDG&E	14%	14%	5%	-5%	9%	9%	-1%
CZ14-2	SCE	14%	14%	5%	-5%	9%	9%	-1%
CZ15	SCE	12%	12%	5%	-2%	10%	10%	3%
CZ16	PG&E	14%	14%	5%	-27%	-15%	-15%	-26%
CZ16-2	LADWP	14%	14%	5%	-27%	-15%	-15%	-26%



Figure 42. Medium Retail Summary of Compliance Margin and Cost Effectiveness

CZ	Utility	Mixed Fuel			All Electric			
		EE	EE + PV + B	HE	Fed Code	EE	EE + PV + B	HE
CZ01	PG&E	18%	18%	2%	-4.1%	15%	15%	-2%
CZ02	PG&E	13%	13%	3%	-1.0%	13%	13%	3%
CZ03	PG&E	16%	16%	2%	-0.4%	16%	16%	2%
CZ04	PG&E	14%	14%	3%	-0.1%	14%	14%	3%
CZ04-2	CPAU	14%	14%	3%	-0.1%	14%	14%	3%
CZ05	PG&E	16%	16%	1%	-1.2%	15%	15%	1%
CZ05-2	SCG	16%	16%	1%	NA	NA	NA	NA
CZ06	SCE	10%	10%	3%	0.5%	11%	11%	3%
CZ06-2	LADWP	10%	10%	3%	0.5%	11%	11%	3%
CZ07	SDG&E	13%	13%	2%	0.3%	13%	13%	3%
CZ08	SCE	10%	10%	3%	0.4%	10%	10%	4%
CZ08-2	LADWP	10%	10%	3%	0.4%	10%	10%	4%
CZ09	SCE	10%	10%	4%	0.4%	10%	10%	4%
CZ09-2	LADWP	10%	10%	4%	0.4%	10%	10%	4%
CZ10	SDG&E	12%	12%	4%	0.1%	12%	12%	4%
CZ10-2	SCE	12%	12%	4%	0.1%	12%	12%	4%
CZ11	PG&E	13%	13%	4%	0.5%	12%	12%	5%
CZ12	PG&E	13%	13%	4%	-0.1%	12%	12%	4%
CZ12-2	SMUD	13%	13%	4%	-0.1%	12%	12%	4%
CZ13	PG&E	15%	15%	4%	-0.4%	14%	14%	4%
CZ14	SDG&E	13%	13%	4%	0.7%	15%	15%	5%
CZ14-2	SCE	13%	13%	4%	0.7%	15%	15%	5%
CZ15	SCE	12%	12%	5%	0.9%	12%	12%	6%
CZ16	PG&E	13%	13%	3%	-12.2%	3%	3%	-8%
CZ16-2	LADWP	13%	13%	3%	-12.2%	3%	3%	-8%



Figure 43. Small Hotel Summary of Compliance Margin and Cost Effectiveness

CZ	Utility	Mixed Fuel			All Electric			
		EE	EE + PV + B	HE	Fed Code	EE	EE + PV + B	HE
CZ01	PG&E	9%	9%	2%	-28%	1%	1%	-24%
CZ02	PG&E	7%	7%	3%	-12%	4%	4%	-11%
CZ03	PG&E	10%	10%	2%	-14%	6%	6%	-14%
CZ04	PG&E	6%	6%	2%	-13%	0.2%	0.2%	-13%
CZ04-2	CPAU	6%	6%	2%	-13%	0.2%	0.2%	-13%
CZ05	PG&E	9%	9%	2%	-15%	5%	5%	-15%
CZ05-2	SCG	9%	9%	2%	NA	NA	NA	NA
CZ06	SCE	8%	8%	2%	-5%	7%	7%	-15%
CZ06-2	LADWP	8%	8%	2%	-5%	7%	7%	-15%
CZ07	SDG&E	8%	8%	2%	-7%	7%	7%	-7%
CZ08	SCE	7%	7%	2%	-6%	3%	3%	-6%
CZ08-2	LADWP	7%	7%	2%	-6%	3%	3%	-6%
CZ09	SCE	6%	6%	3%	-6%	2%	2%	-4%
CZ09-2	LADWP	6%	6%	3%	-6%	2%	2%	-4%
CZ10	SDG&E	5%	5%	4%	-8%	2%	2%	-5%
CZ10-2	SCE	5%	5%	4%	-8%	2%	2%	-5%
CZ11	PG&E	4%	4%	4%	-10%	1%	1%	-7%
CZ12	PG&E	5%	5%	4%	-10%	2%	2%	-9%
CZ12-2	SMUD	5%	5%	4%	-10%	2%	2%	-9%
CZ13	PG&E	4%	4%	3%	-10%	0.3%	0.3%	-7%
CZ14	SDG&E	4%	4%	4%	-11%	0.1%	0.1%	-7%
CZ14-2	SCE	4%	4%	4%	-11%	0.1%	0.1%	-7%
CZ15	SCE	3%	3%	5%	-4%	2%	2%	0.04%
CZ16	PG&E	6%	6%	3%	-50%	-14%	-14%	-39%
CZ16-2	LADWP	6%	6%	3%	-50%	-14%	-14%	-39%

5.2 Conclusions and Further Considerations

Findings are specific to the scenarios analyzed under this specific methodology, and largely pertain to office, retail, and hotel-type occupancies. Nonresidential buildings constitute a wide variety of occupancy profiles and process loads, making findings challenging to generalize across multiple building types.

Findings indicate the following overall conclusions:

1. This study assumed that electrifying space heating and service water heating could eliminate natural gas infrastructure alone, because these were the only gas end-uses included the prototypes. Avoiding the installation of natural gas infrastructure results in significant cost savings and is a primary factor toward cost-effective outcomes in all-electric designs, even with necessary increases in electrical capacity.
2. There is ample opportunity for cost effective energy efficiency improvements, as demonstrated by the compliance margins achieved in many of the efficiency-only and efficiency + PV packages. Though much of the energy savings are attributable to lighting measures, efficiency measures selected for these prototypes are confined to the building systems that can be modeled. There is



likely further opportunity for energy savings through measures that cannot be currently demonstrated in compliance software, such as high-performance control sequences or variable speed parallel fan powered boxes.

3. High efficiency appliances triggering federal preemption do not achieve as high compliance margins as the other efficiency measures analyzed in this study. Cost effectiveness appears to be dependent on the system type and building type. Nonetheless, specifying high efficiency equipment will always be a key feature in integrated design.
4. Regarding the Small Hotel prototype:
 - a. The Small Hotel presents a challenging prototype to cost-effectively exceed the state's energy performance budget without efficiency measures. The Reach Code Team is uncertain of the precision of the results due to the inability to directly model either drain water heat recovery or a central heat pump water heater with a recirculation loop.
 - b. Hotel results may be applicable to high-rise (4 or more stories) multifamily buildings. Both hotel and multifamily buildings have the same or similar mandatory and prescriptive compliance options for hot water systems, lighting, and envelope. Furthermore, the Alternate Calculation Method Reference Manual specifies the same baseline HVAC system for both building types.
 - c. Hotel compliance margins were the lowest among the three building types analyzed, and thus the most conservative performance thresholds applicable to other nonresidential buildings not analyzed in this study. As stated previously, the varying occupancy and energy profiles of nonresidential buildings makes challenging to directly apply these results across all buildings.
5. Many all-electric and solar PV packages demonstrated greater GHG reductions than their mixed-fuel counterparts, contrary to TDV-based performance, suggesting a misalignment among the TDV metric and California's long-term GHG-reduction goals. The Energy Commission has indicated that they are aware of this issue and are seeking to address it.
6. Changes to the Nonresidential Alternative Calculation Method (ACM) Reference Manual can drastically impact results. Two examples include:
 - a. When performance modeling residential buildings, the Standard Design is electric if the Proposed Design is electric, which removes TDV-related penalties and associated negative compliance margins. This essentially allows for a compliance pathway for all-electric residential buildings. If nonresidential buildings were treated in the same way, all-electric cost effectiveness using the TDV approach would improve.
 - b. The baseline mixed-fuel system for a hotel includes a furnace in each guest room, which carries substantial plumbing costs and labor costs for assembly. A change in the baseline system would lead to different base case costs and different cost effectiveness outcomes.
7. All-electric federal code-minimum packages appear to be cost effective, largely due to avoided natural gas infrastructure, but in most cases do not comply with the Energy Commission's minimum performance budget (as described in item 7a above). For most cases it appears that adding cost-effective efficiency measures achieves compliance. All-electric nonresidential projects can leverage the initial cost savings of avoiding natural gas infrastructure by adding energy efficiency measures that would not be cost effective independently.

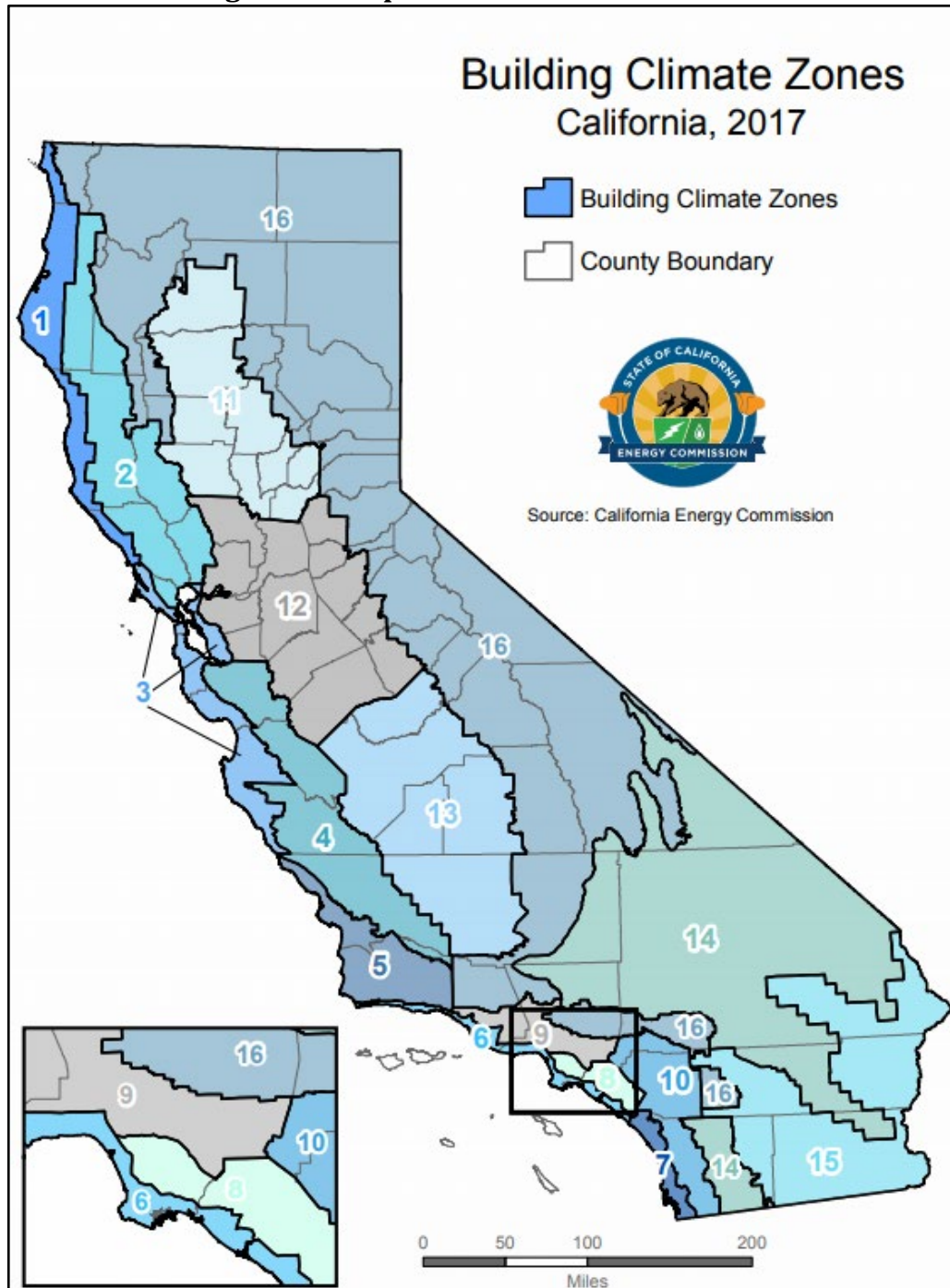
6 Appendices

6.1 Map of California Climate Zones

Climate zone geographical boundaries are depicted in Figure 44. The map in Figure 44 along with a zip-code search directory is available at:

https://ww2.energy.ca.gov/maps/renewable/building_climate_zones.html

Figure 44. Map of California Climate Zones



6.2 Lighting Efficiency Measures

Figure 45 details the applicability and impact of each lighting efficiency measure by prototype and space function and includes the resulting LPD that is modeled as the proposed by building type and by space function.

Figure 45. Impact of Lighting Measures on Proposed LPDs by Space Function

Space Function	Baseline	Impact				Modeled Proposed
	LPD (W/ft ²)	Interior Lighting Reduced LPD	Institutional Tuning	Daylight Dimming Plus OFF	Occupant Sensing in Open Office Plan	LPD (W/ft ²)
Medium Office						
Office Area (Open plan office) - Interior	0.65	15%	10%	-	17%	0.429
Office Area (Open plan office) - Perimeter	0.65	15%	5%	10%	30%	0.368
Medium Retail						
Commercial/Industrial Storage (Warehouse)	0.45	10%	5%	-	-	0.386
Main Entry Lobby	0.85	10%	5%	-	-	0.729
Retail Sales Area (Retail Merchandise Sales)	0.95	5%	5%	-	-	0.857
Small Hotel						
Commercial/Industrial Storage (Warehouse)	0.45	10%	5%	-	-	0.386
Convention, Conference, Multipurpose, and Meeting	0.85	10%	5%	-	-	0.729
Corridor Area	0.60	10%	5%	-	-	0.514
Exercise/Fitness Center and Gymnasium Areas	0.50	10%	-	-	-	0.450
Laundry Area	0.45	10%	-	-	-	0.405
Lounge, Breakroom, or Waiting Area	0.65	10%	5%	-	-	0.557
Mechanical	0.40	10%	-	-	-	0.360
Office Area (>250 ft ²)	0.65	10%	5%	-	-	0.557

6.3 Drain Water Heat Recovery Measure Analysis

To support potential DWHR savings in the Small Hotel prototype, the Reach Code Team modeled the drain water heat recovery measure in CBECC-Res 2019 in the all-electric and mixed fuel 6,960 ft² prototype residential buildings. The Reach Code Team assumed one heat recovery device for every three showers assuming unequal flow to the shower. Based on specifications from three different drain water heat recovery device manufacturers for device effectiveness in hotel applications, the team assumed a heat recovery efficiency of 50 percent.

The Reach Code Team modeled mixed fuel and all-electric residential prototype buildings both with and without heat recovery in each climate zone. Based on these model results, the Reach Code Team determined the percentage savings of domestic water heating energy in terms of gas, electricity, and TDV for mixed fuel and all-electric, in each climate zone. The Reach Code Team then applied the savings



percentages to the Small Hotel prototype domestic water heating energy in both the mixed-fuel and all-electric to determine energy savings for the drain water heat recovery measure in the Small Hotel. The Reach Code Team applied volumetric energy rates to estimate on-bill cost impacts from this measure.

6.4 Utility Rate Schedules

The Reach Codes Team used the IOU and POU rates depicted in Figure 46 to determine the On-Bill savings for each prototype.

Figure 46. Utility Tariffs Analyzed Based on Climate Zone – Detailed View

Climate Zones	Electric / Gas Utility	Electricity (Time-of-use)			Natural Gas
		Medium Office	Medium Retail	Small Hotel	All Prototypes
CZ01	PG&E	A-10	A-1	A-1 or A-10	G-NR1
CZ02	PG&E	A-10	A-10	A-1 or A-10	G-NR1
CZ03	PG&E	A-10	A-1 or A-10	A-1 or A-10	G-NR1
CZ04	PG&E	A-10	A-10	A-1 or A-10	G-NR1
CZ04-2	CPAU/PG&E	E-2	E-2	E-2	G-NR1
CZ05	PG&E	A-10	A-1	A-1 or A-10	G-NR1
CZ05-2	PG&E/SCG	A-10	A-1	A-1 or A-10	G-10 (GN-10)
CZ06	SCE/SCG	TOU-GS-2	TOU-GS-2	TOU-GS-2 or TOU-GS-3	G-10 (GN-10)
CZ06	LADWP/SCG	TOU-GS-2	TOU-GS-2	TOU-GS-2 or TOU-GS-3	G-10 (GN-10)
CZ07	SDG&E	AL-TOU+EECC (AL-TOU)	AL-TOU+EECC (AL-TOU)	AL-TOU+EECC (AL-TOU)	GN-3
CZ08	SCE/SCG	TOU-GS-2	TOU-GS-2	TOU-GS-2 or TOU-GS-3	G-10 (GN-10)
CZ08-2	LADWP/SCG	A-2 (B)	A-2 (B)	A-2 (B)	G-10 (GN-10)
CZ09	SCE/SCG	TOU-GS-2	TOU-GS-2	TOU-GS-2 or TOU-GS-3	G-10 (GN-10)
CZ09-2	LADWP/SCG	A-2 (B)	A-2 (B)	A-2 (B)	G-10 (GN-10)
CZ10	SCE/SCG	TOU-GS-2	TOU-GS-2	TOU-GS-2	G-10 (GN-10)
CZ10-2	SDG&E	AL-TOU+EECC (AL-TOU)	AL-TOU+EECC (AL-TOU)	AL-TOU+EECC (AL-TOU)	GN-3
CZ11	PG&E	A-10	A-10	A-10	G-NR1
CZ12	PG&E	A-10	A-10	A-1 or A-10	G-NR1
CZ12-2	SMUD/PG&E	GS	GS	GS	G-NR1
CZ13	PG&E	A-10	A-10	A-10	G-NR1
CZ14	SCE/SCG	TOU-GS-3	TOU-GS-3	TOU-GS-3	G-10 (GN-10)
CZ14-2	SDG&E	AL-TOU+EECC (AL-TOU)	AL-TOU+EECC (AL-TOU)	AL-TOU+EECC (AL-TOU)	GN-3
CZ15	SCE/SCG	TOU-GS-3	TOU-GS-2	TOU-GS-2	G-10 (GN-10)
CZ16	PG&E	A-10	A-10	A-1 or A-10	G-NR1
CZ16-2	LADWP/SCG	A-2 (B)	A-2 (B)	A-2 (B)	G-10 (GN-10)



6.5 Mixed Fuel Baseline Energy Figures

Figures 47 to 49 show the annual electricity and natural gas consumption and cost, compliance TDV, and GHG emissions for each prototype under the mixed fuel design baseline.

Figure 47. Medium Office – Mixed Fuel Baseline

Climate Zone	Utility	Electricity Consumption (kWh)	Natural Gas Consumption (Therms)	Electricity Cost	Natural Gas Cost	Compliance TDV	GHG Emissions (lbs)
Medium Office Mixed Fuel Baseline							
CZ01	PG&E	358,455	4,967	\$109,507	\$6,506	84	266,893
CZ02	PG&E	404,865	3,868	\$130,575	\$5,256	122	282,762
CZ03	PG&E	370,147	3,142	\$116,478	\$4,349	88	251,759
CZ04	PG&E	431,722	3,759	\$140,916	\$5,144	141	299,993
CZ04-2	CPAU	431,722	3,759	\$75,363	\$5,144	141	299,993
CZ05	PG&E	400,750	3,240	\$131,277	\$4,481	106	269,768
CZ05-2	SCG	400,750	3,240	\$131,277	\$3,683	106	269,768
CZ06	SCE	397,441	2,117	\$74,516	\$2,718	105	253,571
CZ06-2	LA	397,441	2,117	\$44,311	\$2,718	105	253,571
CZ07	SDG&E	422,130	950	\$164,991	\$4,429	118	257,324
CZ08	SCE	431,207	1,219	\$79,181	\$1,820	132	265,179
CZ08-2	LA	431,207	1,219	\$46,750	\$1,820	132	265,179
CZ09	SCE	456,487	1,605	\$86,190	\$2,196	155	287,269
CZ09-2	LA	456,487	1,605	\$51,111	\$2,196	155	287,269
CZ10	SDG&E	431,337	2,053	\$173,713	\$5,390	130	272,289
CZ10-2	SCE	431,337	2,053	\$80,636	\$2,603	130	272,289
CZ11	PG&E	464,676	3,062	\$150,520	\$4,333	163	310,307
CZ12	PG&E	441,720	3,327	\$142,902	\$4,647	152	299,824
CZ12-2	SMUD	441,720	3,327	\$65,707	\$4,647	152	299,824
CZ13	PG&E	471,540	3,063	\$150,919	\$4,345	161	316,228
CZ14	SDG&E	467,320	3,266	\$185,812	\$6,448	165	314,258
CZ14-2	SCE	467,320	3,266	\$92,071	\$3,579	165	314,258
CZ15	SCE	559,655	1,537	\$105,388	\$2,058	211	347,545
CZ16	PG&E	405,269	6,185	\$127,201	\$8,056	116	312,684
CZ16-2	LA	405,269	6,185	\$43,115	\$8,056	116	312,684



Figure 48. Medium Retail – Mixed Fuel Baseline

Climate Zone	Utility	Electricity Consumption (kWh)	Natural Gas Consumption (Therms)	Electricity Cost	Natural Gas Cost	Compliance TDV	GHG Emissions (lbs)
Medium Retail Mixed Fuel Baseline							
CZ01	PG&E	184,234	3,893	\$43,188	\$5,247	155	156,972
CZ02	PG&E	214,022	2,448	\$70,420	\$3,572	202	157,236
CZ03	PG&E	199,827	1,868	\$47,032	\$2,871	165	140,558
CZ04	PG&E	208,704	1,706	\$66,980	\$2,681	187	143,966
CZ04-2	CPAU	208,704	1,706	\$36,037	\$2,681	187	143,966
CZ05	PG&E	195,864	1,746	\$45,983	\$2,697	155	135,849
CZ05-2	SCG	195,864	1,746	\$45,983	\$2,342	155	135,849
CZ06	SCE	211,123	1,002	\$36,585	\$1,591	183	135,557
CZ06-2	LA	211,123	1,002	\$21,341	\$1,591	183	135,557
CZ07	SDG&E	211,808	522	\$75,486	\$4,055	178	130,436
CZ08	SCE	212,141	793	\$36,758	\$1,373	190	133,999
CZ08-2	LA	212,141	793	\$21,436	\$1,373	190	133,999
CZ09	SCE	227,340	970	\$40,083	\$1,560	218	146,680
CZ09-2	LA	227,340	970	\$23,487	\$1,560	218	146,680
CZ10	SDG&E	235,465	1,262	\$87,730	\$4,700	228	154,572
CZ10-2	SCE	235,465	1,262	\$41,000	\$1,853	228	154,572
CZ11	PG&E	234,560	2,415	\$76,670	\$3,547	244	170,232
CZ12	PG&E	228,958	2,309	\$75,084	\$3,426	234	165,133
CZ12-2	SMUD	228,958	2,309	\$32,300	\$3,426	234	165,133
CZ13	PG&E	242,927	1,983	\$81,995	\$3,034	258	170,345
CZ14	SDG&E	264,589	1,672	\$97,581	\$5,059	277	178,507
CZ14-2	SCE	264,589	1,672	\$46,217	\$2,172	277	178,507
CZ15	SCE	290,060	518	\$50,299	\$1,083	300	179,423
CZ16	PG&E	212,204	4,304	\$67,684	\$5,815	197	180,630
CZ16-2	LA	212,204	4,304	\$20,783	\$5,815	197	180,630



Figure 49. Small Hotel – Mixed Fuel Baseline

Climate Zone	Utility	Electricity Consumption (kWh)	Natural Gas Consumption (Therms)	Electricity Cost	Natural Gas Cost	Compliance TDV	GHG Emissions (lbs)
Small Hotel Mixed Fuel Baseline							
CZ01	PG&E	177,734	16,936	40,778	20,465	110	340,491
CZ02	PG&E	189,319	12,696	53,396	15,664	110	293,056
CZ03	PG&E	183,772	12,341	42,325	15,210	98	284,217
CZ04	PG&E	187,482	11,945	52,118	14,806	106	281,851
CZ04-2	CPAU	187,482	11,945	32,176	14,806	106	281,851
CZ05	PG&E	187,150	11,979	43,182	14,733	98	281,183
CZ05-2	SCG	187,150	11,979	43,182	10,869	98	281,183
CZ06	SCE	191,764	8,931	28,036	8,437	98	244,664
CZ06-2	LA	191,764	8,931	16,636	8,437	98	244,664
CZ07	SDG&E	189,174	8,207	58,203	10,752	90	233,884
CZ08	SCE	190,503	8,372	27,823	7,991	94	236,544
CZ08-2	LA	190,503	8,372	16,555	7,991	94	236,544
CZ09	SCE	198,204	8,421	30,262	8,030	103	242,296
CZ09-2	LA	198,204	8,421	17,951	8,030	103	242,296
CZ10	SDG&E	215,364	8,437	71,713	10,926	122	255,622
CZ10-2	SCE	215,364	8,437	33,736	8,043	122	255,622
CZ11	PG&E	219,852	10,271	63,724	12,882	131	282,232
CZ12	PG&E	199,499	10,422	46,245	13,022	115	270,262
CZ12-2	SMUD	199,499	10,422	26,872	13,022	115	270,262
CZ13	PG&E	226,925	10,048	65,559	12,629	132	284,007
CZ14	SDG&E	226,104	10,075	73,621	12,167	134	283,287
CZ14-2	SCE	226,104	10,075	35,187	9,350	134	283,287
CZ15	SCE	280,595	5,598	42,852	5,777	152	260,378
CZ16	PG&E	191,231	17,618	51,644	21,581	127	358,590
CZ16-2	LA	191,231	17,618	16,029	21,581	127	358,590

6.6 Hotel TDV Cost Effectiveness with Propane Baseline

The Reach Codes Team further analyzed TDV cost effectiveness of the all-electric packages with a mixed-fuel design baseline using propane instead of natural gas. Results for each package are shown in Figure 50. through Figure 53. below.

All electric models compared to a propane baseline have positive compliance margins in all climate zones when compared to results using a natural gas baseline. Compliance margin improvement is roughly 30 percent, which also leads to improved cost effectiveness for the all-electric packages. These outcomes are likely due to the TDV penalty associated with propane when compared to natural gas.



Across packages, TDV cost effectiveness with a propane baseline follows similar trends as the natural gas baseline. Adding efficiency measures increased compliance margins by 3 to 10 percent depending on climate zone, while adding high efficiency HVAC and SHW equipment alone increased compliance margins by smaller margins of about 2 to 4 percent compared to the All-Electric package.

Figure 50. TDV Cost Effectiveness for Small Hotel, Propane Baseline – Package 2 All-Electric Federal Code Minimum

Climate Zone	Compliance Margin (%)	Incremental Package Cost	\$-TDV Savings	B/C Ratio (TDV)	NPV (TDV)
CZ01	-4%	(\$1,271,869)	(\$28,346)	44.9	\$1,243,523
CZ02	27%	(\$1,272,841)	\$170,263	>1	\$1,443,104
CZ03	-3%	(\$1,275,114)	(\$16,425)	77.6	\$1,258,689
CZ04	26%	(\$1,274,949)	\$155,466	>1	\$1,430,414
CZ05	27%	(\$1,275,002)	\$154,709	>1	\$1,429,710
CZ06	17%	(\$1,275,143)	\$126,212	>1	\$1,401,355
CZ07	25%	(\$1,273,490)	\$117,621	>1	\$1,391,111
CZ08	24%	(\$1,271,461)	\$122,087	>1	\$1,393,548
CZ09	23%	(\$1,273,259)	\$123,525	>1	\$1,396,784
CZ10	18%	(\$1,270,261)	\$109,522	>1	\$1,379,783
CZ11	19%	(\$1,271,070)	\$129,428	>1	\$1,400,498
CZ12	-4%	(\$1,272,510)	(\$26,302)	48.4	\$1,246,208
CZ13	18%	(\$1,270,882)	\$124,357	>1	\$1,395,239
CZ14	17%	(\$1,271,241)	\$117,621	>1	\$1,388,861
CZ15	-7%	(\$1,269,361)	(\$45,338)	28.0	\$1,224,023
CZ16	9%	(\$1,275,637)	\$68,272	>1	\$1,343,908



Figure 51. TDV Cost Effectiveness for Small Hotel, Propane Baseline – Package 3A (All-Electric + EE)

Climate Zone	Compliance Margin (%)	Incremental Package Cost	\$-TDV Savings	B/C Ratio (TDV)	NPV (TDV)
CZ01	35%	(\$1,250,898)	\$252,831	>1	\$1,503,729
CZ02	34%	(\$1,251,870)	\$217,238	>1	\$1,469,108
CZ03	37%	(\$1,254,142)	\$218,642	>1	\$1,472,784
CZ04	31%	(\$1,250,769)	\$191,393	>1	\$1,442,162
CZ05	36%	(\$1,254,031)	\$208,773	>1	\$1,462,804
CZ06	25%	(\$1,250,964)	\$159,714	>1	\$1,410,677
CZ07	32%	(\$1,249,311)	\$154,111	>1	\$1,403,422
CZ08	29%	(\$1,247,282)	\$146,536	>1	\$1,393,818
CZ09	27%	(\$1,249,080)	\$146,671	>1	\$1,395,751
CZ10	22%	(\$1,246,081)	\$134,477	>1	\$1,380,559
CZ11	23%	(\$1,246,891)	\$157,138	>1	\$1,404,029
CZ12	27%	(\$1,248,330)	\$167,945	>1	\$1,416,276
CZ13	22%	(\$1,246,703)	\$149,270	>1	\$1,395,973
CZ14	21%	(\$1,247,061)	\$145,269	>1	\$1,392,331
CZ15	14%	(\$1,245,182)	\$93,647	>1	\$1,338,829
CZ16	20%	(\$1,254,665)	\$154,035	>1	\$1,408,701

Figure 52. TDV Cost Effectiveness for Small Hotel, Propane Baseline – Package 3B (All-Electric + EE + PV)

Climate Zone	Compliance Margin (%)	Incremental Package Cost	\$-TDV Savings	B/C Ratio (TDV)	NPV (TDV)
CZ01	35%	(\$1,043,528)	\$511,688	>1	\$1,555,215
CZ02	34%	(\$1,044,500)	\$524,460	>1	\$1,568,960
CZ03	37%	(\$1,046,772)	\$518,485	>1	\$1,565,257
CZ04	31%	(\$1,043,399)	\$505,579	>1	\$1,548,978
CZ05	36%	(\$1,046,660)	\$526,668	>1	\$1,573,328
CZ06	25%	(\$1,043,594)	\$469,623	>1	\$1,513,216
CZ07	32%	(\$1,041,941)	\$471,513	>1	\$1,513,454
CZ08	29%	(\$1,039,912)	\$475,973	>1	\$1,515,885
CZ09	27%	(\$1,041,710)	\$467,971	>1	\$1,509,681
CZ10	22%	(\$1,038,711)	\$454,832	>1	\$1,493,543
CZ11	23%	(\$1,039,521)	\$474,844	>1	\$1,514,364
CZ12	27%	(\$1,040,960)	\$484,667	>1	\$1,525,627
CZ13	22%	(\$1,039,333)	\$454,108	>1	\$1,493,441
CZ14	21%	(\$1,039,691)	\$505,398	>1	\$1,545,090
CZ15	14%	(\$1,037,811)	\$423,879	>1	\$1,461,691
CZ16	20%	(\$1,047,295)	\$480,407	>1	\$1,527,702



Figure 53. TDV Cost Effectiveness for Small Hotel, Propane Baseline – Package 3C (All Electric + HE)

Climate Zone	Compliance Margin (%)	Incremental Package Cost	\$-TDV Savings	B/C Ratio (TDV)	NPV (TDV)
CZ01	27%	(\$1,256,423)	\$194,975	>1	\$1,451,398
CZ02	28%	(\$1,258,328)	\$177,378	>1	\$1,435,706
CZ03	28%	(\$1,263,867)	\$164,094	>1	\$1,427,961
CZ04	26%	(\$1,262,963)	\$155,314	>1	\$1,418,277
CZ05	26%	(\$1,263,327)	\$153,271	>1	\$1,416,598
CZ06	17%	(\$1,263,779)	\$122,011	>1	\$1,385,790
CZ07	24%	(\$1,260,844)	\$116,751	>1	\$1,377,594
CZ08	25%	(\$1,256,326)	\$122,995	>1	\$1,379,321
CZ09	24%	(\$1,260,223)	\$128,482	>1	\$1,388,706
CZ10	20%	(\$1,253,181)	\$121,595	>1	\$1,374,776
CZ11	21%	(\$1,254,613)	\$143,658	>1	\$1,398,271
CZ12	23%	(\$1,257,919)	\$142,901	>1	\$1,400,820
CZ13	21%	(\$1,254,386)	\$138,625	>1	\$1,393,011
CZ14	20%	(\$1,254,978)	\$136,430	>1	\$1,391,407
CZ15	14%	(\$1,251,932)	\$96,087	>1	\$1,348,019
CZ16	15%	(\$1,263,534)	\$122,011	>1	\$1,385,545



6.7 PV-only and PV+Battery-only Cost Effectiveness Results Details

The Reach Code Tea evaluated cost effectiveness of installing a PV system and battery storage in six different measure combinations over a 2019 code-compliant baseline for all climate zones. The baseline for all nonresidential buildings is a mixed-fuel design.

All mixed fuel models are compliant with 2019 Title24, whereas all electric models can show negative compliance. The compliance margin is the same as that of their respective federal minimum design and is not affected by addition of solar PV or battery. These scenarios evaluate the cost effectiveness of PV and/or battery measure individually. The climate zones where all-electric design is not compliant will have the flexibility to ramp up the efficiency of appliance or add another measure to be code compliant, as per package 1B and 3B in main body of the report. The large negative lifecycle costs in all electric packages are due to lower all-electric HVAC system costs and avoided natural gas infrastructure costs. This is commonly applied across all climate zones and packages over any additional costs for PV and battery.

6.7.1 Cost Effectiveness Results – Medium Office

Figure 54 through Figure 61 contain the cost-effectiveness findings for the Medium Office packages. Notable findings for each package include:

- ◆ **Mixed-Fuel + 3 kW PV Only:** All packages are cost effective using the On-Bill and TDV approaches.
- ◆ **Mixed-Fuel + 3 kW PV + 5 kWh Battery:** The packages are mostly cost effective on a TDV basis except in CZ1. As compared to the 3 kW PV only package, battery reduces cost effectiveness. This package is not cost effective for LADWP and SMUD territories using an On-Bill approach.
- ◆ **Mixed-Fuel + PV only:** The packages are less cost effective as compared to 3 kW PV packages in most climate zones. In areas served by LADWP, the B/C ratio is narrowly less than 1 and not cost effective.
- ◆ **Mixed-Fuel + PV + 50 kWh Battery:** The packages are cost effective in all climate zones except for in the areas served by LADWP. On-Bill and TDV B/C ratios are slightly lower compared to the PV only package.
- ◆ **All-Electric + 3 kW PV:** Packages are on-bill cost effective in ten of sixteen climate zones. Climate zones 1,2,4,12, and 16 were not found to be cost-effective from an on-bill perspective. These zones are within PG&E's service area. Packages are cost effective using TDV in all climate zones except CZ16.
- ◆ **All-Electric + 3 kW PV + 5 kWh Battery:** Packages are slightly more cost effective than the previous minimal PV only package. Packages are on-bill cost effective in most climate zones except for 1,2 and 16 from an on-bill perspective. These zones are within PG&E's service area. Packages are cost effective using TDV in all climate zones except CZ16.
- ◆ **All-Electric + PV only:** All packages are cost effective and achieve savings using the On-Bill and TDV approaches.



- ◆ **All-Electric + PV + 50 kWh Battery:** All packages are cost effective and achieve savings using the On-Bill and TDV approaches. On-Bill and TDV B/C ratios are slightly lower compared to the PV only package.



Figure 54. Cost Effectiveness for Medium Office - Mixed Fuel + 3kW PV

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	Lifecycle \$-TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Mixed Fuel + 3kW PV											
CZ01	PG&E	3,941	0	0.8	\$5,566	\$15,743	\$8,448	2.8	1.5	\$10,177	\$2,882
CZ02	PG&E	4,785	0	0.9	\$5,566	\$20,372	\$10,500	3.7	1.9	\$14,806	\$4,934
CZ03	PG&E	4,660	0	0.9	\$5,566	\$20,603	\$9,975	3.7	1.8	\$15,037	\$4,409
CZ04	PG&E	5,056	0	1.0	\$5,566	\$20,235	\$11,073	3.6	2.0	\$14,669	\$5,507
CZ04-2	CPAU	5,056	0	1.0	\$5,566	\$11,945	\$11,073	2.1	2.0	\$6,379	\$5,507
CZ05	PG&E	5,027	0	1.0	\$5,566	\$23,159	\$10,834	4.2	1.9	\$17,593	\$5,268
CZ06	SCE	4,853	0	0.9	\$5,566	\$10,968	\$10,930	2.0	2.0	\$5,402	\$5,364
CZ06-2	LADWP	4,853	0	0.9	\$5,566	\$6,575	\$10,930	1.2	2.0	\$1,009	\$5,364
CZ07	SDG&E	4,960	0	1.0	\$5,566	\$17,904	\$11,025	3.2	2.0	\$12,338	\$5,459
CZ08	SCE	4,826	0	0.9	\$5,566	\$10,768	\$11,359	1.9	2.0	\$5,202	\$5,793
CZ08-2	LADWP	4,826	0	0.9	\$5,566	\$6,503	\$11,359	1.2	2.0	\$937	\$5,793
CZ09	SCE	4,889	0	1.0	\$5,566	\$10,622	\$11,216	1.9	2.0	\$5,056	\$5,650
CZ09-2	LADWP	4,889	0	1.0	\$5,566	\$6,217	\$11,216	1.1	2.0	\$651	\$5,650
CZ10	SDG&E	4,826	0	0.9	\$5,566	\$21,280	\$10,787	3.8	1.9	\$15,714	\$5,221
CZ10-2	SCE	4,826	0	0.9	\$5,566	\$11,598	\$10,787	2.1	1.9	\$6,032	\$5,221
CZ11	PG&E	4,701	0	0.9	\$5,566	\$19,869	\$10,644	3.6	1.9	\$14,303	\$5,078
CZ12	PG&E	4,707	0	0.9	\$5,566	\$19,643	\$10,644	3.5	1.9	\$14,077	\$5,078
CZ12-2	SMUD	4,707	0	0.9	\$5,566	\$8,005	\$10,644	1.4	1.9	\$2,439	\$5,078
CZ13	PG&E	4,633	0	0.9	\$5,566	\$19,231	\$10,262	3.5	1.8	\$13,665	\$4,696
CZ14	SDG&E	5,377	0	1.0	\$5,566	\$18,789	\$12,600	3.4	2.3	\$13,223	\$7,034
CZ14-2	SCE	5,377	0	1.0	\$5,566	\$10,512	\$12,600	1.9	2.3	\$4,946	\$7,034
CZ15	SCE	5,099	0	1.0	\$5,566	\$10,109	\$11,550	1.8	2.1	\$4,543	\$5,984
CZ16	PG&E	5,096	0	1.0	\$5,566	\$21,836	\$10,882	3.9	2.0	\$16,270	\$5,316
CZ16-2	LADWP	5,096	0	1.0	\$5,566	\$6,501	\$10,882	1.2	2.0	\$935	\$5,316



Figure 55. Cost Effectiveness for Medium Office – Mixed Fuel + 3kW PV + 5 kWh Battery

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	\$-TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Mixed Fuel + 3kW PV + 5kWh Battery											
CZ01	PG&E	3,941	0	0.8	\$9,520	\$15,743	\$8,448	1.7	0.9	\$6,223	(\$1,072)
CZ02	PG&E	4,785	0	0.9	\$9,520	\$20,372	\$10,500	2.1	1.1	\$10,852	\$980
CZ03	PG&E	4,660	0	0.9	\$9,520	\$20,603	\$9,975	2.2	1.0	\$11,083	\$455
CZ04	PG&E	5,056	0	1.0	\$9,520	\$20,235	\$11,073	2.1	1.2	\$10,714	\$1,553
CZ04-2	CPAU	5,056	0	1.0	\$9,520	\$11,945	\$11,073	1.3	1.2	\$2,425	\$1,553
CZ05	PG&E	5,027	0	1.0	\$9,520	\$23,159	\$10,834	2.4	1.1	\$13,639	\$1,314
CZ06	SCE	4,853	0	0.9	\$9,520	\$10,968	\$10,930	1.2	1.1	\$1,448	\$1,410
CZ06-2	LADWP	4,853	0	0.9	\$9,520	\$6,575	\$10,930	0.7	1.1	(\$2,945)	\$1,410
CZ07	SDG&E	4,960	0	1.0	\$9,520	\$17,904	\$11,025	1.9	1.2	\$8,384	\$1,505
CZ08	SCE	4,826	0	0.9	\$9,520	\$10,768	\$11,359	1.1	1.2	\$1,248	\$1,839
CZ08-2	LADWP	4,826	0	0.9	\$9,520	\$6,503	\$11,359	0.7	1.2	(\$3,017)	\$1,839
CZ09	SCE	4,889	0	1.0	\$9,520	\$10,622	\$11,216	1.1	1.2	\$1,102	\$1,696
CZ09-2	LADWP	4,889	0	1.0	\$9,520	\$6,217	\$11,216	0.7	1.2	(\$3,303)	\$1,696
CZ10	SDG&E	4,826	0	0.9	\$9,520	\$21,280	\$10,787	2.2	1.1	\$11,760	\$1,267
CZ10-2	SCE	4,826	0	0.9	\$9,520	\$11,598	\$10,787	1.2	1.1	\$2,078	\$1,267
CZ11	PG&E	4,701	0	0.9	\$9,520	\$19,869	\$10,644	2.1	1.1	\$10,349	\$1,123
CZ12	PG&E	4,707	0	0.9	\$9,520	\$19,643	\$10,644	2.1	1.1	\$10,123	\$1,123
CZ12-2	SMUD	4,707	0	0.9	\$9,520	\$8,005	\$10,644	0.8	1.1	(\$1,515)	\$1,123
CZ13	PG&E	4,633	0	0.9	\$9,520	\$19,231	\$10,262	2.0	1.1	\$9,711	\$742
CZ14	SDG&E	5,377	0	1.0	\$9,520	\$18,789	\$12,600	2.0	1.3	\$9,269	\$3,080
CZ14-2	SCE	5,377	0	1.0	\$9,520	\$10,512	\$12,600	1.1	1.3	\$992	\$3,080
CZ15	SCE	5,099	0	1.0	\$9,520	\$10,109	\$11,550	1.1	1.2	\$589	\$2,030
CZ16	PG&E	5,096	0	1.0	\$9,520	\$21,836	\$10,882	2.3	1.1	\$12,316	\$1,362
CZ16-2	LADWP	5,096	0	1.0	\$9,520	\$6,501	\$10,882	0.7	1.1	(\$3,019)	\$1,362



Figure 56. Cost Effectiveness for Medium Office – Mixed Fuel + 135kW PV

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	Lifecycle TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Mixed Fuel +135kW PV											
CZ01	PG&E	177,340	0	34.3	\$302,856	\$526,352	\$380,399	1.7	1.3	\$223,497	\$77,544
CZ02	PG&E	215,311	0	41.5	\$302,856	\$666,050	\$471,705	2.2	1.6	\$363,194	\$168,849
CZ03	PG&E	209,717	0	40.7	\$302,856	\$645,010	\$449,797	2.1	1.5	\$342,154	\$146,942
CZ04	PG&E	227,535	0	44.0	\$302,856	\$686,434	\$497,431	2.3	1.6	\$383,578	\$194,575
CZ04-2	CPAU	227,535	0	44.0	\$302,856	\$537,521	\$497,431	1.8	1.6	\$234,665	\$194,575
CZ05	PG&E	226,195	0	44.1	\$302,856	\$753,230	\$486,596	2.5	1.6	\$450,374	\$183,741
CZ06	SCE	218,387	0	42.3	\$302,856	\$401,645	\$492,515	1.3	1.6	\$98,789	\$189,659
CZ06-2	LADWP	218,387	0	42.3	\$302,856	\$233,909	\$492,515	0.8	1.6	(\$68,947)	\$189,659
CZ07	SDG&E	223,185	0	43.3	\$302,856	\$623,078	\$496,667	2.1	1.6	\$320,223	\$193,811
CZ08	SCE	217,171	0	42.0	\$302,856	\$389,435	\$510,270	1.3	1.7	\$86,579	\$207,414
CZ08-2	LADWP	217,171	0	42.0	\$302,856	\$222,066	\$510,270	0.7	1.7	(\$80,790)	\$207,414
CZ09	SCE	220,010	0	43.2	\$302,856	\$387,977	\$505,783	1.3	1.7	\$85,122	\$202,928
CZ09-2	LADWP	220,010	0	43.2	\$302,856	\$226,516	\$505,783	0.7	1.7	(\$76,340)	\$202,928
CZ10	SDG&E	217,148	0	42.5	\$302,856	\$632,726	\$485,451	2.1	1.6	\$329,870	\$182,595
CZ10-2	SCE	217,148	0	42.5	\$302,856	\$394,884	\$485,451	1.3	1.6	\$92,028	\$182,595
CZ11	PG&E	211,556	0	40.9	\$302,856	\$671,691	\$478,912	2.2	1.6	\$368,835	\$176,056
CZ12	PG&E	211,824	0	40.9	\$302,856	\$653,242	\$478,101	2.2	1.6	\$350,386	\$175,245
CZ12-2	SMUD	211,824	0	40.9	\$302,856	\$345,255	\$478,101	1.1	1.6	\$42,399	\$175,245
CZ13	PG&E	208,465	0	40.5	\$302,856	\$651,952	\$462,732	2.2	1.5	\$349,096	\$159,876
CZ14	SDG&E	241,965	0	46.7	\$302,856	\$659,487	\$566,351	2.2	1.9	\$356,632	\$263,496
CZ14-2	SCE	241,965	0	46.7	\$302,856	\$401,712	\$566,351	1.3	1.9	\$98,856	\$263,496
CZ15	SCE	229,456	0	43.9	\$302,856	\$378,095	\$520,102	1.2	1.7	\$75,239	\$217,246
CZ16	PG&E	229,317	0	44.8	\$302,856	\$707,095	\$489,508	2.3	1.6	\$404,239	\$186,652
CZ16-2	LADWP	229,317	0	44.8	\$302,856	\$223,057	\$489,508	0.7	1.6	(\$79,799)	\$186,652



Figure 57. Cost Effectiveness for Medium Office – Mixed Fuel + 135kW PV + 50 kWh Battery

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	Lifecycle TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Mixed Fuel + 135kW PV + 50 kWh Battery											
CZ01	PG&E	176,903	0	35.3	\$330,756	\$525,948	\$381,450	1.6	1.2	\$195,192	\$50,694
CZ02	PG&E	214,861	0	42.6	\$330,756	\$665,864	\$472,898	2.0	1.4	\$335,108	\$142,142
CZ03	PG&E	209,255	0	41.8	\$330,756	\$644,170	\$451,611	1.9	1.4	\$313,414	\$120,855
CZ04	PG&E	227,076	0	45.0	\$330,756	\$685,605	\$502,108	2.1	1.5	\$354,849	\$171,352
CZ04-2	CPAU	227,076	0	45.0	\$330,756	\$536,463	\$502,108	1.6	1.5	\$205,707	\$171,352
CZ05	PG&E	225,752	0	45.1	\$330,756	\$753,558	\$487,742	2.3	1.5	\$422,803	\$156,986
CZ06	SCE	217,939	0	43.4	\$330,756	\$401,356	\$494,042	1.2	1.5	\$70,601	\$163,286
CZ06-2	LADWP	217,939	0	43.4	\$330,756	\$233,673	\$494,042	0.7	1.5	(\$97,083)	\$163,286
CZ07	SDG&E	222,746	0	44.4	\$330,756	\$628,383	\$498,147	1.9	1.5	\$297,627	\$167,391
CZ08	SCE	216,724	0	43.1	\$330,756	\$389,184	\$511,511	1.2	1.5	\$58,428	\$180,755
CZ08-2	LADWP	216,724	0	43.1	\$330,756	\$221,839	\$511,511	0.7	1.5	(\$108,917)	\$180,755
CZ09	SCE	219,563	0	44.2	\$330,756	\$387,728	\$506,929	1.2	1.5	\$56,972	\$176,173
CZ09-2	LADWP	219,563	0	44.2	\$330,756	\$226,303	\$506,929	0.7	1.5	(\$104,453)	\$176,173
CZ10	SDG&E	216,700	0	43.5	\$330,756	\$638,040	\$486,644	1.9	1.5	\$307,284	\$155,888
CZ10-2	SCE	216,700	0	43.5	\$330,756	\$394,633	\$486,644	1.2	1.5	\$63,877	\$155,888
CZ11	PG&E	211,129	0	41.9	\$330,756	\$670,932	\$481,298	2.0	1.5	\$340,177	\$150,543
CZ12	PG&E	211,386	0	41.9	\$330,756	\$652,465	\$482,826	2.0	1.5	\$321,709	\$152,070
CZ12-2	SMUD	211,386	0	41.9	\$330,756	\$344,668	\$482,826	1.0	1.5	\$13,913	\$152,070
CZ13	PG&E	208,045	0	41.5	\$330,756	\$651,191	\$473,280	2.0	1.4	\$320,435	\$142,524
CZ14	SDG&E	241,502	0	47.7	\$330,756	\$672,601	\$569,454	2.0	1.7	\$341,846	\$238,698
CZ14-2	SCE	241,502	0	47.7	\$330,756	\$401,450	\$569,454	1.2	1.7	\$70,694	\$238,698
CZ15	SCE	229,062	0	44.8	\$330,756	\$377,827	\$521,963	1.1	1.6	\$47,071	\$191,208
CZ16	PG&E	228,825	0	45.9	\$330,756	\$706,201	\$496,190	2.1	1.5	\$375,445	\$165,434
CZ16-2	LADWP	228,825	0	45.9	\$330,756	\$222,802	\$496,190	0.7	1.5	(\$107,953)	\$165,434



Figure 58. Cost Effectiveness for Medium Office– All-Electric + 3kW PV

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	Lifecycle TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
All-Electric + 3kW PV											
CZ01	PG&E	-49,716	4967	10.9	(\$80,523)	(\$84,765)	(\$49,972)	0.9	1.6	(\$4,242)	\$30,551
CZ02	PG&E	-44,899	3868	6.0	(\$66,965)	(\$83,115)	(\$30,928)	0.8	2.2	(\$16,150)	\$36,037
CZ03	PG&E	-31,226	3142	6.5	(\$75,600)	(\$39,441)	(\$19,617)	1.9	3.9	\$36,159	\$55,983
CZ04	PG&E	-43,772	3759	5.7	(\$62,282)	(\$70,999)	(\$29,496)	0.9	2.1	(\$8,717)	\$32,786
CZ04-2	CPAU	-43,772	3759	5.7	(\$62,282)	(\$8,050)	(\$29,496)	7.7	2.1	\$54,232	\$32,786
CZ05	PG&E	-35,504	3240	5.5	(\$77,773)	(\$42,559)	(\$29,162)	1.8	2.7	\$35,214	\$48,611
CZ06	SCE	-21,321	2117	4.0	(\$69,422)	\$35,862	(\$9,641)	>1	7.2	\$105,284	\$59,781
CZ06-2	LADWP	-21,321	2117	4.0	(\$69,422)	\$32,936	(\$9,641)	>1	7.2	\$102,358	\$59,781
CZ07	SDG&E	-7,943	950	1.9	(\$63,595)	\$64,781	(\$382)	>1	166.6	\$128,376	\$63,214
CZ08	SCE	-10,854	1219	2.5	(\$62,043)	\$28,651	(\$1,289)	>1	48.1	\$90,694	\$60,755
CZ08-2	LADWP	-10,854	1219	2.5	(\$62,043)	\$25,122	(\$1,289)	>1	48.1	\$87,165	\$60,755
CZ09	SCE	-14,878	1605	3.3	(\$56,372)	\$31,542	(\$3,246)	>1	17.4	\$87,913	\$53,126
CZ09-2	LADWP	-14,878	1605	3.3	(\$56,372)	\$28,145	(\$3,246)	>1	17.4	\$84,517	\$53,126
CZ10	SDG&E	-22,588	2053	3.1	(\$41,171)	\$59,752	(\$12,553)	>1	3.3	\$100,924	\$28,619
CZ10-2	SCE	-22,588	2053	3.1	(\$41,171)	\$32,039	(\$12,553)	>1	3.3	\$73,211	\$28,619
CZ11	PG&E	-35,455	3062	4.5	(\$57,257)	(\$53,776)	(\$22,194)	1.1	2.6	\$3,481	\$35,063
CZ12	PG&E	-38,704	3327	5.0	(\$61,613)	(\$66,808)	(\$24,819)	0.9	2.5	(\$5,195)	\$36,794
CZ12-2	SMUD	-38,704	3327	5.0	(\$61,613)	\$2,897	(\$24,819)	>1	2.5	\$64,510	\$36,794
CZ13	PG&E	-35,016	3063	4.7	(\$55,996)	(\$52,159)	(\$22,146)	1.1	2.5	\$3,836	\$33,849
CZ14	SDG&E	-38,945	3266	4.5	(\$58,426)	\$24,867	(\$25,821)	>1	2.3	\$83,293	\$32,605
CZ14-2	SCE	-38,945	3266	4.5	(\$58,426)	\$15,338	(\$25,821)	>1	2.3	\$73,764	\$32,605
CZ15	SCE	-14,818	1537	2.8	(\$29,445)	\$22,852	(\$3,914)	>1	7.5	\$52,298	\$25,532
CZ16	PG&E	-88,966	6185	6.6	(\$57,366)	(\$193,368)	(\$139,989)	0.3	0.4	(\$136,002)	(\$82,623)
CZ16-2	LADWP	-88,966	6185	6.6	(\$57,366)	\$36,354	(\$139,989)	>1	0.4	\$93,720	(\$82,623)



Figure 59. Cost Effectiveness for Medium Office – All-Electric + 3kW PV + 5 kWh Battery

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	\$-TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
All-Electric + 3kW PV + 5 kWh Battery											
CZ01	PG&E	-49,716	4967	10.9	(\$78,897)	(\$84,765)	(\$49,972)	0.9	1.6	(\$5,868)	\$28,925
CZ02	PG&E	-44,899	3868	6.0	(\$78,897)	(\$83,115)	(\$30,928)	0.9	2.6	(\$4,218)	\$47,969
CZ03	PG&E	-31,226	3142	6.5	(\$78,897)	(\$39,441)	(\$19,617)	2.0	4.0	\$39,456	\$59,280
CZ04	PG&E	-43,772	3759	5.7	(\$78,897)	(\$70,999)	(\$29,496)	1.1	2.7	\$7,898	\$49,400
CZ04-2	CPAU	-43,772	3759	5.7	(\$78,897)	(\$8,050)	(\$29,496)	9.8	2.7	\$70,847	\$49,400
CZ05	PG&E	-35,504	3240	5.5	(\$78,897)	(\$42,559)	(\$29,162)	1.9	2.7	\$36,338	\$49,735
CZ06	SCE	-21,321	2117	4.0	(\$78,897)	\$35,862	(\$9,641)	>1	8.2	\$114,759	\$69,256
CZ06-2	LADWP	-21,321	2117	4.0	(\$78,897)	\$32,936	(\$9,641)	>1	8.2	\$111,833	\$69,256
CZ07	SDG&E	-7,943	950	1.9	(\$78,897)	\$64,781	(\$382)	>1	206.6	\$143,678	\$78,515
CZ08	SCE	-10,854	1219	2.5	(\$78,897)	\$28,651	(\$1,289)	>1	61.2	\$107,548	\$77,608
CZ08-2	LADWP	-10,854	1219	2.5	(\$78,897)	\$25,122	(\$1,289)	>1	61.2	\$104,019	\$77,608
CZ09	SCE	-14,878	1605	3.3	(\$78,897)	\$31,542	(\$3,246)	>1	24.3	\$110,439	\$75,651
CZ09-2	LADWP	-14,878	1605	3.3	(\$78,897)	\$28,145	(\$3,246)	>1	24.3	\$107,042	\$75,651
CZ10	SDG&E	-22,588	2053	3.1	(\$78,897)	\$59,752	(\$12,553)	>1	6.3	\$138,649	\$66,344
CZ10-2	SCE	-22,588	2053	3.1	(\$78,897)	\$32,039	(\$12,553)	>1	6.3	\$110,936	\$66,344
CZ11	PG&E	-35,455	3062	4.5	(\$78,897)	(\$53,776)	(\$22,194)	1.5	3.6	\$25,121	\$56,703
CZ12	PG&E	-38,704	3327	5.0	(\$78,897)	(\$66,808)	(\$24,819)	1.2	3.2	\$12,089	\$54,078
CZ12-2	SMUD	-38,704	3327	5.0	(\$78,897)	\$2,897	(\$24,819)	>1	3.2	\$81,794	\$54,078
CZ13	PG&E	-35,016	3063	4.7	(\$78,897)	(\$52,159)	(\$22,146)	1.5	3.6	\$26,738	\$56,751
CZ14	SDG&E	-38,945	3266	4.5	(\$78,897)	\$24,867	(\$25,821)	>1	3.1	\$103,764	\$53,076
CZ14-2	SCE	-38,945	3266	4.5	(\$78,897)	\$15,338	(\$25,821)	>1	3.1	\$94,235	\$53,076
CZ15	SCE	-14,818	1537	2.8	(\$78,897)	\$22,852	(\$3,914)	>1	20.2	\$101,749	\$74,983
CZ16	PG&E	-88,966	6185	6.6	(\$78,897)	(\$193,368)	(\$139,989)	0.4	0.6	(\$114,472)	(\$61,092)
CZ16-2	LADWP	-88,966	6185	6.6	(\$78,897)	\$36,354	(\$139,989)	>1	0.6	\$115,250	(\$61,092)



Figure 60. Cost Effectiveness for Medium Office – All-Electric + 135kW PV

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	Lifecycle TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
All-Electric + 135kW PV											
CZ01	PG&E	123,683	4967	44.5	\$163,217	\$405,731	\$321,979	2.5	2.0	\$242,514	\$158,762
CZ02	PG&E	165,627	3868	46.6	\$176,775	\$562,528	\$430,276	3.2	2.4	\$385,753	\$253,501
CZ03	PG&E	173,831	3142	46.3	\$168,140	\$575,864	\$420,205	3.4	2.5	\$407,725	\$252,066
CZ04	PG&E	178,706	3759	48.7	\$181,458	\$601,431	\$456,861	3.3	2.5	\$419,973	\$275,403
CZ04-2	CPAU	178,706	3759	48.7	\$181,458	\$517,526	\$456,861	2.9	2.5	\$336,069	\$275,403
CZ05	PG&E	185,664	3240	48.6	\$165,967	\$664,842	\$446,600	4.0	2.7	\$498,875	\$280,633
CZ06	SCE	192,214	2117	45.3	\$174,317	\$423,657	\$471,944	2.4	2.7	\$249,340	\$297,626
CZ06-2	LADWP	192,214	2117	45.3	\$174,317	\$259,270	\$471,944	1.5	2.7	\$84,953	\$297,626
CZ07	SDG&E	210,282	950	44.3	\$180,145	\$669,979	\$485,260	3.7	2.7	\$489,834	\$305,115
CZ08	SCE	201,491	1219	43.5	\$181,696	\$407,277	\$497,622	2.2	2.7	\$225,580	\$315,925
CZ08-2	LADWP	201,491	1219	43.5	\$181,696	\$240,657	\$497,622	1.3	2.7	\$58,960	\$315,925
CZ09	SCE	200,242	1605	45.6	\$187,368	\$408,922	\$491,322	2.2	2.6	\$221,554	\$303,953
CZ09-2	LADWP	200,242	1605	45.6	\$187,368	\$248,452	\$491,322	1.3	2.6	\$61,084	\$303,953
CZ10	SDG&E	189,734	2053	44.7	\$202,568	\$667,551	\$462,111	3.3	2.3	\$464,982	\$259,543
CZ10-2	SCE	189,734	2053	44.7	\$202,568	\$412,659	\$462,111	2.0	2.3	\$210,091	\$259,543
CZ11	PG&E	171,399	3062	44.5	\$186,483	\$597,807	\$446,074	3.2	2.4	\$411,324	\$259,592
CZ12	PG&E	168,413	3327	45.0	\$182,127	\$571,758	\$442,638	3.1	2.4	\$389,632	\$260,511
CZ12-2	SMUD	168,413	3327	45.0	\$182,127	\$343,602	\$442,638	1.9	2.4	\$161,475	\$260,511
CZ13	PG&E	168,817	3063	44.3	\$187,744	\$581,964	\$430,324	3.1	2.3	\$394,220	\$242,580
CZ14	SDG&E	197,643	3266	50.1	\$185,314	\$667,762	\$527,930	3.6	2.8	\$482,449	\$342,616
CZ14-2	SCE	197,643	3266	50.1	\$185,314	\$408,424	\$527,930	2.2	2.8	\$223,110	\$342,616
CZ15	SCE	209,539	1537	45.7	\$214,294	\$390,267	\$504,638	1.8	2.4	\$175,972	\$290,343
CZ16	PG&E	135,255	6185	50.4	\$186,374	\$470,199	\$338,637	2.5	1.8	\$283,825	\$152,263
CZ16-2	LADWP	135,255	6185	50.4	\$186,374	\$250,807	\$338,637	1.3	1.8	\$64,433	\$152,263



Figure 61. Cost Effectiveness for Medium Office – All-Electric + 135kW PV + 50 kWh Battery

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	Lifecycle TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
All-Electric + 135kW PV + 50 kWh Battery											
CZ01	PG&E	123,280	4967	45.4	\$191,117	\$404,994	\$323,077	2.1	1.7	\$213,877	\$131,960
CZ02	PG&E	165,200	3868	47.7	\$204,675	\$561,747	\$431,469	2.7	2.1	\$357,072	\$226,795
CZ03	PG&E	173,384	3142	47.4	\$196,040	\$575,043	\$422,019	2.9	2.2	\$379,003	\$225,979
CZ04	PG&E	178,259	3759	49.8	\$209,358	\$600,621	\$461,634	2.9	2.2	\$391,263	\$252,276
CZ04-2	CPAU	178,259	3759	49.8	\$209,358	\$516,495	\$461,634	2.5	2.2	\$307,137	\$252,276
CZ05	PG&E	185,229	3240	49.7	\$193,867	\$664,046	\$447,793	3.4	2.3	\$470,179	\$253,926
CZ06	SCE	191,767	2117	46.5	\$202,217	\$423,369	\$473,519	2.1	2.3	\$221,152	\$271,301
CZ06-2	LADWP	191,767	2117	46.5	\$202,217	\$259,033	\$473,519	1.3	2.3	\$56,816	\$271,301
CZ07	SDG&E	209,848	950	45.4	\$208,045	\$675,307	\$486,787	3.2	2.3	\$467,262	\$278,743
CZ08	SCE	201,047	1219	44.7	\$209,596	\$407,027	\$498,910	1.9	2.4	\$197,430	\$289,314
CZ08-2	LADWP	201,047	1219	44.7	\$209,596	\$240,432	\$498,910	1.1	2.4	\$30,835	\$289,314
CZ09	SCE	199,802	1605	46.6	\$215,268	\$408,676	\$492,515	1.9	2.3	\$193,408	\$277,246
CZ09-2	LADWP	199,802	1605	46.6	\$215,268	\$248,242	\$492,515	1.2	2.3	\$32,974	\$277,246
CZ10	SDG&E	189,293	2053	45.7	\$230,468	\$672,867	\$463,352	2.9	2.0	\$442,399	\$232,884
CZ10-2	SCE	189,293	2053	45.7	\$230,468	\$412,412	\$463,352	1.8	2.0	\$181,944	\$232,884
CZ11	PG&E	170,987	3062	45.5	\$214,383	\$597,062	\$448,509	2.8	2.1	\$382,680	\$234,126
CZ12	PG&E	167,995	3327	46.0	\$210,027	\$571,002	\$447,411	2.7	2.1	\$360,975	\$237,384
CZ12-2	SMUD	167,995	3327	46.0	\$210,027	\$343,043	\$447,411	1.6	2.1	\$133,017	\$237,384
CZ13	PG&E	168,408	3063	45.3	\$215,644	\$581,225	\$440,920	2.7	2.0	\$365,580	\$225,275
CZ14	SDG&E	197,188	3266	51.2	\$213,214	\$680,893	\$531,080	3.2	2.5	\$467,679	\$317,866
CZ14-2	SCE	197,188	3266	51.2	\$213,214	\$408,166	\$531,080	1.9	2.5	\$194,952	\$317,866
CZ15	SCE	209,148	1537	46.6	\$242,194	\$390,000	\$506,499	1.6	2.1	\$147,806	\$264,305
CZ16	PG&E	134,809	6185	51.4	\$214,274	\$469,378	\$341,978	2.2	1.6	\$255,105	\$127,704
CZ16-2	LADWP	134,809	6185	51.4	\$214,274	\$250,580	\$341,978	1.2	1.6	\$36,306	\$127,704



6.7.2 **Cost Effectiveness Results – Medium Retail**

Figure 62 through Figure 69 contain the cost-effectiveness findings for the Medium Retail packages. Notable findings for each package include:

- ◆ **Mixed-Fuel + 3 kW PV:** Packages are cost effective and achieve savings for all climate zones using the On-Bill and TDV approaches.
- ◆ **Mixed-Fuel + 3 kW PV + 5 kWh Battery:** The packages are less cost effective as compared to the 3 kW PV only package and not cost effective for LADWP and SMUD service area.
- ◆ **Mixed-Fuel + PV only:** Packages achieve positive energy cost savings and are cost effective using the On-Bill approach for all climate zones except for LADWP territory (CZs 6, 8, 9 and 16). Packages achieve positive savings and are cost effective using the TDV approach for all climate zones.
- ◆ **Mixed Fuel + PV + 5 kWh Battery:** Adding battery slightly reduces On-Bill B/C ratios but is still cost effective for all climate zones except for LADWP territory. Packages achieve savings and cost effective using the TDV approach for all climate zones.
- ◆ **All-Electric + 3 kW PV:** Packages are cost effective using the On-Bill and TDV approach for all climate zones except for CZ16 under PG&E service.
- ◆ **All-Electric + 3 kW PV + 5 kWh Battery:** Similar to minimal PV only package, adding battery is cost effective as well using the On-Bill and TDV approach for all climate zones except for CZ16 under PG&E service.
- ◆ **All-Electric + PV only:** Packages are cost effective and achieve savings in all climate zones for both the On-Bill and TDV approaches
- ◆ **All-Electric + PV + 50 kWh Battery:** Adding battery slightly reduces B/C ratios for both the On-Bill and TDV approaches. Packages are not cost effective for all climate zones except CZ6, CZ8 and CZ9 under LADWP service area.



Figure 62. Cost Effectiveness for Medium Retail – Mixed-Fuel + 3kW PV

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	Lifecycle TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Mixed Fuel + 3kW PV											
CZ01	PG&E	3,941	0	0.76	\$5,566	\$12,616	\$8,460	2.3	1.5	\$7,050	\$2,894
CZ02	PG&E	4,685	0	0.91	\$5,566	\$17,635	\$10,262	3.2	1.8	\$12,069	\$4,696
CZ03	PG&E	4,733	0	0.92	\$5,566	\$15,146	\$10,152	2.7	1.8	\$9,580	\$4,586
CZ04	PG&E	4,834	0	0.94	\$5,566	\$18,519	\$10,614	3.3	1.9	\$12,953	\$5,048
CZ04-2	CPAU	4,834	0	0.94	\$5,566	\$11,507	\$10,614	2.1	1.9	\$5,941	\$5,048
CZ05	PG&E	4,910	0	0.95	\$5,566	\$15,641	\$10,548	2.8	1.9	\$10,075	\$4,982
CZ06	SCE	4,769	0	0.93	\$5,566	\$11,374	\$10,724	2.0	1.9	\$5,808	\$5,158
CZ06-2	LA	4,769	0	0.93	\$5,566	\$7,069	\$10,724	1.3	1.9	\$1,503	\$5,158
CZ07	SDG&E	4,960	0	0.96	\$5,566	\$22,452	\$11,031	4.0	2.0	\$16,886	\$5,465
CZ08	SCE	4,826	0	0.93	\$5,566	\$11,838	\$11,339	2.1	2.0	\$6,272	\$5,773
CZ08-2	LA	4,826	0	0.93	\$5,566	\$7,342	\$11,339	1.3	2.0	\$1,776	\$5,773
CZ09	SCE	4,889	0	0.96	\$5,566	\$11,187	\$11,229	2.0	2.0	\$5,621	\$5,663
CZ09-2	LA	4,889	0	0.96	\$5,566	\$6,728	\$11,229	1.2	2.0	\$1,162	\$5,663
CZ10	SDG&E	4,948	0	0.97	\$5,566	\$20,999	\$10,987	3.8	2.0	\$15,433	\$5,421
CZ10-2	SCE	4,948	0	0.97	\$5,566	\$11,384	\$10,987	2.0	2.0	\$5,818	\$5,421
CZ11	PG&E	4,718	0	0.91	\$5,566	\$15,381	\$10,680	2.8	1.9	\$9,815	\$5,114
CZ12	PG&E	4,707	0	0.91	\$5,566	\$16,442	\$10,614	3.0	1.9	\$10,876	\$5,048
CZ12-2	SMUD	4,707	0	0.91	\$5,566	\$8,247	\$10,614	1.5	1.9	\$2,681	\$5,048
CZ13	PG&E	4,750	0	0.92	\$5,566	\$16,638	\$10,592	3.0	1.9	\$11,072	\$5,026
CZ14	SDG&E	5,258	0	1.01	\$5,566	\$19,576	\$12,218	3.5	2.2	\$14,010	\$6,652
CZ14-2	SCE	5,258	0	1.01	\$5,566	\$10,227	\$12,218	1.8	2.2	\$4,661	\$6,652
CZ15	SCE	4,997	0	0.96	\$5,566	\$10,476	\$11,339	1.9	2.0	\$4,910	\$5,773
CZ16	PG&E	5,336	0	1.04	\$5,566	\$20,418	\$11,361	3.7	2.0	\$14,852	\$5,795
CZ16-2	LA	5,336	0	1.04	\$5,566	\$6,987	\$11,361	1.3	2.0	\$1,421	\$5,795



Figure 63. Cost Effectiveness for Medium Retail – Mixed Fuel + 3kW PV + 5 kWh Battery

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	\$-TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Mixed Fuel + 3kW PV + 5 kWh Battery											
CZ01	PG&E	3,941	0	0.76	\$9,520	\$12,616	\$8,460	1.3	0.9	\$3,096	(\$1,060)
CZ02	PG&E	4,685	0	0.91	\$9,520	\$17,635	\$10,262	1.9	1.1	\$8,115	\$742
CZ03	PG&E	4,733	0	0.92	\$9,520	\$15,146	\$10,152	1.6	1.1	\$5,626	\$632
CZ04	PG&E	4,834	0	0.94	\$9,520	\$18,519	\$10,614	1.9	1.1	\$8,999	\$1,094
CZ04-2	CPAU	4,834	0	0.94	\$9,520	\$11,507	\$10,614	1.2	1.1	\$1,987	\$1,094
CZ05	PG&E	4,910	0	0.95	\$9,520	\$15,641	\$10,548	1.6	1.1	\$6,120	\$1,028
CZ05-2	SCG	4,910	0	0.95	\$9,520	\$15,641	\$10,548	1.6	1.1	\$6,120	\$1,028
CZ06	SCE	4,769	0	0.93	\$9,520	\$11,374	\$10,724	1.2	1.1	\$1,854	\$1,204
CZ06-2	LA	4,769	0	0.93	\$9,520	\$7,069	\$10,724	0.7	1.1	(\$2,452)	\$1,204
CZ07	SDG&E	4,960	0	0.96	\$9,520	\$22,452	\$11,031	2.4	1.2	\$12,932	\$1,511
CZ08	SCE	4,826	0	0.93	\$9,520	\$11,838	\$11,339	1.2	1.2	\$2,317	\$1,819
CZ08-2	LA	4,826	0	0.93	\$9,520	\$7,342	\$11,339	0.8	1.2	(\$2,178)	\$1,819
CZ09	SCE	4,889	0	0.96	\$9,520	\$11,187	\$11,229	1.2	1.2	\$1,667	\$1,709
CZ09-2	LA	4,889	0	0.96	\$9,520	\$6,728	\$11,229	0.7	1.2	(\$2,792)	\$1,709
CZ10	SDG&E	4,948	0	0.97	\$9,520	\$20,999	\$10,987	2.2	1.2	\$11,479	\$1,467
CZ10-2	SCE	4,948	0	0.97	\$9,520	\$11,384	\$10,987	1.2	1.2	\$1,863	\$1,467
CZ11	PG&E	4,718	0	0.91	\$9,520	\$15,381	\$10,680	1.6	1.1	\$5,861	\$1,160
CZ12	PG&E	4,707	0	0.91	\$9,520	\$16,442	\$10,614	1.7	1.1	\$6,922	\$1,094
CZ12-2	SMUD	4,707	0	0.91	\$9,520	\$8,247	\$10,614	0.9	1.1	(\$1,273)	\$1,094
CZ13	PG&E	4,750	0	0.92	\$9,520	\$16,638	\$10,592	1.7	1.1	\$7,117	\$1,072
CZ14	SDG&E	5,258	0	1.01	\$9,520	\$19,576	\$12,218	2.1	1.3	\$10,056	\$2,698
CZ14-2	SCE	5,258	0	1.01	\$9,520	\$10,227	\$12,218	1.1	1.3	\$707	\$2,698
CZ15	SCE	4,997	0	0.96	\$9,520	\$10,476	\$11,339	1.1	1.2	\$956	\$1,819
CZ16	PG&E	5,336	0	1.04	\$9,520	\$20,418	\$11,361	2.1	1.2	\$10,898	\$1,841
CZ16-2	LA	5,336	0	1.04	\$9,520	\$6,987	\$11,361	0.7	1.2	(\$2,533)	\$1,841



Figure 64. Cost Effectiveness for Medium Retail – Mixed-Fuel + 110kW PV

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	Lifecycle TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Mixed Fuel + 110kW PV											
CZ01	PG&E	144,499	0	27.97	\$201,904	\$454,462	\$309,935	2.3	1.5	\$252,558	\$108,031
CZ02	PG&E	171,790	0	33.31	\$201,904	\$477,584	\$376,300	2.4	1.9	\$275,681	\$174,396
CZ03	PG&E	173,534	0	33.55	\$201,904	\$538,530	\$372,146	2.7	1.8	\$336,626	\$170,243
CZ04	PG&E	177,229	0	34.42	\$201,904	\$489,934	\$389,067	2.4	1.9	\$288,030	\$187,163
CZ04-2	CPAU	177,229	0	34.42	\$201,904	\$418,173	\$389,067	2.1	1.9	\$216,269	\$187,163
CZ05	PG&E	180,044	0	34.84	\$201,904	\$556,787	\$386,958	2.8	1.9	\$354,883	\$185,054
CZ06	SCE	174,855	0	33.92	\$201,904	\$288,188	\$393,198	1.4	1.9	\$86,284	\$191,295
CZ06-2	LA	174,855	0	33.92	\$201,904	\$165,538	\$393,198	0.8	1.9	(\$36,366)	\$191,295
CZ07	SDG&E	181,854	0	35.32	\$201,904	\$373,974	\$404,713	1.9	2.0	\$172,070	\$202,809
CZ08	SCE	176,954	0	34.23	\$201,904	\$284,481	\$415,789	1.4	2.1	\$82,577	\$213,885
CZ08-2	LA	176,954	0	34.23	\$201,904	\$161,366	\$415,789	0.8	2.1	(\$40,538)	\$213,885
CZ09	SCE	179,267	0	35.18	\$201,904	\$289,050	\$412,097	1.4	2.0	\$87,146	\$210,193
CZ09-2	LA	179,267	0	35.18	\$201,904	\$168,822	\$412,097	0.8	2.0	(\$33,082)	\$210,193
CZ10	SDG&E	181,443	0	35.41	\$201,904	\$410,310	\$402,999	2.0	2.0	\$208,406	\$201,095
CZ10-2	SCE	181,443	0	35.41	\$201,904	\$291,236	\$402,999	1.4	2.0	\$89,332	\$201,095
CZ11	PG&E	172,983	0	33.46	\$201,904	\$464,776	\$391,550	2.3	1.9	\$262,872	\$189,646
CZ12	PG&E	172,597	0	33.33	\$201,904	\$467,870	\$389,573	2.3	1.9	\$265,966	\$187,669
CZ12-2	SMUD	172,597	0	33.33	\$201,904	\$267,086	\$389,573	1.3	1.9	\$65,182	\$187,669
CZ13	PG&E	174,151	0	33.81	\$201,904	\$478,857	\$387,968	2.4	1.9	\$276,953	\$186,065
CZ14	SDG&E	192,789	0	36.97	\$201,904	\$396,181	\$448,268	2.0	2.2	\$194,277	\$246,364
CZ14-2	SCE	192,789	0	36.97	\$201,904	\$288,782	\$448,268	1.4	2.2	\$86,878	\$246,364
CZ15	SCE	183,214	0	35.12	\$201,904	\$277,867	\$415,789	1.4	2.1	\$75,963	\$213,885
CZ16	PG&E	195,665	0	37.97	\$201,904	\$522,352	\$416,558	2.6	2.1	\$320,448	\$214,654
CZ16-2	LA	195,665	0	37.97	\$201,904	\$171,802	\$416,558	0.9	2.1	(\$30,101)	\$214,654



Figure 65. Cost Effectiveness for Medium Retail – Mixed-Fuel + 110 kW PV + 50 kWh Battery

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	Lifecycle TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Mixed Fuel + 110kW PV + 50 kWh Battery											
CZ01	PG&E	143,423	0	29.48	\$229,804	\$452,119	\$324,373	2.0	1.4	\$222,315	\$94,569
CZ02	PG&E	170,542	0	35.14	\$229,804	\$486,704	\$398,363	2.1	1.7	\$256,900	\$168,559
CZ03	PG&E	172,266	0	35.66	\$229,804	\$535,974	\$395,374	2.3	1.7	\$306,170	\$165,570
CZ04	PG&E	175,940	0	36.32	\$229,804	\$525,788	\$422,579	2.3	1.8	\$295,984	\$192,775
CZ04-2	CPAU	175,940	0	36.32	\$229,804	\$416,019	\$422,579	1.8	1.8	\$186,216	\$192,775
CZ05	PG&E	178,728	0	36.91	\$229,804	\$554,968	\$409,086	2.4	1.8	\$325,164	\$179,283
CZ06	SCE	173,567	0	35.99	\$229,804	\$290,599	\$412,690	1.3	1.8	\$60,795	\$182,886
CZ06-2	LA	173,567	0	35.99	\$229,804	\$169,786	\$412,690	0.7	1.8	(\$60,018)	\$182,886
CZ07	SDG&E	180,508	0	37.61	\$229,804	\$425,793	\$427,040	1.9	1.9	\$195,989	\$197,236
CZ08	SCE	175,616	0	36.29	\$229,804	\$296,318	\$434,687	1.3	1.9	\$66,514	\$204,883
CZ08-2	LA	175,616	0	36.29	\$229,804	\$170,489	\$434,687	0.7	1.9	(\$59,315)	\$204,883
CZ09	SCE	177,966	0	36.74	\$229,804	\$300,540	\$421,195	1.3	1.8	\$70,736	\$191,391
CZ09-2	LA	177,966	0	36.74	\$229,804	\$178,852	\$421,195	0.8	1.8	(\$50,952)	\$191,391
CZ10	SDG&E	180,248	0	36.91	\$229,804	\$459,486	\$410,537	2.0	1.8	\$229,683	\$180,733
CZ10-2	SCE	180,248	0	36.91	\$229,804	\$301,219	\$410,537	1.3	1.8	\$71,415	\$180,733
CZ11	PG&E	171,779	0	34.85	\$229,804	\$490,245	\$417,679	2.1	1.8	\$260,442	\$187,875
CZ12	PG&E	171,392	0	34.77	\$229,804	\$497,363	\$417,371	2.2	1.8	\$267,559	\$187,567
CZ12-2	SMUD	171,392	0	34.77	\$229,804	\$273,783	\$417,371	1.2	1.8	\$43,979	\$187,567
CZ13	PG&E	173,052	0	34.97	\$229,804	\$488,196	\$397,791	2.1	1.7	\$258,392	\$167,987
CZ14	SDG&E	191,703	0	38.31	\$229,804	\$420,241	\$452,641	1.8	2.0	\$190,437	\$222,837
CZ14-2	SCE	191,703	0	38.31	\$229,804	\$294,010	\$452,641	1.3	2.0	\$64,206	\$222,837
CZ15	SCE	182,299	0	36.01	\$229,804	\$279,036	\$416,382	1.2	1.8	\$49,232	\$186,578
CZ16	PG&E	194,293	0	40.00	\$229,804	\$535,137	\$432,951	2.3	1.9	\$305,333	\$203,147
CZ16-2	LA	194,293	0	40.00	\$229,804	\$175,573	\$432,951	0.8	1.9	(\$54,231)	\$203,147



Figure 66. Cost Effectiveness for Medium Retail – All-Electric + 3kW PV

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	Lifecycle TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
All-Electric + 3kW PV											
CZ01	PG&E	-25,214	3893	14.61	(\$16,318)	\$4,288	(\$5,450)	>1	3.0	\$20,606	\$10,868
CZ02	PG&E	-17,101	2448	8.40	(\$20,734)	\$859	\$5,779	>1	>1	\$21,593	\$26,513
CZ03	PG&E	-9,851	1868	7.18	(\$17,381)	\$15,418	\$8,702	>1	>1	\$32,799	\$26,083
CZ04	PG&E	-9,353	1706	6.24	(\$16,166)	\$9,110	\$10,394	>1	>1	\$25,276	\$26,560
CZ04-2	CPAU	-9,353	1706	6.24	(\$16,166)	\$24,000	\$10,394	>1	>1	\$40,166	\$26,560
CZ05	PG&E	-9,423	1746	6.42	(\$18,776)	\$14,076	\$6,351	>1	>1	\$32,852	\$25,127
CZ06	SCE	-2,759	1002	4.24	(\$15,032)	\$29,710	\$12,592	>1	>1	\$44,741	\$27,623
CZ06-2	LA	-2,759	1002	4.24	(\$15,032)	\$26,292	\$12,592	>1	>1	\$41,324	\$27,623
CZ07	SDG&E	1,148	522	2.72	(\$17,032)	\$76,810	\$12,350	>1	>1	\$93,842	\$29,382
CZ08	SCE	-979	793	3.64	(\$20,192)	\$28,576	\$13,185	>1	>1	\$48,768	\$33,377
CZ08-2	LA	-979	793	3.64	(\$20,192)	\$24,475	\$13,185	>1	>1	\$44,667	\$33,377
CZ09	SCE	-2,352	970	4.28	(\$25,383)	\$29,776	\$13,207	>1	>1	\$55,159	\$38,590
CZ09-2	LA	-2,352	970	4.28	(\$25,383)	\$25,823	\$13,207	>1	>1	\$51,207	\$38,590
CZ10	SDG&E	-5,388	1262	4.95	(\$20,541)	\$75,458	\$11,493	>1	>1	\$95,999	\$32,034
CZ10-2	SCE	-5,388	1262	4.95	(\$20,541)	\$32,394	\$11,493	>1	>1	\$52,936	\$32,034
CZ11	PG&E	-14,533	2415	8.86	(\$25,471)	\$7,618	\$13,295	>1	>1	\$33,090	\$38,766
CZ12	PG&E	-14,764	2309	8.19	(\$25,774)	\$2,210	\$10,152	>1	>1	\$27,984	\$35,926
CZ12-2	SMUD	-14,764	2309	8.19	(\$25,774)	\$21,215	\$10,152	>1	>1	\$46,988	\$35,926
CZ13	PG&E	-12,069	1983	7.08	(\$21,428)	\$5,647	\$8,570	>1	>1	\$27,075	\$29,998
CZ14	SDG&E	-7,950	1672	6.45	(\$19,926)	\$60,412	\$16,679	>1	>1	\$80,338	\$36,605
CZ14-2	SCE	-7,950	1672	6.45	(\$19,926)	\$28,631	\$16,679	>1	>1	\$48,557	\$36,605
CZ15	SCE	2,534	518	3.10	(\$22,813)	\$27,271	\$17,162	>1	>1	\$50,084	\$39,976
CZ16	PG&E	-36,081	4304	14.26	(\$19,041)	(\$30,111)	(\$41,181)	0.6	0.5	(\$11,070)	(\$22,140)
CZ16-2	LA	-36,081	4304	14.26	(\$19,041)	\$45,706	(\$41,181)	>1	0.5	\$64,747	(\$22,140)



Figure 67. Cost Effectiveness for Medium Retail – All-Electric + 3kW PV + 5 kWh Battery

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	\$-TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
All-Electric + 3kW PV + 5 kWh Battery											
CZ01	PG&E	-25,214	3893	14.61	(\$14,692)	\$4,288	(\$5,450)	>1	2.7	\$18,980	\$9,242
CZ02	PG&E	-17,101	2448	8.40	(\$14,692)	\$859	\$5,779	>1	>1	\$15,551	\$20,472
CZ03	PG&E	-9,851	1868	7.18	(\$14,692)	\$15,418	\$8,702	>1	>1	\$30,110	\$23,394
CZ04	PG&E	-9,353	1706	6.24	(\$14,692)	\$9,110	\$10,394	>1	>1	\$23,802	\$25,086
CZ04-2	CPAU	-9,353	1706	6.24	(\$14,692)	\$24,000	\$10,394	>1	>1	\$38,693	\$25,086
CZ05	PG&E	-9,423	1746	6.42	(\$14,692)	\$14,076	\$6,351	>1	>1	\$28,768	\$21,043
CZ06	SCE	-2,759	1002	4.24	(\$14,692)	\$29,710	\$12,592	>1	>1	\$44,402	\$27,284
CZ06-2	LA	-2,759	1002	4.24	(\$14,692)	\$26,292	\$12,592	>1	>1	\$40,984	\$27,284
CZ07	SDG&E	1,148	522	2.72	(\$14,692)	\$76,810	\$12,350	>1	>1	\$91,502	\$27,042
CZ08	SCE	-979	793	3.64	(\$14,692)	\$28,576	\$13,185	>1	>1	\$43,268	\$27,877
CZ08-2	LA	-979	793	3.64	(\$14,692)	\$24,475	\$13,185	>1	>1	\$39,167	\$27,877
CZ09	SCE	-2,352	970	4.28	(\$14,692)	\$29,776	\$13,207	>1	>1	\$44,468	\$27,899
CZ09-2	LA	-2,352	970	4.28	(\$14,692)	\$25,823	\$13,207	>1	>1	\$40,516	\$27,899
CZ10	SDG&E	-5,388	1262	4.95	(\$14,692)	\$75,458	\$11,493	>1	>1	\$90,150	\$26,185
CZ10-2	SCE	-5,388	1262	4.95	(\$14,692)	\$32,394	\$11,493	>1	>1	\$47,086	\$26,185
CZ11	PG&E	-14,533	2415	8.86	(\$14,692)	\$7,618	\$13,295	>1	>1	\$22,310	\$27,987
CZ12	PG&E	-14,764	2309	8.19	(\$14,692)	\$2,210	\$10,152	>1	>1	\$16,902	\$24,845
CZ12-2	SMUD	-14,764	2309	8.19	(\$14,692)	\$21,215	\$10,152	>1	>1	\$35,907	\$24,845
CZ13	PG&E	-12,069	1983	7.08	(\$14,692)	\$5,647	\$8,570	>1	>1	\$20,339	\$23,262
CZ14	SDG&E	-7,950	1672	6.45	(\$14,692)	\$60,412	\$16,679	>1	>1	\$75,104	\$31,371
CZ14-2	SCE	-7,950	1672	6.45	(\$14,692)	\$28,631	\$16,679	>1	>1	\$43,323	\$31,371
CZ15	SCE	2,534	518	3.10	(\$14,692)	\$27,271	\$17,162	>1	>1	\$41,963	\$31,855
CZ16	PG&E	-36,081	4304	14.26	(\$14,692)	(\$30,111)	(\$41,181)	0.5	0.4	(\$15,419)	(\$26,489)
CZ16-2	LA	-36,081	4304	14.26	(\$14,692)	\$45,706	(\$41,181)	>1	0.4	\$60,398	(\$26,489)



Figure 68. Cost Effectiveness for Medium Retail – All-Electric + 110kW PV

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	Lifecycle TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
All-Electric + 110kW PV											
CZ01	PG&E	115,344	3893	41.82	\$143,932	\$454,277	\$296,025	3.2	2.1	\$310,345	\$152,093
CZ02	PG&E	150,004	2448	40.80	\$139,516	\$470,236	\$371,817	3.4	2.7	\$330,720	\$232,301
CZ03	PG&E	158,951	1868	39.82	\$142,869	\$544,095	\$370,696	3.8	2.6	\$401,226	\$227,827
CZ04	PG&E	163,043	1706	39.73	\$144,084	\$488,619	\$388,847	3.4	2.7	\$344,534	\$244,763
CZ04-2	CPAU	163,043	1706	39.73	\$144,084	\$432,905	\$388,847	3.0	2.7	\$288,821	\$244,763
CZ05	PG&E	165,711	1746	40.30	\$141,473	\$565,525	\$382,760	4.0	2.7	\$424,051	\$241,287
CZ06	SCE	167,328	1002	37.24	\$145,218	\$306,670	\$395,066	2.1	2.7	\$161,452	\$249,848
CZ06-2	LA	167,328	1002	37.24	\$145,218	\$184,797	\$395,066	1.3	2.7	\$39,579	\$249,848
CZ07	SDG&E	178,042	522	37.07	\$143,218	\$428,332	\$406,032	3.0	2.8	\$285,114	\$262,814
CZ08	SCE	171,149	793	36.94	\$140,058	\$301,219	\$417,635	2.2	3.0	\$161,161	\$277,577
CZ08-2	LA	171,149	793	36.94	\$140,058	\$178,419	\$417,635	1.3	3.0	\$38,361	\$277,577
CZ09	SCE	172,027	970	38.50	\$134,867	\$307,640	\$414,075	2.3	3.1	\$172,773	\$279,208
CZ09-2	LA	172,027	970	38.50	\$134,867	\$187,813	\$414,075	1.4	3.1	\$52,946	\$279,208
CZ10	SDG&E	171,107	1262	39.40	\$139,708	\$463,692	\$403,505	3.3	2.9	\$323,984	\$263,796
CZ10-2	SCE	171,107	1262	39.40	\$139,708	\$311,464	\$403,505	2.2	2.9	\$171,755	\$263,796
CZ11	PG&E	153,732	2415	41.41	\$134,778	\$467,356	\$394,165	3.5	2.9	\$332,578	\$259,387
CZ12	PG&E	153,126	2309	40.61	\$134,476	\$467,106	\$389,111	3.5	2.9	\$332,630	\$254,635
CZ12-2	SMUD	153,126	2309	40.61	\$134,476	\$283,343	\$389,111	2.1	2.9	\$148,867	\$254,635
CZ13	PG&E	157,332	1983	39.97	\$138,822	\$477,831	\$385,947	3.4	2.8	\$339,008	\$247,124
CZ14	SDG&E	179,582	1672	42.42	\$140,324	\$437,575	\$452,729	3.1	3.2	\$297,251	\$312,405
CZ14-2	SCE	179,582	1672	42.42	\$140,324	\$309,064	\$452,729	2.2	3.2	\$168,740	\$312,405
CZ15	SCE	180,751	518	37.26	\$137,436	\$294,877	\$421,612	2.1	3.1	\$157,440	\$284,176
CZ16	PG&E	154,248	4304	51.20	\$141,209	\$473,892	\$364,016	3.4	2.6	\$332,682	\$222,807
CZ16-2	LA	154,248	4304	51.20	\$141,209	\$211,677	\$364,016	1.5	2.6	\$70,467	\$222,807



Figure 69. Cost Effectiveness for Medium Retail – All-Electric + 110kW PV + 50 kWh Battery

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	Lifecycle TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
All-Electric + 90kW PV + 50 kWh Battery											
CZ01	PG&E	114,356	3893	43.52	\$171,832	\$451,043	\$310,265	2.6	1.8	\$279,211	\$138,433
CZ02	PG&E	148,793	2448	42.89	\$167,416	\$475,081	\$394,099	2.8	2.4	\$307,664	\$226,683
CZ03	PG&E	157,707	1868	42.12	\$170,769	\$541,418	\$394,034	3.2	2.3	\$370,649	\$223,265
CZ04	PG&E	161,769	1706	41.82	\$171,984	\$523,603	\$422,535	3.0	2.5	\$351,618	\$250,551
CZ04-2	CPAU	161,769	1706	41.82	\$171,984	\$430,567	\$422,535	2.5	2.5	\$258,582	\$250,551
CZ05	PG&E	164,408	1746	42.68	\$169,373	\$561,966	\$405,087	3.3	2.4	\$392,592	\$235,714
CZ06	SCE	166,052	1002	39.48	\$173,118	\$306,697	\$414,756	1.8	2.4	\$133,579	\$241,638
CZ06-2	LA	166,052	1002	39.48	\$173,118	\$187,941	\$414,756	1.1	2.4	\$14,823	\$241,638
CZ07	SDG&E	176,705	522	39.47	\$171,118	\$479,038	\$428,490	2.8	2.5	\$307,920	\$257,372
CZ08	SCE	169,825	793	39.14	\$167,958	\$312,602	\$436,709	1.9	2.6	\$144,645	\$268,751
CZ08-2	LA	169,825	793	39.14	\$167,958	\$187,142	\$436,709	1.1	2.6	\$19,185	\$268,751
CZ09	SCE	170,747	970	40.23	\$162,767	\$318,113	\$423,370	2.0	2.6	\$155,346	\$260,604
CZ09-2	LA	170,747	970	40.23	\$162,767	\$197,006	\$423,370	1.2	2.6	\$34,240	\$260,604
CZ10	SDG&E	169,935	1262	41.08	\$167,608	\$503,504	\$411,284	3.0	2.5	\$335,896	\$243,675
CZ10-2	SCE	169,935	1262	41.08	\$167,608	\$317,927	\$411,284	1.9	2.5	\$150,319	\$243,675
CZ11	PG&E	152,559	2415	42.99	\$162,678	\$491,775	\$420,667	3.0	2.6	\$329,096	\$257,989
CZ12	PG&E	151,956	2309	42.21	\$162,376	\$494,703	\$417,063	3.0	2.6	\$332,327	\$254,687
CZ12-2	SMUD	151,956	2309	42.21	\$162,376	\$288,950	\$417,063	1.8	2.6	\$126,573	\$254,687
CZ13	PG&E	156,271	1983	41.25	\$166,722	\$485,422	\$395,770	2.9	2.4	\$318,699	\$229,047
CZ14	SDG&E	178,505	1672	43.94	\$168,224	\$452,456	\$457,387	2.7	2.7	\$284,232	\$289,163
CZ14-2	SCE	178,505	1672	43.94	\$168,224	\$311,520	\$457,387	1.9	2.7	\$143,296	\$289,163
CZ15	SCE	179,840	518	38.23	\$165,336	\$296,004	\$422,293	1.8	2.6	\$130,668	\$256,957
CZ16	PG&E	152,965	4304	53.53	\$169,109	\$483,205	\$378,299	2.9	2.2	\$314,096	\$209,190
CZ16-2	LA	152,965	4304	53.53	\$169,109	\$215,341	\$378,299	1.3	2.2	\$46,231	\$209,190



6.7.3 Cost Effectiveness Results – Small Hotel

Figure 70 through Figure 77 contain the cost-effectiveness findings for the Small Hotel packages. Notable findings for each package include:

- ◆ **Mixed-Fuel + 3 kW PV:** Packages are cost effective and achieve savings for all climate zones for both the On-Bill and TDV approaches.
- ◆ **Mixed-Fuel + 3 kW PV + 5 kWh Battery:** The packages are less cost effective as compared to the previous minimal PV only package and not cost effective for LADWP and SMUD service area. The addition of battery reduces the cost effectiveness of packages.
- ◆ **Mixed-Fuel + PV only:** Packages are cost effective and achieve savings for the On-Bill approach for all climate zones except for LADWP territory. Packages are cost effective and achieve savings for the TDV approach for all climate zones.
- ◆ **Mixed-Fuel + PV + 50 kWh Battery:** Adding battery slightly reduces On-Bill B/C ratios. Packages are not cost effective for LADWP territory, SMUD territory as well as for climate zones 6,8,9 under PG&E service area.
- ◆ **All-Electric + 3 kW PV:** All packages are cost effective using the On-Bill approach. All packages are cost effective using the TDV approach but do not achieve positive energy cost savings.
- ◆ **All-Electric + 3 kW PV + 5 kWh Battery:** Similar to minimal PV only package, all packages are cost effective using the On-Bill approach. All packages are cost effective using the TDV approach but do not achieve positive energy cost savings.
- ◆ **All-Electric + PV only:** All packages are cost effective for both On-Bill and TDV approaches. Packages achieve on-bill savings for all climate zones.
- ◆ **All-Electric + PV + 50 kWh Battery:** Adding battery slightly reduces On-Bill B/C ratios but is still cost effective for all climate zones.



Figure 70. Cost Effectiveness for Small Hotel – Mixed Fuel + 3kW PV

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	Lifecycle \$-TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Mixed Fuel + 3kW PV											
CZ01	PG&E	3,941	0	0.8	\$5,566	\$12,616	\$8,326	2.3	1.5	\$7,050	\$2,760
CZ02	PG&E	4,785	0	0.9	\$5,566	\$12,639	\$10,332	2.3	1.9	\$7,073	\$4,766
CZ03	PG&E	4,733	0	0.9	\$5,566	\$15,146	\$9,991	2.7	1.8	\$9,580	\$4,425
CZ04	PG&E	4,834	0	1.0	\$5,566	\$13,266	\$10,445	2.4	1.9	\$7,700	\$4,879
CZ04-2	CPAU	4,834	0	1.0	\$5,566	\$11,507	\$10,445	2.1	1.9	\$5,941	\$4,879
CZ05	PG&E	5,027	0	1.0	\$5,566	\$16,048	\$10,634	2.9	1.9	\$10,482	\$5,068
CZ06	SCE	4,769	0	0.9	\$5,566	\$10,276	\$10,559	1.8	1.9	\$4,710	\$4,993
CZ06-2	LA	4,769	0	0.9	\$5,566	\$6,307	\$10,559	1.1	1.9	\$741	\$4,993
CZ07	SDG&E	4,960	0	1.0	\$5,566	\$14,576	\$10,861	2.6	2.0	\$9,010	\$5,295
CZ08	SCE	4,824	0	0.9	\$5,566	\$10,837	\$11,202	1.9	2.0	\$5,271	\$5,636
CZ08-2	LA	4,824	0	0.9	\$5,566	\$6,505	\$11,202	1.2	2.0	\$939	\$5,636
CZ09	SCE	4,779	0	0.9	\$5,566	\$10,298	\$10,824	1.9	1.9	\$4,732	\$5,258
CZ09-2	LA	4,779	0	0.9	\$5,566	\$6,201	\$10,824	1.1	1.9	\$635	\$5,258
CZ10	SDG&E	4,905	0	1.0	\$5,566	\$16,302	\$10,710	2.9	1.9	\$10,736	\$5,144
CZ10-2	SCE	4,905	0	1.0	\$5,566	\$9,468	\$10,710	1.7	1.9	\$3,902	\$5,144
CZ11	PG&E	4,701	0	0.9	\$5,566	\$14,193	\$10,483	2.6	1.9	\$8,627	\$4,917
CZ12	PG&E	4,770	0	0.9	\$5,566	\$15,262	\$10,596	2.7	1.9	\$9,696	\$5,030
CZ12-2	SMUD	4,770	0	0.9	\$5,566	\$7,848	\$10,596	1.4	1.9	\$2,282	\$5,030
CZ13	PG&E	4,633	0	0.9	\$5,566	\$14,674	\$10,105	2.6	1.8	\$9,108	\$4,539
CZ14	SDG&E	5,377	0	1.1	\$5,566	\$16,615	\$12,375	3.0	2.2	\$11,049	\$6,809
CZ14-2	SCE	5,377	0	1.1	\$5,566	\$10,021	\$12,375	1.8	2.2	\$4,455	\$6,809
CZ15	SCE	4,997	0	1.0	\$5,566	\$9,542	\$11,164	1.7	2.0	\$3,976	\$5,598
CZ16	PG&E	5,240	0	1.0	\$5,566	\$14,961	\$10,975	2.7	2.0	\$9,395	\$5,409
CZ16-2	LA	5,240	0	1.0	\$5,566	\$5,670	\$10,975	1.0	2.0	\$104	\$5,409



Figure 71. Cost Effectiveness for Small Hotel – Mixed Fuel + 3kW PV + 5 kWh Battery

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	\$-TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Mixed Fuel + 3kW PV + 5kWh Battery											
CZ01	PG&E	3,941	0	0.8	\$9,520	\$12,616	\$8,326	1.3	0.9	\$3,096	(\$1,194)
CZ02	PG&E	4,785	0	0.9	\$9,520	\$12,639	\$10,332	1.3	1.1	\$3,119	\$811
CZ03	PG&E	4,733	0	0.9	\$9,520	\$15,146	\$9,991	1.6	1.0	\$5,626	\$471
CZ04	PG&E	4,834	0	1.0	\$9,520	\$13,266	\$10,445	1.4	1.1	\$3,746	\$925
CZ04-2	CPAU	4,834	0	1.0	\$9,520	\$11,507	\$10,445	1.2	1.1	\$1,987	\$925
CZ05	PG&E	5,027	0	1.0	\$9,520	\$16,048	\$10,634	1.7	1.1	\$6,528	\$1,114
CZ05-2	SCG	5,027	0	1.0	\$9,520	\$16,048	\$10,634	1.7	1.1	\$6,528	\$1,114
CZ06	SCE	4,769	0	0.9	\$9,520	\$10,276	\$10,559	1.1	1.1	\$756	\$1,039
CZ06-2	LA	4,769	0	0.9	\$9,520	\$6,307	\$10,559	0.7	1.1	(\$3,213)	\$1,039
CZ07	SDG&E	4,960	0	1.0	\$9,520	\$14,576	\$10,861	1.5	1.1	\$5,056	\$1,341
CZ08	SCE	4,824	0	0.9	\$9,520	\$10,837	\$11,202	1.1	1.2	\$1,317	\$1,682
CZ08-2	LA	4,824	0	0.9	\$9,520	\$6,505	\$11,202	0.7	1.2	(\$3,015)	\$1,682
CZ09	SCE	4,779	0	0.9	\$9,520	\$10,298	\$10,824	1.1	1.1	\$778	\$1,303
CZ09-2	LA	4,779	0	0.9	\$9,520	\$6,201	\$10,824	0.7	1.1	(\$3,319)	\$1,303
CZ10	SDG&E	4,905	0	1.0	\$9,520	\$16,302	\$10,710	1.7	1.1	\$6,782	\$1,190
CZ10-2	SCE	4,905	0	1.0	\$9,520	\$9,468	\$10,710	0.99	1.1	(\$52)	\$1,190
CZ11	PG&E	4,701	0	0.9	\$9,520	\$14,193	\$10,483	1.5	1.1	\$4,673	\$963
CZ12	PG&E	4,770	0	0.9	\$9,520	\$15,262	\$10,596	1.6	1.1	\$5,742	\$1,076
CZ12-2	SMUD	4,770	0	0.9	\$9,520	\$7,848	\$10,596	0.8	1.1	(\$1,672)	\$1,076
CZ13	PG&E	4,633	0	0.9	\$9,520	\$14,674	\$10,105	1.5	1.1	\$5,154	\$584
CZ14	SDG&E	5,377	0	1.1	\$9,520	\$16,615	\$12,375	1.7	1.3	\$7,095	\$2,855
CZ14-2	SCE	5,377	0	1.1	\$9,520	\$10,021	\$12,375	1.1	1.3	\$501	\$2,855
CZ15	SCE	4,997	0	1.0	\$9,520	\$9,542	\$11,164	1.0	1.2	\$22	\$1,644
CZ16	PG&E	5,240	0	1.0	\$9,520	\$14,961	\$10,975	1.6	1.2	\$5,441	\$1,455
CZ16-2	LA	5,240	0	1.0	\$9,520	\$5,670	\$10,975	0.6	1.2	(\$3,851)	\$1,455



Figure 72. Cost Effectiveness for Small Hotel - Mixed Fuel +80kW PV

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	Lifecycle TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Mixed Fuel + 80kW PV											
CZ01	PG&E	105,090	0	20.6	\$179,470	\$336,440	\$221,883	1.9	1.2	\$156,970	\$42,413
CZ02	PG&E	127,592	0	25.0	\$179,470	\$320,009	\$275,130	1.8	1.5	\$140,539	\$95,660
CZ03	PG&E	126,206	0	24.8	\$179,470	\$403,900	\$266,426	2.3	1.5	\$224,430	\$86,956
CZ04	PG&E	128,894	0	25.4	\$179,470	\$322,782	\$278,536	1.8	1.6	\$143,312	\$99,066
CZ04-2	CPAU	128,894	0	25.4	\$179,470	\$306,862	\$278,536	1.7	1.6	\$127,392	\$99,066
CZ05	PG&E	134,041	0	26.5	\$179,470	\$427,935	\$283,834	2.4	1.6	\$248,465	\$104,364
CZ06	SCE	127,168	0	25.0	\$179,470	\$200,425	\$281,488	1.1	1.6	\$20,955	\$102,018
CZ06-2	LA	127,168	0	25.0	\$179,470	\$119,357	\$281,488	0.7	1.6	(\$60,113)	\$102,018
CZ07	SDG&E	132,258	0	26.1	\$179,470	\$247,646	\$289,700	1.4	1.6	\$68,176	\$110,230
CZ08	SCE	128,641	0	25.3	\$179,470	\$207,993	\$298,594	1.2	1.7	\$28,523	\$119,124
CZ08-2	LA	128,641	0	25.3	\$179,470	\$122,591	\$298,594	0.7	1.7	(\$56,879)	\$119,124
CZ09	SCE	127,447	0	25.3	\$179,470	\$211,567	\$288,830	1.2	1.6	\$32,096	\$109,360
CZ09-2	LA	127,447	0	25.3	\$179,470	\$123,486	\$288,830	0.7	1.6	(\$55,984)	\$109,360
CZ10	SDG&E	130,792	0	25.8	\$179,470	\$274,832	\$285,386	1.5	1.6	\$95,361	\$105,916
CZ10-2	SCE	130,792	0	25.8	\$179,470	\$206,865	\$285,386	1.2	1.6	\$27,395	\$105,916
CZ11	PG&E	125,366	0	24.6	\$179,470	\$316,781	\$279,331	1.8	1.6	\$137,311	\$99,861
CZ12	PG&E	127,203	0	25.0	\$179,470	\$406,977	\$282,358	2.3	1.6	\$227,507	\$102,888
CZ12-2	SMUD	127,203	0	25.0	\$179,470	\$198,254	\$282,358	1.1	1.6	\$18,784	\$102,888
CZ13	PG&E	123,535	0	24.4	\$179,470	\$317,261	\$269,908	1.8	1.5	\$137,791	\$90,437
CZ14	SDG&E	143,387	0	28.1	\$179,470	\$309,521	\$330,345	1.7	1.8	\$130,051	\$150,875
CZ14-2	SCE	143,387	0	28.1	\$179,470	\$225,083	\$330,345	1.3	1.8	\$45,612	\$150,875
CZ15	SCE	133,246	0	25.9	\$179,470	\$207,277	\$297,648	1.2	1.7	\$27,807	\$118,177
CZ16	PG&E	139,738	0	27.3	\$179,470	\$341,724	\$292,728	1.9	1.6	\$162,254	\$113,258
CZ16-2	LA	139,738	0	27.3	\$179,470	\$114,215	\$292,728	0.6	1.6	(\$65,255)	\$113,258



Figure 73. Cost Effectiveness for Small Hotel – Mixed Fuel + 80kW PV + 50 kWh Battery

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	Lifecycle TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Mixed Fuel + 80kW PV + 50kWh Battery											
CZ01	PG&E	104,026	0	23.2	\$207,370	\$332,596	\$237,740	1.6	1.1	\$125,226	\$30,370
CZ02	PG&E	126,332	0	28.1	\$207,370	\$336,179	\$296,058	1.6	1.4	\$128,809	\$88,688
CZ03	PG&E	124,934	0	28.0	\$207,370	\$399,220	\$289,360	1.9	1.4	\$191,850	\$81,990
CZ04	PG&E	127,602	0	28.5	\$207,370	\$332,161	\$308,887	1.6	1.5	\$124,790	\$101,517
CZ04-2	CPAU	127,602	0	28.5	\$207,370	\$303,828	\$308,887	1.5	1.5	\$96,458	\$101,517
CZ05	PG&E	132,725	0	29.8	\$207,370	\$423,129	\$303,627	2.0	1.5	\$215,758	\$96,257
CZ06	SCE	125,880	0	28.4	\$207,370	\$193,814	\$297,950	0.9	1.4	(\$13,556)	\$90,580
CZ06-2	LA	125,880	0	28.4	\$207,370	\$123,083	\$297,950	0.6	1.4	(\$84,287)	\$90,580
CZ07	SDG&E	130,940	0	29.5	\$207,370	\$274,313	\$309,682	1.3	1.5	\$66,943	\$102,312
CZ08	SCE	127,332	0	28.5	\$207,370	\$199,786	\$312,899	1.0	1.5	(\$7,584)	\$105,529
CZ08-2	LA	127,332	0	28.5	\$207,370	\$124,651	\$312,899	0.6	1.5	(\$82,719)	\$105,529
CZ09	SCE	126,232	0	28.2	\$207,370	\$206,706	\$292,804	1.0	1.4	(\$664)	\$85,433
CZ09-2	LA	126,232	0	28.2	\$207,370	\$126,710	\$292,804	0.6	1.4	(\$80,660)	\$85,433
CZ10	SDG&E	129,683	0	28.4	\$207,370	\$292,202	\$287,278	1.4	1.4	\$84,832	\$79,908
CZ10-2	SCE	129,683	0	28.4	\$207,370	\$206,171	\$287,278	1.0	1.4	(\$1,199)	\$79,908
CZ11	PG&E	124,337	0	26.9	\$207,370	\$315,330	\$283,683	1.5	1.4	\$107,960	\$76,313
CZ12	PG&E	126,013	0	27.8	\$207,370	\$403,127	\$297,118	1.9	1.4	\$195,757	\$89,748
CZ12-2	SMUD	126,013	0	27.8	\$207,370	\$198,007	\$297,118	1.0	1.4	(\$9,363)	\$89,748
CZ13	PG&E	122,591	0	26.5	\$207,370	\$315,541	\$280,996	1.5	1.4	\$108,171	\$73,626
CZ14	SDG&E	142,257	0	30.7	\$207,370	\$317,565	\$334,697	1.5	1.6	\$110,195	\$127,327
CZ14-2	SCE	142,257	0	30.7	\$207,370	\$224,195	\$334,697	1.1	1.6	\$16,824	\$127,327
CZ15	SCE	132,418	0	27.8	\$207,370	\$208,044	\$299,199	1.0	1.4	\$674	\$91,829
CZ16	PG&E	138,402	0	30.7	\$207,370	\$358,582	\$315,699	1.7	1.5	\$151,212	\$108,329
CZ16-2	LA	138,402	0	30.7	\$207,370	\$118,770	\$315,699	0.6	1.5	(\$88,600)	\$108,329



Figure 74. Cost Effectiveness for Small Hotel – All-Electric + 3kW PV

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost*	Lifecycle Energy Cost Savings	Lifecycle TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
All-Electric + 3kW PV											
CZ01	PG&E	-155,861	16917	54.7	(\$1,265,139)	(\$568,892)	(\$106,835)	2.2	11.8	\$696,246	\$1,158,304
CZ02	PG&E	-113,954	12677	40.9	(\$1,266,111)	(\$229,433)	(\$41,288)	5.5	30.7	\$1,036,679	\$1,224,823
CZ03	PG&E	-105,862	12322	41.4	(\$1,268,383)	(\$309,874)	(\$41,175)	4.1	30.8	\$958,510	\$1,227,208
CZ04	PG&E	-108,570	11927	37.5	(\$1,268,218)	(\$208,239)	(\$42,689)	6.1	29.7	\$1,059,980	\$1,225,530
CZ04-2	CPAU	-108,570	11927	37.5	(\$1,268,218)	(\$6,261)	(\$42,689)	202.6	29.7	\$1,261,958	\$1,225,530
CZ05	PG&E	-103,579	11960	39.3	(\$1,268,272)	(\$332,879)	(\$44,051)	3.8	28.8	\$935,393	\$1,224,221
CZ06	SCE	-73,524	8912	30.3	(\$1,268,413)	\$48,898	(\$17,484)	>1	72.5	\$1,317,311	\$1,250,929
CZ06-2	LA	-64,859	8188	29.0	(\$1,266,760)	(\$120,842)	(\$12,337)	10.5	102.7	\$1,145,918	\$1,254,423
CZ07	SDG&E	-67,090	8353	29.2	(\$1,264,731)	(\$43,964)	(\$11,618)	28.8	108.9	\$1,220,767	\$1,253,113
CZ08	SCE	-67,090	8353	29.2	(\$1,264,731)	\$48,736	(\$11,618)	>1	108.9	\$1,313,467	\$1,253,113
CZ08-2	LA	-67,483	8402	29.3	(\$1,266,529)	(\$35,547)	(\$11,126)	35.6	113.8	\$1,230,982	\$1,255,403
CZ09	SCE	-67,483	8402	29.3	(\$1,266,529)	\$52,410	(\$11,126)	>1	113.8	\$1,318,939	\$1,255,403
CZ09-2	LA	-75,157	8418	27.2	(\$1,263,531)	(\$156,973)	(\$25,469)	8.0	49.6	\$1,106,558	\$1,238,061
CZ10	SDG&E	-75,157	8418	27.2	(\$1,263,531)	(\$54,711)	(\$25,469)	23.1	49.6	\$1,208,820	\$1,238,061
CZ10-2	SCE	-94,783	10252	31.9	(\$1,264,340)	(\$169,847)	(\$38,904)	7.4	32.5	\$1,094,493	\$1,225,436
CZ11	PG&E	-94,702	10403	33.0	(\$1,265,779)	(\$324,908)	(\$34,968)	3.9	36.2	\$940,872	\$1,230,811
CZ12	PG&E	-94,297	10403	33.1	(\$1,265,779)	\$13,603	(\$33,757)	>1	37.5	\$1,279,382	\$1,232,022
CZ12-2	SMUD	-92,196	10029	31.5	(\$1,264,152)	(\$168,358)	(\$40,229)	7.5	31.4	\$1,095,794	\$1,223,923
CZ13	PG&E	-96,021	10056	30.7	(\$1,264,510)	(\$308,542)	(\$44,202)	4.1	28.6	\$955,969	\$1,220,308
CZ14	SDG&E	-96,021	10056	30.7	(\$1,264,510)	(\$110,730)	(\$44,202)	11.4	28.6	\$1,153,780	\$1,220,308
CZ14-2	SCE	-44,856	5579	19.0	(\$1,262,631)	\$8,996	(\$10,256)	>1	123.1	\$1,271,627	\$1,252,375
CZ15	SCE	-211,468	17599	42.9	(\$1,268,907)	(\$625,671)	(\$228,203)	2.0	5.6	\$643,236	\$1,040,704
CZ16	PG&E	-211,468	17599	42.9	(\$1,268,907)	\$37,142	(\$228,203)	>1	5.6	\$1,306,049	\$1,040,704
CZ16-2	LA	-155,861	16917	54.7	(\$1,265,139)	(\$568,892)	(\$106,835)	2.2	11.8	\$696,246	\$1,158,304



Figure 75. Cost Effectiveness for Small Hotel – All-Electric + 3kW PV + 5 kWh Battery

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	\$-TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
All-Electric + 3kW PV + 5kWh Battery											
CZ01	PG&E	-155,861	16917	54.7	(\$1,288,428)	(\$568,892)	(\$106,835)	2.3	12.1	\$719,536	\$1,181,593
CZ02	PG&E	-113,954	12677	40.9	(\$1,288,428)	(\$229,433)	(\$41,288)	5.6	31.2	\$1,058,996	\$1,247,140
CZ03	PG&E	-105,862	12322	41.4	(\$1,288,428)	(\$309,874)	(\$41,175)	4.2	31.3	\$978,554	\$1,247,253
CZ04	PG&E	-108,570	11927	37.5	(\$1,288,428)	(\$208,239)	(\$42,689)	6.2	30.2	\$1,080,190	\$1,245,740
CZ04-2	CPAU	-108,570	11927	37.5	(\$1,288,428)	(\$6,261)	(\$42,689)	205.8	30.2	\$1,282,167	\$1,245,740
CZ05	PG&E	-103,579	11960	39.3	(\$1,288,428)	(\$332,879)	(\$44,051)	3.9	29.2	\$955,549	\$1,244,377
CZ06	SCE	-73,524	8912	30.3	(\$1,288,428)	(\$52,341)	(\$17,484)	24.6	73.7	\$1,236,087	\$1,270,944
CZ06-2	LA	-73,524	8912	30.3	(\$1,288,428)	\$48,898	(\$17,484)	>1	73.7	\$1,337,326	\$1,270,944
CZ07	SDG&E	-64,859	8188	29.0	(\$1,288,428)	(\$120,842)	(\$12,337)	10.7	104.4	\$1,167,586	\$1,276,091
CZ08	SCE	-67,090	8353	29.2	(\$1,288,428)	(\$43,964)	(\$11,618)	29.3	110.9	\$1,244,464	\$1,276,810
CZ08-2	LA	-67,090	8353	29.2	(\$1,288,428)	\$48,736	(\$11,618)	>1	110.9	\$1,337,164	\$1,276,810
CZ09	SCE	-67,483	8402	29.3	(\$1,288,428)	(\$35,547)	(\$11,126)	36.2	115.8	\$1,252,881	\$1,277,302
CZ09-2	LA	-67,483	8402	29.3	(\$1,288,428)	\$52,410	(\$11,126)	>1	115.8	\$1,340,838	\$1,277,302
CZ10	SDG&E	-75,157	8418	27.2	(\$1,288,428)	(\$156,973)	(\$25,469)	8.2	50.6	\$1,131,455	\$1,262,959
CZ10-2	SCE	-75,157	8418	27.2	(\$1,288,428)	(\$54,711)	(\$25,469)	23.5	50.6	\$1,233,718	\$1,262,959
CZ11	PG&E	-94,783	10252	31.9	(\$1,288,428)	(\$169,847)	(\$38,904)	7.6	33.1	\$1,118,582	\$1,249,524
CZ12	PG&E	-94,702	10403	33.0	(\$1,288,428)	(\$324,908)	(\$34,968)	4.0	36.8	\$963,520	\$1,253,460
CZ12-2	SMUD	-94,297	10403	33.1	(\$1,288,428)	\$13,603	(\$33,757)	>1	38.2	\$1,302,031	\$1,254,671
CZ13	PG&E	-92,196	10029	31.5	(\$1,288,428)	(\$168,358)	(\$40,229)	7.7	32.0	\$1,120,071	\$1,248,199
CZ14	SDG&E	-96,021	10056	30.7	(\$1,288,428)	(\$308,542)	(\$44,202)	4.2	29.1	\$979,887	\$1,244,226
CZ14-2	SCE	-96,021	10056	30.7	(\$1,288,428)	(\$110,730)	(\$44,202)	11.6	29.1	\$1,177,698	\$1,244,226
CZ15	SCE	-44,856	5579	19.0	(\$1,288,428)	\$8,996	(\$10,256)	>1	125.6	\$1,297,425	\$1,278,172
CZ16	PG&E	-211,468	17599	42.9	(\$1,288,428)	(\$625,671)	(\$228,203)	2.1	5.6	\$662,757	\$1,060,225
CZ16-2	LA	-211,468	17599	42.9	(\$1,288,428)	\$37,142	(\$228,203)	>1	5.6	\$1,325,570	\$1,060,225



Figure 76. Cost Effectiveness for Small Hotel – All-Electric + 80kW PV

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	\$-TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
All-Electric + 80kW PV											
CZ01	PG&E	-54,712	16917	74.6	(\$1,123,442)	(\$240,170)	\$106,722	4.7	>1	\$883,272	\$1,230,164
CZ02	PG&E	8,853	12677	65.0	(\$1,124,415)	\$128,649	\$223,510	>1	>1	\$1,253,063	\$1,347,925
CZ03	PG&E	15,612	12322	65.3	(\$1,126,687)	\$44,532	\$215,260	>1	>1	\$1,171,219	\$1,341,947
CZ04	PG&E	15,490	11927	62.0	(\$1,126,522)	\$145,778	\$225,402	>1	>1	\$1,272,300	\$1,351,924
CZ04-2	CPAU	15,490	11927	62.0	(\$1,126,522)	\$289,094	\$225,402	>1	>1	\$1,415,616	\$1,351,924
CZ05	PG&E	25,436	11960	64.8	(\$1,126,575)	\$56,019	\$229,149	>1	>1	\$1,182,594	\$1,355,724
CZ06	SCE	48,875	8912	54.4	(\$1,126,716)	\$163,343	\$253,445	>1	>1	\$1,290,060	\$1,380,161
CZ06-2	LA	62,439	8188	54.1	(\$1,125,064)	\$115,822	\$266,502	>1	>1	\$1,240,886	\$1,391,565
CZ07	SDG&E	56,727	8353	53.5	(\$1,123,034)	\$147,987	\$275,773	>1	>1	\$1,271,022	\$1,398,808
CZ08	SCE	56,727	8353	53.5	(\$1,123,034)	\$163,971	\$275,773	>1	>1	\$1,287,005	\$1,398,808
CZ08-2	LA	55,185	8402	53.7	(\$1,124,832)	\$155,101	\$266,880	>1	>1	\$1,279,933	\$1,391,712
CZ09	SCE	55,185	8402	53.7	(\$1,124,832)	\$169,010	\$266,880	>1	>1	\$1,293,843	\$1,391,712
CZ09-2	LA	50,731	8418	52.0	(\$1,121,834)	\$113,936	\$249,207	>1	>1	\$1,235,770	\$1,371,041
CZ10	SDG&E	50,731	8418	52.0	(\$1,121,834)	\$138,265	\$249,207	>1	>1	\$1,260,099	\$1,371,041
CZ10-2	SCE	25,882	10252	55.6	(\$1,122,643)	\$162,626	\$229,944	>1	>1	\$1,285,269	\$1,352,587
CZ11	PG&E	27,731	10403	57.1	(\$1,124,083)	\$12,954	\$236,794	>1	>1	\$1,137,037	\$1,360,876
CZ12	PG&E	28,136	10403	57.2	(\$1,124,083)	\$206,756	\$238,005	>1	>1	\$1,330,839	\$1,362,087
CZ12-2	SMUD	26,706	10029	55.0	(\$1,122,455)	\$165,991	\$219,574	>1	>1	\$1,288,446	\$1,342,030
CZ13	PG&E	41,989	10056	57.8	(\$1,122,814)	\$22,333	\$273,768	>1	>1	\$1,145,147	\$1,396,582
CZ14	SDG&E	41,989	10056	57.8	(\$1,122,814)	\$120,943	\$273,768	>1	>1	\$1,243,757	\$1,396,582
CZ14-2	SCE	83,393	5579	44.0	(\$1,120,934)	\$210,511	\$276,228	>1	>1	\$1,331,445	\$1,397,162
CZ15	SCE	-76,971	17599	69.2	(\$1,127,210)	(\$199,308)	\$53,550	5.7	>1	\$927,902	\$1,180,760
CZ16	PG&E	-76,971	17599	69.2	(\$1,127,210)	\$172,787	\$53,550	>1	>1	\$1,299,997	\$1,180,760
CZ16-2	LA	-54,712	16917	74.6	(\$1,123,442)	(\$240,170)	\$106,722	4.7	>1	\$883,272	\$1,230,164



Figure 77. Cost Effectiveness for Small Hotel – All-Electric + 80kW PV + 50 kWh Battery

CZ	IOU territory	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Incremental Package Cost	Lifecycle Energy Cost Savings	\$-TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
All-Electric + 80kW PV + 50kWh Battery											
CZ01	PG&E	-55,323	16917	75.7	(\$1,095,542)	(\$238,351)	\$118,605	4.6	>1	\$857,191	\$1,214,147
CZ02	PG&E	7,849	12677	67.4	(\$1,096,515)	\$129,794	\$239,632	>1	>1	\$1,226,309	\$1,336,146
CZ03	PG&E	14,594	12322	67.7	(\$1,098,787)	\$43,166	\$235,280	>1	>1	\$1,141,953	\$1,334,067
CZ04	PG&E	14,459	11927	64.4	(\$1,098,622)	\$148,698	\$249,244	>1	>1	\$1,247,320	\$1,347,866
CZ04-2	CPAU	14,459	11927	64.4	(\$1,098,622)	\$286,573	\$249,244	>1	>1	\$1,385,195	\$1,347,866
CZ05	PG&E	24,292	11960	67.6	(\$1,098,675)	\$53,719	\$244,514	>1	>1	\$1,152,394	\$1,343,189
CZ06	SCE	47,762	8912	57.2	(\$1,098,816)	\$165,763	\$267,221	>1	>1	\$1,264,579	\$1,366,037
CZ06-2	LA	61,252	8188	57.1	(\$1,097,164)	\$138,060	\$283,797	>1	>1	\$1,235,223	\$1,380,960
CZ07	SDG&E	55,588	8353	56.2	(\$1,095,134)	\$138,718	\$286,483	>1	>1	\$1,233,852	\$1,381,618
CZ08	SCE	55,588	8353	56.2	(\$1,095,134)	\$165,932	\$286,483	>1	>1	\$1,261,066	\$1,381,618
CZ08-2	LA	54,162	8402	56.1	(\$1,096,932)	\$149,615	\$269,453	>1	>1	\$1,246,548	\$1,366,386
CZ09	SCE	54,162	8402	56.1	(\$1,096,932)	\$171,168	\$269,453	>1	>1	\$1,268,101	\$1,366,386
CZ09-2	LA	49,832	8418	54.1	(\$1,093,934)	\$120,627	\$250,720	>1	>1	\$1,214,561	\$1,344,654
CZ10	SDG&E	49,832	8418	54.1	(\$1,093,934)	\$136,144	\$250,720	>1	>1	\$1,230,078	\$1,344,654
CZ10-2	SCE	25,148	10252	57.3	(\$1,094,743)	\$160,744	\$233,842	>1	>1	\$1,255,487	\$1,328,585
CZ11	PG&E	26,813	10403	59.2	(\$1,096,183)	\$10,314	\$247,504	>1	>1	\$1,106,497	\$1,343,686
CZ12	PG&E	27,217	10403	59.3	(\$1,096,183)	\$206,749	\$248,790	>1	>1	\$1,302,931	\$1,344,973
CZ12-2	SMUD	26,027	10029	56.5	(\$1,094,555)	\$164,506	\$229,300	>1	>1	\$1,259,061	\$1,323,856
CZ13	PG&E	41,123	10056	59.7	(\$1,094,914)	\$25,707	\$276,947	>1	>1	\$1,120,621	\$1,371,860
CZ14	SDG&E	41,123	10056	59.7	(\$1,094,914)	\$119,382	\$276,947	>1	>1	\$1,214,296	\$1,371,860
CZ14-2	SCE	82,697	5579	45.5	(\$1,093,034)	\$209,837	\$277,287	>1	>1	\$1,302,871	\$1,370,321
CZ15	SCE	-77,815	17599	71.1	(\$1,099,310)	(\$193,758)	\$65,850	5.7	>1	\$905,552	\$1,165,160
CZ16	PG&E	-77,815	17599	71.1	(\$1,099,310)	\$175,872	\$65,850	>1	>1	\$1,275,182	\$1,165,160
CZ16-2	LA	-55,323	16917	75.7	(\$1,095,542)	(\$238,351)	\$118,605	4.6	>1	\$857,191	\$1,214,147



6.8 List of Relevant Efficiency Measures Explored

The Reach Code Team started with a potential list of energy efficiency measures proposed for 2022 Title 24 codes and standards enhancement measures, as well as measures from the 2018 International Green Construction Code, which is based on ASHRAE Standard 189.1-2017. The team also developed new measures based on their experience. This original list was over 100 measures long. The measures were filtered based on applicability to the prototypes in this study, ability to model in simulation software, previously demonstrated energy savings potential, and market readiness. The list of 28 measures below represent the list of efficiency measures that meet these criteria and were investigated to some degree. The column to the far right indicates whether the measure was ultimately included in analysis or not.

Figure 78. List of Relevant Efficiency Measures Explored

Building Component	Measure Name	Measure Description	Notes	Include?
Water Heating	Drain water Heat Recovery	Add drain water heat recovery in hotel prototype	Requires calculations outside of modeling software.	Y
Envelope	High performance fenestration	Improved fenestration SHGC (reduce to 0.22).		Y
Envelope	High SHGC for cold climates	Raise prescriptive fenestration SHGC (to 0.45) in cold climates where additional heat is beneficial.		Y
Envelope	Allowable fenestration by orientation	Limit amount of fenestration as a function of orientation		Y
Envelope	High Thermal Mass Buildings	Increase building thermal mass. Thermal mass slows the change in internal temperature of buildings with respect to the outdoor temperature, allowing the peak cooling load during summer to be pushed to the evening, resulting in lower overall cooling loads.	Initial energy modeling results showed marginal cooling savings, negative heating savings.	N
Envelope	Opaque Insulation	Increases the insulation requirement for opaque envelopes (i.e., roof and above-grade wall).	Initial energy modeling results showed marginal energy savings at significant costs which would not meet c/e criteria.	N
Envelope	Triple pane windows	U-factor of 0.20 for all windows	Initial energy modeling results showed only marginal energy savings and, in some cases, increased energy use.	N



Building Component	Measure Name	Measure Description	Notes	Include?
Envelope	Duct Leakage Testing	Expand duct leakage testing requirements based on ASHRAE Standard 215-2018: Method of Test to Determine Leakage of Operating HVAC Air Distribution Systems (ANSI Approved).	More research needs to be done on current duct leakage and how it can be addressed.	N
Envelope	Fenestration area	Reduce maximum allowable fenestration area to 30%.	Instead of this measure, analyzed measure which looked at limiting fenestration based on wall orientation.	N
Envelope	Skinny triple pane windows	U-factor of 0.20 for all windows, with no changes to existing framing or building structure.	Market not ready. No commercially-available products for commercial buildings.	N
Envelope	Permanent projections	Detailed prescriptive requirements for shading based on ASHRAE 189. PF >0.50 for first story and >0.25 for other floors. Many exceptions. Corresponding SHGC multipliers to be used.	Title 24 already allows owner to trade off SHGC with permanent projections. Also, adding requirements for permanent projections would raise concerns.	N
Envelope	Reduced infiltration	Reduce infiltration rates by improving building sealing.	Infiltration rates are a fixed ACM input and cannot be changed. A workaround attempt would not be precise, and the practicality of implementation by developers is low given the modeling capabilities and the fact that in-field verification is challenging. Benefits would predominantly be for air quality rather than energy.	N



Building Component	Measure Name	Measure Description	Notes	Include?
HVAC	Heat recovery ventilation	For the hotel, recover and transfer heat from exhausted air to ventilation air.	<p>For small hotels, the ventilation requirement could be met by various approaches, and the most common ones are:</p> <ul style="list-style-type: none"> a. Exhaust only system, and ventilation is met by infiltration or window operation. b. Through a Z-duct that connects the zone AC unit's intake to an outside air intake louver. c. Centralized ventilation system (DOAS) <p>The prototype developed for the small hotel is using Type 2 above. The major consideration is that currently, HRV + PTACs cannot be modeled at each guest room, only at the rooftop system. Option 1 would require the same type of HRV implementation as Option 2. Option 3 may be pursuable, but would require a significant redesign of the system, with questionable impacts. Previous studies have found heat recovery as cost effective in California only in buildings with high loads or high air exchange rates, given the relatively mild climate.</p>	N
HVAC	Require Economizers in Smaller Capacity Systems	Lower the capacity trigger for air economizers. Previous studies have shown cost effectiveness for systems as low as 3 tons.		Y
HVAC	Reduce VAV minimum flow limit	Current T24 and 90.1 requirements limit VAV minimum flow rates to no more than 20% of maximum flow. Proposal based on ASHRAE Guideline 36 which includes sequences that remove technical barriers that previously existed. Also, most new DDC controllers are now capable of lower limits. The new limit may be as low as the required ventilation rate. A non-energy benefit of this measure is a reduction in over-cooling, thus improving comfort.		Y



Building Component	Measure Name	Measure Description	Notes	Include?
HVAC	Building Automation System (BAS) improvements	With adoption of ASHRAE Guideline 36 (GDL-36), there is now a national consensus standard for the description of high-performance sequences of operation. This measure will update BAS control requirements to improve usability and enforcement and to increase energy efficiency. BAS control requirement language will be improved either by adoption of similar language to GDL-36, or reference to GDL-36. Specific T24 BAS control topics that will be addressed include at a minimum: DCV, demand-based reset of SAT, demand-based reset of SP, dual-maximum zone sequences, and zone groups for scheduling.	In order to realize any savings in the difference, we would need a very detailed energy model with space-by-space load/occupant diversity, etc. We would also need more modeling capability than is currently available in CBECC-Com.	N
HVAC	Fault Detection Devices (FDD)	Expand FDD requirements to a wider range of AHU faults beyond the economizer. Fault requirements will be based on NIST field research, which has consequently been integrated into ASHRAE Guideline 36 Best in Class Sequences of Operations. Costs are solely to develop the sequences, which is likely minimal, and much of the hardware required for economizer FDD is also used to detect other faults.	Market not ready.	N
HVAC	Small circulator pumps ECM, trim to flow rate	Circulator pumps for industry and commercial.	Hot water pump energy use is small already (<1% building electricity usage) so not much savings potential. More savings for CHW pumps. Modeling limitations as well.	N
HVAC	High Performance Ducts to Reduce Static Pressure	Revise requirements for duct sizing to reduce static pressure.	Preliminary energy modeling results showed only marginal energy savings compared to measure cost.	N
HVAC	Parallel fan-powered boxes	Use of parallel fan-powered boxes	Unable to model PFPB with variable speed fans in modeling software.	N
Lighting	Daylight Dimming Plus OFF	Automatic daylight dimming controls requirements include the OFF step.		Y
Lighting	Occupant Sensing in Open Plan Offices	Take the PAF without allowing for increased design wattage		Y
Lighting	Institutional tuning	Take the PAF without allowing for increased design wattage		Y



Building Component	Measure Name	Measure Description	Notes	Include?
Lighting	Reduced Interior Lighting Power Density	Reduced interior LPD values.		Y
Lighting	Shift from general to task illumination	Low levels of general illumination with task and accent lighting added to locations where higher light levels are required. The shift from general to task illumination measure is based on the assumption that proper lighting of a desk surface with high efficacy lighting can allow for the significant reduction of ambient general lighting.	This is a tough measure to require as the LPDs decrease.	N
Lighting	Future-proof lighting controls	Fill any holes in the current code that could lead to the situations where TLEDs or LED fixtures that are not dimmable or upgradable in the future, or any other issues with code that make it hard to transition to ALCS/IoT lighting in the future	Major lighting controls already covered in other measures being considered	N
Lighting	Integrated control of lighting and HVAC systems	Formalize the definition of "lighting and HVAC control integration" by defining the level of data sharing required between systems and the mechanism needed to share such data. The highest savings potential would likely be generated from VAV HVAC systems by closing the damper in unoccupied zones based on the occupancy sensor information from the lighting systems.	Not market ready enough.	N
Other	NR Plug Load Controls	Energy savings opportunities for plug loads, which may include: energy efficient equipment, equipment power management, occupancy sensor control, and occupant awareness programs. The proposal could be extending controlled receptacles requirements in Section 130.5(d) to more occupancy types. It would also consider circuit-level controls.	Office equipment now all have their own standby power modes that use very little power, making plug load controls very difficult to be cost-effective.	N



6.9 Additional Rates Analysis - Healdsburg

After the final version of the report was released, the Reach Code Team provided additional cost effectiveness analysis in Climate Zone 2 using City of Healdsburg electric utility rates and PG&E gas rates. All aspects of the methodology remain the same, and the results for each package and prototype are aggregated below in Figure 79 through Figure 81. Results generally indicate:

- ◆ Mixed fuel prototypes achieve positive compliance margins for EE packages and are cost effective.
- ◆ All-electric prototypes achieve slightly lower compliance margins than mixed fuel for EE packages and are cost effective.
- ◆ All PV and PV+Battery packages are cost effective both using an on-bill and TDV approach.



Figure 79. Healdsburg Utility Rates Analysis – Medium Office, All Packages Cost Effectiveness Summary

Prototype	Package	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Compliance Margin (%)	Incremental Package Cost	Lifecycle Energy Cost Savings	\$-TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Medium Office	Mixed Fuel + EE	40,985	-505	8.1	17%	\$66,649	\$89,645	\$99,181	1.3	1.5	\$22,996	\$32,532
	Mixed Fuel + EE + PVB	255,787	-505	50.6	17%	\$359,648	\$510,922	\$573,033	1.4	1.6	\$151,274	\$213,385
	Mixed Fuel + HE	3,795	550	4.3	4%	\$68,937	\$24,204	\$24,676	0.4	0.4	-\$44,733	-\$44,261
	All-Electric	-49,684	3,868	5.0	-7%	-\$73,695	-\$7,042	-\$41,429	10.5	1.8	\$66,653	\$32,266
	All-Electric + EE	-11,811	3,868	15.2	10%	-\$7,046	\$83,285	\$58,563	>1	>1	\$90,331	\$65,609
	All-Electric + EE + PVB	203,026	3,868	57.8	10%	\$285,953	\$511,954	\$532,273	1.8	1.9	\$226,001	\$246,320
	All-Electric + HE	-45,916	3,868	6.1	-5%	-\$22,722	\$6,983	-\$26,394	>1	0.9	\$29,705	-\$3,672
	Mixed Fuel + 3kW	4,785	0	0.9	n/a	\$5,566	\$10,430	\$10,500	1.9	1.9	\$4,864	\$4,934
	Mixed Fuel + 3kW + 5kWh	4,785	0	0.9	n/a	\$8,356	\$10,430	\$10,500	1.2	1.3	\$2,074	\$2,144
	Mixed Fuel + 135kW	215,311	0	41.5	n/a	\$250,470	\$424,452	\$471,705	1.7	1.9	\$173,982	\$221,235
	Mixed Fuel + 135kW + 50kWh	214,861	0	42.6	n/a	\$278,370	\$423,721	\$472,898	1.5	1.7	\$145,351	\$194,528
	All-Electric + 3kW	-44,899	3,868	6.0	n/a	-\$68,129	\$3,299	-\$30,928	>1	2.2	\$71,429	\$37,201
	All-Electric + 3kW + 5kWh	-44,899	3,868	6.0	n/a	-\$65,339	\$3,299	-\$30,928	>1	2.1	\$68,639	\$34,411
	All-Electric + 135kW	165,627	3,868	46.6	n/a	\$176,775	\$424,146	\$430,276	2.4	2.4	\$247,371	\$253,501
	All-Electric + 135kW + 50kWh	165,200	3,868	47.7	n/a	\$204,675	\$423,466	\$431,469	2.1	2.1	\$218,792	\$226,795
	All-Electric + 80kW + 50kWh	40,985	-505	8.1	17%	\$66,649	\$89,645	\$99,181	1.3	1.5	\$22,996	\$32,532



Figure 80. Healdsburg Utility Rates Analysis – Medium Retail, All Packages Cost Effectiveness Summary

Prototype	Package	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Compliance Margin (%)	Incremental Package Cost	Lifecycle Energy Cost Savings	\$-TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Medium Retail	Mixed Fuel + EE	18,885	613	8.7	13%	\$5,569	\$49,546	\$59,135	8.9	10.6	\$43,977	\$53,566
	Mixed Fuel + EE + PVB	189,400	613	43.8	13%	\$249,475	\$376,219	\$465,474	1.5	1.9	\$126,744	\$215,999
	Mixed Fuel + HE	2,288	229	2.0	3%	\$9,726	\$13,143	\$13,998	1.4	1.4	\$3,417	\$4,273
	All-Electric	-21,786	2,448	7.5	-1%	-\$27,464	\$9,228	-\$4,483	>1	6.1	\$36,692	\$22,981
	All-Electric + EE	2,843	2,448	14.6	13%	-\$21,895	\$61,918	\$56,893	>1	>1	\$83,813	\$78,788
	All-Electric + EE + PVB	173,387	2,448	49.9	13%	\$222,012	\$391,257	\$463,431	1.8	2.1	\$169,245	\$241,419
	All-Electric + HE	-16,989	2,448	8.9	3%	-\$4,211	\$23,567	\$11,251	>1	>1	\$27,779	\$15,463
	Mixed Fuel + 3kW	4,685	0	0.9	n/a	\$5,566	\$10,256	\$10,262	1.8	1.8	\$4,690	\$4,696
	Mixed Fuel + 3kW + 5kWh	4,685	0	0.9	n/a	\$8,356	\$10,256	\$10,262	1.2	1.2	\$1,900	\$1,906
	Mixed Fuel + 110kW	171,790	0	33.3	n/a	\$204,087	\$316,293	\$376,300	1.5	1.8	\$112,206	\$172,213
	Mixed Fuel + 110kW + 50kWh	170,542	0	35.1	n/a	\$231,987	\$320,349	\$398,363	1.4	1.7	\$88,363	\$166,376
	All-Electric + 3kW	-17,101	2,448	8.4	n/a	-\$21,898	\$19,523	\$5,779	>1	>1	\$41,421	\$27,677
	All-Electric + 3kW + 5kWh	-17,101	2,448	8.4	n/a	-\$19,108	\$19,523	\$5,779	>1	>1	\$38,631	\$24,887
	All-Electric + 110kW	150,004	2,448	40.8	n/a	\$176,623	\$332,213	\$371,817	1.9	2.1	\$155,591	\$195,194
	All-Electric + 110kW + 50kWh	148,793	2,448	42.9	n/a	\$204,523	\$335,043	\$394,099	1.6	1.9	\$130,520	\$189,577



Figure 81. Healdsburg Utility Rates Analysis – Small Hotel, All Packages Cost Effectiveness Summary

Prototype	Package	Elec Savings (kWh)	Gas Savings (therms)	GHG savings (tons)	Compliance Margin (%)	Incremental Package Cost	Lifecycle Energy Cost Savings	\$-TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
Small Hotel	Mixed Fuel + EE	3,802	976	3.9	7%	\$20,971	\$22,829	\$29,353	1.1	1.4	\$1,857	\$8,381
	Mixed Fuel + EE + PVB	130,144	976	31.1	7%	\$205,967	\$254,577	\$336,575	1.2	1.6	\$48,610	\$130,608
	Mixed Fuel + HE	981	402	2.7	3%	\$23,092	\$12,291	\$11,808	0.5	0.5	-\$10,801	-\$11,284
	All-Electric	-	12,677	40.0	-12%	-\$1,297,757	-\$24,318	-\$51,620	53.4	25.1	\$1,273,439	\$1,246,137
	All-Electric + EE	-88,410	12,677	45.9	5%	-\$1,265,064	\$45,918	\$20,860	>1	>1	\$1,310,982	\$1,285,924
	All-Electric + EE + PVB	38,115	12,677	73.5	5%	-\$1,080,068	\$296,233	\$317,296	>1	>1	\$1,376,301	\$1,397,365
	All-Electric + HE	-	12,677	41.2	-11%	-\$1,283,243	-\$83,994	-\$44,505	15.3	28.8	\$1,199,249	\$1,238,738
	Mixed Fuel + 3kW	4,785	0	0.9	n/a	\$5,566	\$8,927	\$10,332	1.6	1.9	\$3,361	\$4,766
	Mixed Fuel + 3kW + 5kWh	4,785	0	0.9	n/a	\$8,356	\$8,927	\$10,332	1.1	1.2	\$571	\$1,976
	Mixed Fuel + 80kW	127,592	0	25.0	n/a	\$148,427	\$229,794	\$275,130	1.5	1.9	\$81,367	\$126,703
	Mixed Fuel + 80kW + 50kWh	126,332	0	28.1	n/a	\$176,327	\$236,570	\$296,058	1.3	1.7	\$60,243	\$119,731
	All-Electric + 3kW	-	12,677	40.9	n/a	-\$1,292,191	-\$14,447	-\$41,288	89.4	31.3	\$1,277,744	\$1,250,902
	All-Electric + 3kW + 5kWh	-	12,677	40.9	n/a	-\$1,289,401	-\$14,447	-\$41,288	89.3	31.2	\$1,274,954	\$1,248,112
	All-Electric + 80kW	8,853	12,677	65.0	n/a	-\$1,149,330	\$222,070	\$223,510	>1	>1	\$1,371,400	\$1,372,840
	All-Electric + 80kW + 50kWh	7,849	12,677	67.4	n/a	-\$1,121,430	\$223,812	\$239,632	>1	>1	\$1,345,241	\$1,361,062



2020 Reach Code Cost-Effectiveness Analysis

Large Office

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Acronym/Abbreviation List

ASHRAE - Society of Heating, Refrigerating and Air-Conditioning Engineers

B/C – Benefit-to-Cost (ratio)

CBECC - California Building Energy Code Compliance

BSC - California Building Standards Commission

CPAU – City of Palo Alto Utilities (utility)

CZ – Climate Zone

DOE – United States Department of Energy

E3 - Energy and Environmental Economics

Energy Commission - California Energy Commission

ft² – square foot

gal – gallon

GHG - Greenhouse Gas

HVAC - Heating, Ventilation, and Air-Conditioning (equipment)

IOU – Investor-Owned Utility

kBtu – kilo British thermal unit

kBtu/hr – kilo British thermal unit per hour

kW – kilowatt

kWh – kilowatt-Hour

LADWP – Los Angeles Department of Water and Power (utility)

mtons – metric tons

NPV – Net Present Value

POU – Publicly-Owned Utility

PG&E – Pacific Gas & Electric (utility)

PV - Photovoltaic (solar)

SCE – Southern California Edison (utility)

SoCalGas – Southern California Gas (utility)

SDG&E – San Diego Gas & Electric (utility)



- SHW – Service Hot Water (equipment)
- SMUD – Sacramento Municipal Utility District (utility)
- TDV - Time Dependent Valuation
- Title 24 – California Code of Regulations Title 24, Part 6
- W – watt(s)
- Wdc – direct current watt(s)
- VAV – Variable Air Volume

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1 Introduction

The California Building Energy Efficiency Standards Title 24, Part 6 (Title 24) is maintained and updated every three years by two state agencies: the California Energy Commission (Energy Commission) and the Building Standards Commission (BSC). In addition to enforcing the code, local jurisdictions have the authority to adopt local energy efficiency ordinances—or reach codes—that exceed the minimum standards defined by Title 24 (as established by Public Resources Code Section 25402.1(h)2 and Section 10-106 of Title 24, Part 6). Local jurisdictions that adopt energy conservation amendments or ordinances as the term is used in PRC 25402.1(h)2 must demonstrate that the requirements of the proposed ordinance are cost-effective according to the local jurisdiction criteria and do not result in buildings consuming more energy than is permitted by Title 24. For energy conservation amendments, the jurisdiction must obtain approval from the Energy Commission and file the ordinance with the BSC for the ordinance to be legally enforceable.

This report documents cost-effective combinations of measures that exceed the minimum state requirements, the 2019 Building Energy Efficiency Standards, effective January 1, 2020, for design in newly constructed buildings. This report was developed in coordination with the California Statewide Investor-Owned Utilities (IOUs) Codes and Standards Program, key consultants, and engaged cities—collectively known as the Reach Code Team.

The Reach Code Team published nonresidential new construction studies in 2019 that documented the cost-effectiveness of energy measure packages for Medium Office, Medium Retail, and Small Hotel prototypes (Statewide Utility Team, 2020). Based on stakeholder requests, this report extends that analysis to the Large Office new construction prototype.

The United States Department of Energy (DOE) sets minimum efficiency standards for equipment and appliances that are federally regulated under the National Appliance Energy Conservation Act, including heating, cooling, and water heating equipment (E-CFR, 2020). Since state and local governments are prohibited from adopting higher minimum efficiencies than the federal standards require, the focus of this study is to identify and evaluate cost-effective packages that do not include high-efficiency heating, cooling, and water heating equipment. High-efficiency appliances are often the easiest and most affordable measures to increase energy performance. While federal preemption limits reach code mandatory requirements for covered appliances, in practice, builders may install any package of compliant measures to achieve the performance requirements.

2 Methodology and Assumptions

The Reach Code Team analyzed the large office prototype using the general cost-effectiveness methodology described in this section.

2.1 Cost-Effectiveness

This section describes the approach to calculating cost-effectiveness including benefits, costs, metrics, and utility rate selection.

2.1.1 Benefits

This analysis used both *on-bill* and *time dependent valuation* (TDV) of energy-based approaches to evaluate cost-effectiveness. Both on-bill and TDV require quantifying the energy savings and costs associated with energy measures. The primary difference between on-bill and TDV is how energy is valued:

- **On-bill:** Customer-based lifecycle cost approach that values energy based upon estimated site energy usage and customer on-bill savings using electricity and natural gas utility rate schedules over a 15-year duration for nonresidential buildings, accounting for a three percent discount rate and energy cost inflation per Appendix 7.2.
- **TDV:** TDV was developed by the Energy Commission to reflect the time dependent value of energy including long-term projected costs of energy, such as the cost of providing energy during peak periods of demand and other societal costs including projected costs for carbon emissions and grid transmission impacts. With the TDV approach, electricity used (or saved) during peak periods has a much higher value than electricity used (or saved) during off-peak periods. This metric values energy use differently depending on the fuel source (natural gas, electricity, and propane), time of day, and season.

The Reach Code Team performed energy simulations using the most recent software available for 2019 Title 24 code compliance analysis, California Building Energy Code Compliance for Commercial/Nonresidential Buildings (CBECC-Com) 2019.1.3. The Reach Code Team also tested the 2022 weather files and 2022 TDV multipliers using CBECC-Com 2022 software for most results to understand potential impacts on cost-effectiveness.

2.1.2 Costs

The Reach Code Team assessed the incremental costs and savings of the energy packages over the 15 years for nonresidential prototypes. Incremental costs represent the equipment, installation, replacements, and maintenance costs of the proposed measure relative to the 2019 Title 24 Standards minimum requirements or standard industry practices. The Reach Code Team obtained measure costs from manufacturer distributors, contractors, literature review, and online sources, such as Home Depot and RS Means. Taxes and contractor markups were added as appropriate. Maintenance and replacement costs are included.

2.1.3 Metrics

Cost-effectiveness is presented using net present value (NPV) and benefit-to-cost (B/C) ratio metrics.

- **NPV:** The Reach Code Team uses net savings (NPV benefits minus NPV costs) as the cost-effectiveness metric. If the net savings of a measure or package is positive, it is considered cost-effective. Negative savings represent net costs. A measure that has negative energy cost benefits (energy cost increase) can still be cost-effective if the costs to implement the measure are even more negative (i.e., construction and maintenance cost savings).
- **B/C ratio:** The ratio of the present value of all benefits to the present value of all costs over 15 years (NPV benefits divided by NPV costs). The criteria for cost-effectiveness is a B/C ratio greater than 1.0. A value of 1.0 indicates the savings over the life of the measure are equivalent to the incremental cost of that measure. A value greater than one represents a positive return on investment.

Improving the energy performance of a building often requires an initial investment. In most cases the benefit is represented by annual on-bill utility or TDV savings, and the cost by incremental first cost and replacement costs. However, some packages result in initial construction cost savings (negative incremental cost), and either energy cost

savings (positive benefits), or increased energy costs (negative benefits). In cases where both incremental construction cost and energy-related savings are negative, the construction cost savings are treated as the benefit while the increased energy costs are the cost. In cases where a measure or package is cost-effective immediately (i.e., upfront construction cost savings and lifetime energy cost savings), B/C ratio cost-effectiveness is represented by “>1”. Because of these situations, NPV savings are also reported, which, in these cases, are positive values.

2.1.4 Utility Rates

In coordination with the rate specialists at each IOU, and the publicly available information for several Publicly-Owned Utilities (POUs), the Reach Code Team determined appropriate utility rate for each measure package (see Appendix 7.2 for details). The utility tariffs were determined based on the annual load profile of each prototype and the corresponding package, the most prevalent rate in each territory, and information assuring that the rate was not planned to be phased out. For some prototypes there are multiple options for rates because of the varying load profiles of mixed-fuel buildings versus all-electric buildings. If more than one rate schedule is applicable for a particular load profile, the Reach Code Team did not attempt to compare or test a variety of tariffs to determine their impact on cost-effectiveness. Utility rates were applied to each climate zone (CZ) based on the predominant IOU serving the population of each zone according to Figure 1.

A time-of-use (TOU) rate was applied to all cases. In addition to energy consumption charges, there are kW demand charges for monthly peak loads. Utilities calculate the peak load by the highest kW of the 15-minute interval readings in the month. However, the energy modeling software produces results on hourly intervals, hence TRC calculated the demand charges by multiplying the highest load of all hourly loads in a month with the corresponding demand charge per kW. For cases with PV generation, the approved NEM2 (Net Energy Metering) tariffs were applied along with minimum daily use billing and mandatory non-bypassable charges. For the PV cases, annual electric production was always less than annual electricity consumption; and therefore, no credits for surplus generation were necessary.

Figure 1. Utility Tariffs used based on CZ

CZ	Electric/Gas Utility	Electricity (TOU)	Natural Gas
IOUs			
1-5,11-13,16	Pacific Gas and Electric Company (PG&E)	B-1/B-10	G-NR1
5	PG&E/Southern California Gas Company (SoCalGas)	B-1/B-10	G-10 (GN-10)
6, 8-10, 14, 15	Southern California Edison (SCE)/SoCalGas	TOU-GS-1/TOU-GS-2/TOU-GS-3	G-10 (GN-10)
7, 10, 14	San Diego Gas & Electric Company (SDG&E)	TOU-A+EECC/AL-TOU+EECC	GN-3
POUs			
4	City of Palo Alto (CPAU)	E-2/E-4 TOU	G-2
12	Sacramento Municipal Utility District (SMUD)/PG&E	GSN/GSS	G-NR1
6, 8, 9, 16	Los Angeles Department of Water and Power (LADWP)/SoCalGas	A-1/A-2	G-10 (GN-10)

Utility rates are assumed to escalate over time, using assumptions from research conducted by Energy and Environmental Economics (E3) in the 2019 study Residential Building Electrification in California (Energy & Environmental Economics, 2019) and escalation rates used in the development of the 2022 TDV multipliers (Energy & Environmental Economics, 2021). See Appendix 7.2 Utility Rate Schedules for additional details.

2.2 Greenhouse Gas Emissions

The analysis uses the greenhouse gas (GHG) emissions multipliers developed by E3 (Energy & Environmental Economics, 2021). E3 developed the multipliers to support development of compliance metrics for use in the 2022 Title 24. There are 8,760 hourly multipliers accounting for GHG source emissions, including Renewable Portfolio Standards, methane leakage, and refrigerant leakage. There are 32 strings of multipliers, with a different string for each California Climate Zone and each fuel type (electricity and natural gas). The Reach Code Team used the multipliers to calculate emissions from both the 2019 and 2022 simulation results.

3 Prototype Description, Measure Packages, and Costs

This section describes the prototype and analysis method, drawing from previous 2019 Reach Code research where necessary. The Reach Code Team used a modified version of the DOE building prototype to evaluate cost-effectiveness of measure packages, after initializing the prototypes to comply with 2019 Title 24 new construction requirements, to reflect a prescriptively compliant new construction building in each CZ.

The 2019 Nonresidential Reach Code Cost-Effectiveness Study (Statewide Utility Team, 2020) examined the Medium Office prototype for mixed-fuel plus efficiency, all-electric plus efficiency, and demand flexibility measure packages (Statewide Reach Code Team 2019a). The Medium Office was a 53,000 ft² building, and representatives from jurisdictions planning to use the results to inform the development of local ordinances were unsure whether findings would apply to larger office buildings. In response, the Reach Code Team builds on the 2019 study by examining a Large Office prototype in this report.

3.1 Prototype Characteristics

Figure 2 summarizes the basic geometry and features of the Large Office. For the purposes of this study, the number of above-grade floors were reduced from the DOE prototype from ten to five at the request of jurisdictions to more accurately represent their building stock, which also reduces the total conditioned floor area. The Reach Code Team would not expect results to vary significantly compared to a ten-story office due to similar building characteristics and systems, just at a larger scale.

The baseline HVAC system includes two natural gas hot water boilers, two chillers and two cooling towers, one built up rooftop unit per floor, and variable air volume (VAV) hot water reheat boxes. The SHW design includes one 20.12 kW electric resistance hot water heater with a 70-gal storage tank.

Figure 2. Large Office Prototype Characteristics

	Large Office
Conditioned Floor Area (ft ²)	191,765
Number of Stories	5 (1 below grade)
Window-to-Wall Area Ratio	0.38
Baseline HVAC System	Built-up VAV hot water reheat system. Central gas hot water boilers (2), chillers (2), and cooling towers (2)
Baseline Water Heating System	70 gal of electric resistance water heating

3.2 Measure Definition and Costs

3.2.1 All-Electric

For the Large Office all-electric HVAC design, as with the Medium Office, the Reach Code Team selected a VAV system with an electric resistance reheat instead of hot water reheat coil. An alternative all-electric design that is designed frequently in large offices is a central heat recovery chiller and water heater serving hot water reheat coils. While this system can perform very efficiently, as of October 2021 it cannot be modeled in CBECC-Com (though the Energy Commission intends on adding this functionality in the near term). Actual energy consumption for the VAV hot water reheat baseline may be higher than the current simulation results show due to a combination of boiler and hot water distribution losses. A recent research study shows that the total losses can account for as much as 80 percent of the boiler energy use (Raftery, Geronazzo, Cheng, and Paliaga, 2018). If these losses are considered savings for the

electric resistance reheat (which has no associated distribution losses) compared to the mixed-fuel baseline, the savings may be higher.

Cost data for the Large Office prototype are presented in Figure 3. The all-electric HVAC system presents cost savings compared to the hot water reheat system from elimination of the hot water boiler and associated hot water piping distribution. Chiller, chilled-water piping, and controls cost are not presented as they are assumed to be the same for both the mixed-fuel and all-electric scenarios. The all-electric SHW system remains the same electric resistance water heater as the baseline and has no associated incremental costs.

Figure 3. Large Office All-Electric Heating System Costs

Mixed-Fuel Measure	Mixed-Fuel Cost	All-Electric Measure	All-Electric Cost	All-Electric Incremental Cost	Source
Boilers (2) and heating hot water piping	\$876,616	n/a	\$0	(\$876,616)	Cost estimator
Hydronic VAV reheat terminal units	\$2,041,460	Electric resistance VAV reheat terminal units	\$2,322,839	\$281,379	Cost estimator
Gas plumbing distribution	\$6,843	Electrical upgrades, such as wiring, distribution boards, and transformers	\$478,656	\$471,813	RSMeans
Natural gas plan review, service extension, meter	\$18,316	n/a	\$0	(\$18,316)	2019 Nonresidential New Construction Reach Code Study (Statewide Reach Code Team 2019a)
Total	\$2,943,235		\$2,801,495	(\$141,740)	

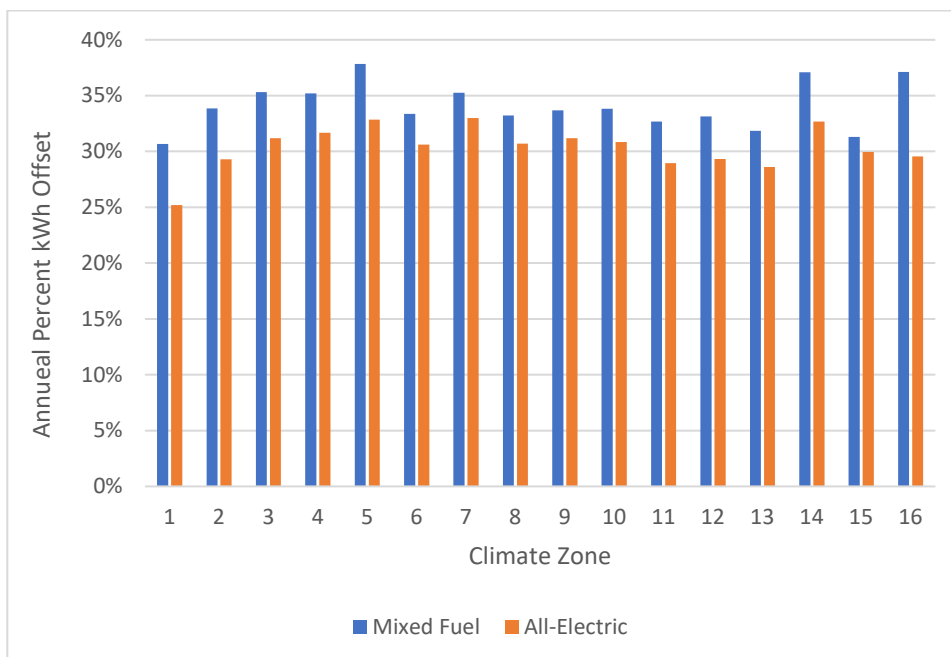
3.2.2 Efficiency

Efficiency measures are the same as those from the 2019 Nonresidential Reach Code Cost-Effectiveness Study (Statewide Reach Codes Team 2019a) for the Medium Office, which are primarily lighting measures but also include envelope and HVAC measures. Please refer to Appendix 7.3 Efficiency Measures for Large Office for cost information reproduced from the 2019 study.

3.2.3 Solar PV

The Reach Code Team estimated a large PV system size at 15 W/ft² covering 50 percent of the roof area. This approach assumes that the other 50 percent of the roof is for skylights, mechanical equipment, and walking paths. Figure 4 shows the percent of electricity offset by PV for both mixed-fuel and all-electric buildings over their respective federal minimum design package.

Figure 4. Annual Percent kWh Offset with 285 kW Array



3.2.4 Measure Packages

The Reach Code Team examined the following packages:

- Large Office Baseline Package: Mixed-fuel prescriptively built building.
- All-Electric (AE): Including electric appliances that meet federal minimum efficiency criteria, as well as electrical upgrades, such as on-site secondary transformers. All other aspects of the building are prescriptively built.
- All-Electric + Efficiency (AE Eff): All-electric, including efficiency measures. See Appendix 7.3 Efficiency Measures for Large Office for details.
- All-Electric + Efficiency + Solar PV (AE Eff PV): All-electric, including efficiency measures and a solar PV array.

4 Results

TDV and on-bill based cost-effectiveness results are presented in terms of B/C ratio and NPV savings. What constitutes a 'benefit' or a 'cost' varies with the scenarios because both energy savings and incremental construction costs may be negative depending on the package. Typically, on-bill savings are categorized as a 'benefit' while incremental construction costs are treated as 'costs.' In cases where both construction costs and on-bill savings are negative; the construction cost savings are treated as the 'benefit' while the on-bill negative savings are the 'cost.'

Overarching factors to keep in mind when reviewing the results include:

- All-electric packages will have lower **GHG emissions** than mixed-fuel packages in all cases, due to the clean power sources currently available from California's power providers.
- To be approved by the Energy Commission's application process, local reach codes that amend the energy code must **both be cost-effective** compared to the mixed-fuel baseline package **and exceed the energy performance budget** using TDV (i.e., have a positive compliance margin) compared to the standard design in the compliance software. To emphasize these two important factors, the figures in this section highlight in green the modeling results that have **either** a positive compliance margin or are cost-effective. This will allow readers to identify whether a scenario is fully or partially supportive of a reach code. When a modeling result is not cost-effective, it is highlighted in red. Section 5 highlights only results that have **both** a positive compliance margin and are cost-effective, to allow readers to identify reach code-ready scenarios.
- Nonresidential buildings **do not have an all-electric prescriptive design pathway** and are compared to a mixed-fuel standard design for most occupancies. Because of current policy metrics, this comparison typically results in TDV-related penalties and associated negative compliance margins. These negative compliance margins are reflected in the 'baseline' all-electric packages, and must be overcome with the addition of building energy efficiency measures.
- The Energy Commission **does not currently allow compliance credit for solar PV** in nonresidential buildings. Thus, compliance margins for nonresidential packages containing these technologies are the same as packages without. However, the Reach Code Team did include the impact of solar PV when calculating overall TDV cost-effectiveness.
- As mentioned in Section 2.1.4, The Reach Code Team coordinated with utilities to select tariffs given the annual energy demand profile and the most prevalent rates in each utility territory. The Reach Code Team **did not compare a variety of tariffs** to determine their impact on cost-effectiveness although utility rate changes or updates can effect on-bill cost-effectiveness results.
- As a point of comparison, **mixed-fuel baseline** energy figures are provided in Appendix 7.4 Mixed-Fuel Baseline Energy Figures.
- The cost-effectiveness results for 2022 analysis differs from 2019 mainly in TDV savings, but also differs slightly in energy consumption which translates in minor difference in on-bill energy savings. The Reach Code Team **has not reported the 2022 Energy Code compliance margin outputs** as the compliance software has not yet been updated to reflect the 2022 Energy Code.

Because there is no all-electric prescriptive pathway for nonresidential buildings under the 2019 Energy Code, Figure 5 shows negative compliance margins in all CZs when replacing natural gas HVAC equipment with all-electric. The addition of cost-effective energy efficiency measures—with lighting delivering the most savings—yields positive compliance margins in all CZs except the coldest (CZs 1 and 16). The construction cost savings of using electric HVAC results in cost-effective all-electric efficiency packages in most CZs, and efficiency + solar PV packages in all CZs, as shown in Figure 6 and Figure 7, respectively.

Figure 5. Cost-effectiveness for Large Office: All-Electric

CZ	Utility	Annual Elec Savings (kWh)	Annual Gas Savings (therms)	Annual GHG Reductions (tons)	Compliance Margin	Upfront Incremental Package Cost	Lifecycle Utility Cost Savings	Lifecycle \$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
CZ01	PG&E	(262,847)	16,395	28.5	-29.8%	\$(141,740)	\$(359,716)	\$(371,473)	0.4	0.4	\$(217,976)	\$(229,733)
CZ02	PG&E	(206,143)	12,600	19.7	-11.5%	\$(141,740)	\$(290,124)	\$(233,027)	0.5	0.6	\$(148,385)	\$(91,287)
CZ03	PG&E	(166,467)	9,905	13.6	-16.6%	\$(141,740)	\$(227,387)	\$(206,276)	0.6	0.7	\$(85,647)	\$(64,536)
CZ04	PG&E	(147,048)	8,778	12.1	-11.0%	\$(141,740)	\$(186,234)	\$(170,819)	0.7	0.8	\$(44,494)	\$(29,079)
CZ04-2	CPAU	(147,048)	8,778	12.1	-11.0%	\$(141,740)	\$(81,699)	\$(170,819)	0.8	0.8	\$60,041	\$(29,079)
CZ05	PG&E	(194,316)	11,756	17.1	-18.1%	\$(141,740)	\$(226,399)	\$(241,369)	0.6	0.6	\$(84,659)	\$(99,629)
CZ05-2	SoCalGas	(194,316)	11,756	17.1	-18.1%	\$(141,740)	\$(288,893)	\$(241,369)	0.5	0.6	\$(147,154)	\$(99,629)
CZ06	SCE	(123,271)	7,088	7.5	-7.7%	\$(141,740)	\$(45,293)	\$(146,660)	3.2	0.97	\$96,447	\$(4,920)
CZ06-2	LADWP	(123,271)	7,088	7.5	-7.7%	\$(141,740)	\$33,031	\$(146,660)	>1	0.97	\$174,771	\$(4,920)
CZ07	SDG&E	(93,327)	5,092	4.7	-7.9%	\$(141,740)	\$(36,592)	\$(116,624)	3.9	1.2	\$105,148	\$25,116
CZ08	SCE	(112,492)	6,371	6.4	-5.1%	\$(141,740)	\$(34,679)	\$(134,973)	4.1	1.1	\$107,061	\$6,767
CZ08-2	LADWP	(112,492)	6,371	6.4	-5.1%	\$(141,740)	\$34,202	\$(134,973)	>1	1.1	\$175,942	\$6,767
CZ09	SCE	(112,134)	6,444	7.1	-2.6%	\$(141,740)	\$(35,382)	\$(131,390)	4.1	1.1	\$106,358	\$10,350
CZ09-2	LADWP	(112,134)	6,444	7.1	-2.6%	\$(141,740)	\$33,011	\$(131,390)	>1	1.1	\$174,751	\$10,350
CZ10	SDG&E	(134,491)	7,574	7.8	-4.8%	\$(141,740)	\$(61,938)	\$(160,839)	2.3	0.9	\$79,802	\$(19,099)
CZ10-2	SCE	(134,491)	7,574	7.8	-4.8%	\$(141,740)	\$(54,157)	\$(160,839)	2.7	0.9	\$87,583	\$(19,099)
CZ11	PG&E	(179,689)	10,792	13.9	-5.9%	\$(141,740)	\$(244,543)	\$(200,734)	0.6	0.7	\$(102,803)	\$(58,994)
CZ12	PG&E	(177,729)	10,678	14.0	-7.3%	\$(141,740)	\$(258,118)	\$(200,865)	0.5	0.7	\$(116,378)	\$(59,126)
CZ12-2	SMUD	(177,729)	10,678	14.0	-7.3%	\$(141,740)	\$(102,625)	\$(200,865)	1.3	0.7	\$39,115	\$(59,126)
CZ13	PG&E	(159,727)	9,590	11.5	-5.8%	\$(141,740)	\$(220,348)	\$(183,952)	0.6	0.8	\$(78,608)	\$(42,212)
CZ14	SDG&E	(190,360)	10,986	10.4	-7.4%	\$(141,740)	\$(216,220)	\$(221,327)	0.7	0.6	\$(74,480)	\$(79,587)
CZ14-2	SCE	(190,360)	10,986	10.4	-7.4%	\$(141,740)	\$(138,030)	\$(221,327)	1.05	0.6	\$3,710	\$(79,587)
CZ15	SCE	(71,444)	3,890	1.9	2.1%	\$(141,740)	\$(22,684)	\$(86,001)	6.4	1.6	\$119,056	\$55,739
CZ16	PG&E	(336,846)	18,599	23.5	-37.8%	\$(141,740)	\$(536,715)	\$(576,006)	0.3	0.2	\$(394,975)	\$(434,266)
CZ16-2	LADWP	(336,846)	18,599	23.5	-37.8%	\$(141,740)	\$(56,676)	\$(576,006)	2.5	0.2	\$85,064	\$(434,266)

Figure 6. Cost-effectiveness for Large Office: All-Electric + Eff

CZ	Utility	Annual Elec Savings (kWh)	Annual Gas Savings (therms)	Annual GHG Reductions (tons)	Compliance Margin	Upfront Incremental Package Cost	Lifecycle Utility Cost Savings	Lifecycle \$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
CZ01	PG&E	(164,077)	16,395	44.3	-11.3%	\$58,676	\$(109,969)	\$(145,177)	-1.9	-2.5	\$(168,645)	\$(203,854)
CZ02	PG&E	(91,089)	12,600	38.4	6.1%	\$58,676	\$15,651	\$57,472	0.3	0.98	\$(43,025)	\$(1,205)
CZ03	PG&E	(47,376)	9,905	33.3	5.5%	\$58,676	\$89,927	\$84,923	1.5	1.4	\$31,251	\$26,246
CZ04	PG&E	(23,199)	8,778	32.7	9.2%	\$84,515	\$143,442	\$137,608	1.7	1.6	\$58,927	\$53,094
CZ04-2	CPAU	(23,199)	8,778	32.7	9.2%	\$84,515	\$195,263	\$137,608	2.3	1.6	\$110,748	\$53,094
CZ05	PG&E	(80,683)	11,756	35.2	2.2%	\$58,676	\$75,708	\$34,757	1.29	0.6	\$17,031	\$(23,919)
CZ05-2	SoCalGas	(80,683)	11,756	35.2	2.2%	\$58,676	\$13,213	\$34,757	0.2	0.6	\$(45,463)	\$(23,919)
CZ06	SCE	10,223	7,088	30.5	12.6%	\$84,515	\$151,619	\$192,519	1.8	2.3	\$67,105	\$108,004
CZ06-2	LADWP	10,223	7,088	30.5	12.6%	\$84,515	\$164,918	\$192,519	1.95	2.3	\$80,403	\$108,004
CZ07	SDG&E	42,211	5,092	28.5	14.1%	\$84,515	\$349,658	\$232,184	4.1	2.7	\$265,144	\$147,670
CZ08	SCE	21,755	6,371	29.9	13.6%	\$84,515	\$158,816	\$207,746	1.9	2.5	\$74,302	\$123,231
CZ08-2	LADWP	21,755	6,371	29.9	13.6%	\$84,515	\$161,890	\$207,746	1.9	2.5	\$77,376	\$123,231
CZ09	SCE	18,792	6,444	29.4	13.8%	\$84,515	\$156,638	\$202,843	1.9	2.4	\$72,123	\$118,328
CZ09-2	LADWP	18,792	6,444	29.4	13.8%	\$84,515	\$161,996	\$202,843	1.9	2.4	\$77,482	\$118,328
CZ10	SDG&E	4,572	7,574	32.1	13.0%	\$84,515	\$300,594	\$184,670	3.6	2.2	\$216,079	\$100,155
CZ10-2	SCE	4,572	7,574	32.1	13.0%	\$84,515	\$140,138	\$184,670	1.7	2.2	\$55,624	\$100,155
CZ11	PG&E	(58,308)	10,792	33.9	9.1%	\$84,515	\$86,028	\$102,806	1.0	1.2	\$1,513	\$18,291
CZ12	PG&E	(58,409)	10,678	33.4	8.8%	\$84,515	\$53,554	\$102,291	0.6	1.2	\$(30,961)	\$17,777
CZ12-2	SMUD	(58,409)	10,678	33.4	8.8%	\$84,515	\$110,597	\$102,291	1.3	1.2	\$26,082	\$17,777
CZ13	PG&E	(43,265)	9,590	30.5	9.5%	\$84,515	\$84,765	\$104,812	1.0	1.2	\$250	\$20,297
CZ14	SDG&E	(70,979)	10,986	30.0	7.7%	\$84,515	\$88,727	\$80,053	1.0	0.9	\$4,213	\$(4,462)
CZ14-2	SCE	(70,979)	10,986	30.0	7.7%	\$84,515	\$18,453	\$80,053	0.2	0.9	\$(66,062)	\$(4,462)
CZ15	SCE	55,545	3,890	23.4	15.6%	\$84,515	\$167,981	\$235,297	2.0	2.8	\$83,466	\$150,782
CZ16	PG&E	(217,178)	18,599	45.5	-18.9%	\$58,676	\$(263,234)	\$(289,187)	-4.5	-4.9	\$(321,910)	\$(347,863)
CZ16-2	LADWP	(217,178)	18,599	45.5	-18.9%	\$58,676	\$18,637	\$(289,187)	0.3	-4.9	\$(40,040)	\$(347,863)

Figure 7. Cost-effectiveness for Large Office: All-Electric + Eff + PV

CZ	Utility	Annual Elec Savings (kWh)	Annual Gas Savings (therms)	Annual GHG Reductions (tons)	Compliance Margin	Upfront Incremental Package Cost	Lifecycle Utility Cost Savings	Lifecycle \$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
CZ01	PG&E	208,501	16,395	61.2	-11.3%	\$669,506	\$793,703	\$652,657	1.2	0.97	\$124,197	\$(16,848)
CZ02	PG&E	355,791	12,600	58.7	6.1%	\$669,506	\$1,091,002	\$1,033,622	1.6	1.5	\$421,496	\$364,116
CZ03	PG&E	399,620	9,905	53.8	5.5%	\$669,506	\$1,168,136	\$1,041,892	1.7	1.6	\$498,630	\$372,386
CZ04	PG&E	440,513	8,778	54.6	9.2%	\$695,344	\$1,265,593	\$1,150,898	1.8	1.7	\$570,248	\$455,553
CZ04-2	CPAU	440,513	8,778	54.6	9.2%	\$695,344	\$1,252,581	\$1,150,898	1.8	1.7	\$557,237	\$455,553
CZ05	PG&E	401,653	11,756	59.1	2.2%	\$669,506	\$1,239,738	\$1,068,395	1.9	1.6	\$570,232	\$398,889
CZ05-2	SoCalGas	401,653	11,756	59.1	2.2%	\$669,506	\$1,177,244	\$1,068,395	1.8	1.6	\$507,738	\$398,889
CZ06	SCE	465,400	7,088	54.1	12.6%	\$695,344	\$680,649	\$1,210,243	0.98	1.7	\$(14,695)	\$514,899
CZ06-2	LADWP	465,400	7,088	54.1	12.6%	\$695,344	\$579,838	\$1,210,243	0.8	1.7	\$(115,506)	\$514,899
CZ07	SDG&E	517,218	5,092	54.0	14.1%	\$695,344	\$1,360,957	\$1,282,704	2.0	1.8	\$665,612	\$587,360
CZ08	SCE	481,259	6,371	53.4	13.6%	\$695,344	\$685,891	\$1,274,010	0.99	1.8	\$(9,453)	\$578,665
CZ08-2	LADWP	481,259	6,371	53.4	13.6%	\$695,344	\$575,703	\$1,274,010	0.8	1.8	\$(119,642)	\$578,665
CZ09	SCE	492,757	6,444	53.9	13.8%	\$695,344	\$692,836	\$1,283,827	0.99	1.8	\$(2,508)	\$588,483
CZ09-2	LADWP	492,757	6,444	53.9	13.8%	\$695,344	\$582,237	\$1,283,827	0.8	1.8	\$(113,108)	\$588,483
CZ10	SDG&E	478,753	7,574	56.7	13.0%	\$695,344	\$1,296,256	\$1,229,995	1.9	1.8	\$600,912	\$534,651
CZ10-2	SCE	478,753	7,574	56.7	13.0%	\$695,344	\$674,381	\$1,229,995	0.97	1.8	\$(20,964)	\$534,651
CZ11	PG&E	399,585	10,792	55.4	9.1%	\$695,344	\$1,162,457	\$1,129,930	1.7	1.6	\$467,113	\$434,585
CZ12	PG&E	392,978	10,678	54.0	8.8%	\$695,344	\$1,131,755	\$1,115,934	1.6	1.6	\$436,411	\$420,590
CZ12-2	SMUD	392,978	10,678	54.0	8.8%	\$695,344	\$904,425	\$1,115,934	1.3	1.6	\$209,080	\$420,590
CZ13	PG&E	404,328	9,590	50.6	9.5%	\$695,344	\$1,150,674	\$1,095,498	1.7	1.6	\$455,329	\$400,153
CZ14	SDG&E	449,987	10,986	57.4	7.7%	\$695,344	\$1,231,844	\$1,289,059	1.8	1.9	\$536,499	\$593,715
CZ14-2	SCE	449,987	10,986	57.4	7.7%	\$695,344	\$631,960	\$1,289,059	0.91	1.9	\$(63,384)	\$593,715
CZ15	SCE	544,152	3,890	49.3	15.6%	\$695,344	\$692,819	\$1,335,246	0.99	1.9	\$(2,526)	\$639,902
CZ16	PG&E	269,671	18,599	69.9	-18.9%	\$669,506	\$846,748	\$748,403	1.3	1.1	\$177,242	\$78,897
CZ16-2	LADWP	269,671	18,599	69.9	-18.9%	\$669,506	\$418,341	\$748,403	0.6	1.1	\$(251,165)	\$78,897

The Reach Code Team tested the All-Electric + Efficiency package in 2022 software to ascertain potential improvements in cost-effectiveness resulting from 2022 weather files and TDV, because the TDV intensity of electricity usage is lower in 2022 versus 2019 TDV (i.e., electricity usage has become less valuable, and thus electrification may be less penalized in the compliance software). Figure 8 depicts the growing TDV intensity of gas and the lower intensity of electricity for the Large Office when comparing the 2022 annual TDV consumption of the mixed-fuel baseline to the 2019 annual TDV consumption. The overall 2022 TDV energy consumption is lower than 2019.

Figure 8. Annual TDV Energy Consumption Mixed-Fuel Baseline, 2019 and 2022

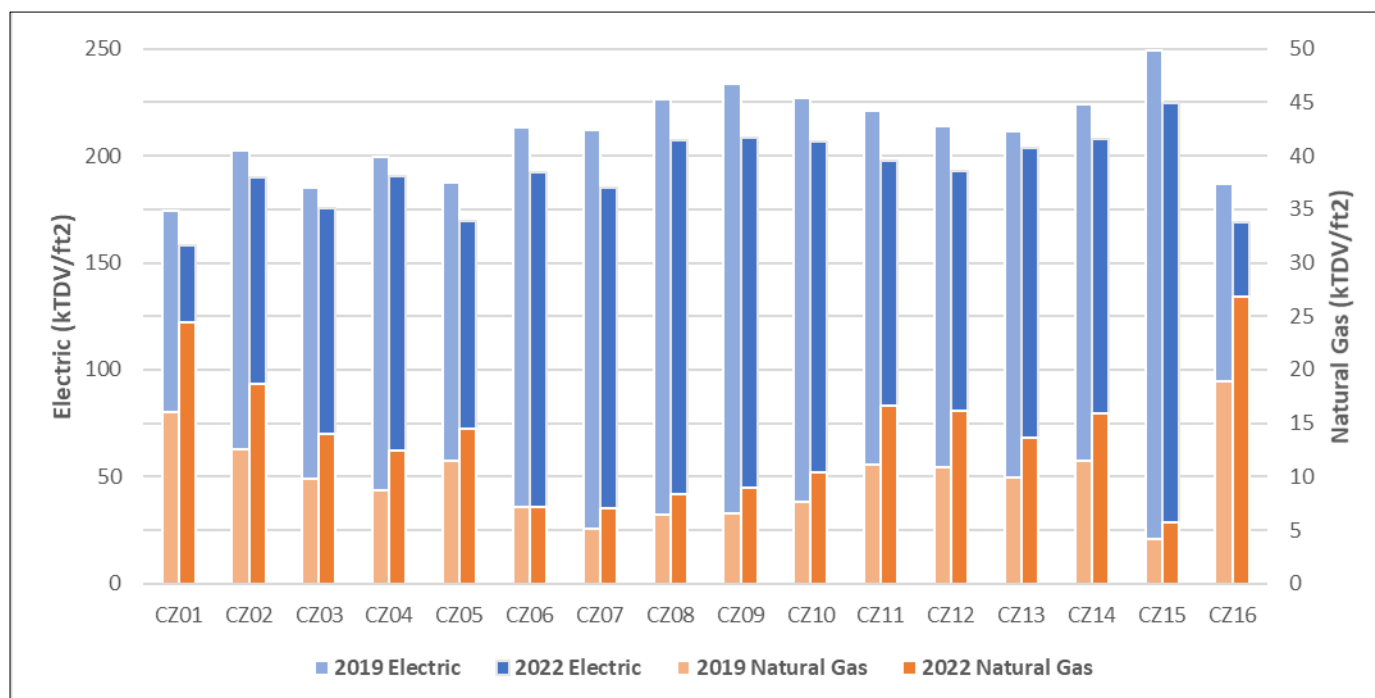
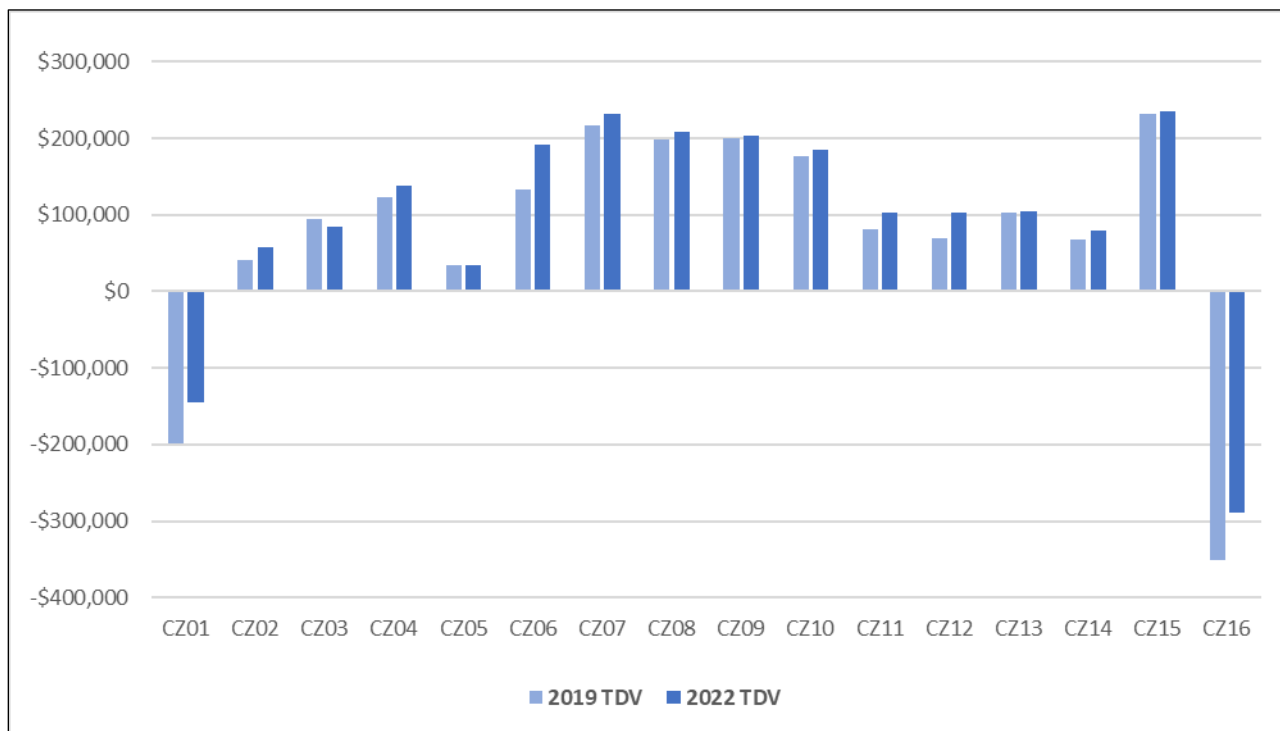


Figure 9 shows that the 2022 TDV savings of the All-Electric + Eff packages are lower than 2019 for all CZs except CZ3. This may be because the 1) overall TDV consumption of the mixed-fuel baseline is lower in 2022, as shown above, and thus the available savings are also smaller, and 2) the largest energy efficiency gains are resulting from lighting measure electricity savings, and these savings are less valued under 2022 TDV.

Figure 9. TDV Savings for All-Electric + Eff Packages, 2019 vs 2022



Cost-effectiveness does not show significant improvement in Figure 10. Note that the software outputs for 2022 compliance margins are not reported. The 2022 Energy Code compliance software is still in development.

Figure 10. Cost-effectiveness for Large Office: All-Electric + Eff 2022

CZ	Utility	Annual Elec Savings (kWh)	Annual Gas Savings (therms)	Annual GHG Reductions (tons)	Compliance Margin	Upfront Incremental Package Cost	Lifecycle Utility Cost Savings	Lifecycle \$TDV Savings	B/C Ratio (On-bill)	B/C Ratio (TDV)	NPV (On-bill)	NPV (TDV)
CZ01	PG&E	(187,142)	18,821	36.4	<0	\$58,676	\$(107,652)	\$(197,805)	-1.8	-3.4	\$(166,328)	\$(256,481)
CZ02	PG&E	(106,635)	14,094	39.2	>0	\$58,676	\$40,368	\$41,623	0.7	0.7	\$(18,308)	\$(17,054)
CZ03	PG&E	(50,653)	10,650	38.2	>0	\$58,676	\$132,079	\$95,007	2.3	1.6	\$73,402	\$36,331
CZ04	PG&E	(26,266)	9,368	40.1	>0	\$84,515	\$177,292	\$122,821	2.1	1.5	\$92,777	\$38,306
CZ04-2	CPAU	(26,266)	9,368	40.1	>0	\$84,515	\$229,143	\$122,821	2.7	1.5	\$144,628	\$38,306
CZ05	PG&E	(62,776)	11,028	36.7	>0	\$58,676	\$123,433	\$33,729	2.1	0.6	\$64,757	\$(24,948)
CZ05-2	SoCalGas	(62,776)	11,028	36.7	>0	\$58,676	\$64,558	\$33,729	1.1	0.6	\$5,882	\$(24,948)
CZ06	SCE	14,532	5,151	41.7	>0	\$84,515	\$117,536	\$133,269	1.4	1.6	\$33,021	\$48,754
CZ06-2	LADWP	14,532	5,151	41.7	>0	\$84,515	\$120,465	\$133,269	1.4	1.6	\$35,951	\$48,754
CZ07	SDG&E	42,566	5,313	42.0	>0	\$84,515	\$330,250	\$217,762	3.9	2.6	\$245,735	\$133,248
CZ08	SCE	30,239	6,218	41.9	>0	\$84,515	\$161,511	\$198,882	1.9	2.4	\$76,997	\$114,367
CZ08-2	LADWP	30,239	6,218	41.9	>0	\$84,515	\$162,228	\$198,882	1.9	2.4	\$77,714	\$114,367
CZ09	SCE	24,495	6,646	41.2	>0	\$84,515	\$158,352	\$201,004	1.9	2.4	\$73,838	\$116,490
CZ09-2	LADWP	24,495	6,646	41.2	>0	\$84,515	\$162,958	\$201,004	1.9	2.4	\$78,444	\$116,490
CZ10	SDG&E	5,973	7,669	42.9	>0	\$84,515	\$315,200	\$176,958	3.7	2.1	\$230,686	\$92,443
CZ10-2	SCE	5,973	7,669	42.9	>0	\$84,515	\$146,716	\$176,958	1.7	2.1	\$62,202	\$92,443
CZ11	PG&E	(69,606)	12,156	40.1	>0	\$84,515	\$108,111	\$81,549	1.3	0.96	\$23,596	\$(2,966)
CZ12	PG&E	(67,837)	11,933	38.4	>0	\$84,515	\$101,811	\$70,264	1.2	0.8	\$17,297	\$(14,251)
CZ12-2	SMUD	(67,837)	11,933	38.4	>0	\$84,515	\$118,718	\$70,264	1.4	0.8	\$34,204	\$(14,251)
CZ13	PG&E	(39,003)	9,930	37.3	>0	\$84,515	\$127,205	\$102,422	1.5	1.2	\$42,691	\$17,908
CZ14	SDG&E	(66,480)	11,529	35.5	>0	\$84,515	\$190,690	\$67,444	2.3	0.8	\$106,175	\$(17,071)
CZ14-2	SCE	(66,480)	11,529	35.5	>0	\$84,515	\$74,832	\$67,444	0.89	0.8	\$(9,683)	\$(17,071)
CZ15	SCE	60,850	4,137	38.4	>0	\$84,515	\$167,823	\$231,422	2.0	2.7	\$83,309	\$146,907
CZ16	PG&E	(233,692)	20,003	37.1	<0	\$58,676	\$(250,720)	\$(350,853)	-4.3	-6.0	\$(309,396)	\$(409,529)
CZ16-2	LADWP	(233,692)	20,003	37.1	<0	\$58,676	\$43,985	\$(350,853)	0.7	-6.0	\$(14,691)	\$(409,529)

5 Summary of Results

The Reach Code Team developed packages of energy efficiency measures as well as packages combining energy efficiency with PV generation and battery storage systems, simulated them in CBECC-Com, and gathered costs to determine the cost-effectiveness of multiple scenarios. The Reach Code Team coordinated assumptions with multiple utilities, cities, and building community experts to develop a set of assumptions considered reasonable in the current market. Changing assumptions, such as the period of analysis, measure selection, cost assumptions, energy escalation rates, or utility tariffs are likely to change results.

Figure 11 summarizes results for the Large Office prototype and depicts the compliance margins achieved for each CZ and package. Because local reach codes must both exceed the Energy Commission performance budget (i.e., have a positive compliance margin) and be cost-effective, the Reach Code Team highlighted cells meeting these two requirements to help clarify the upper boundary for potential reach code policies:

- Cells highlighted in green depict a positive compliance margin and cost-effective results using both on-bill and TDV approaches.
- Cells highlighted in yellow depict a positive compliance and cost-effective results using either the on-bill or TDV approach.
- Cells not highlighted either depict a negative compliance margin or a package that was not cost-effective using either the on-bill or TDV approach.

The Reach Code Team found that electrifying Large Office HVAC and adding efficiency measures is generally cost-effective. The all-electric plus energy efficiency packages are cost-effective in all CZs except 1, 2, 5-2 (SoCalGas), 14-2 (SCE), and 16. Adding solar PV makes the efficiency packages cost-effective in all CZs, though do not achieve positive compliance margins in CZs 1 and 16. Reach codes may require all-electric large offices in all CZs except 1 and 16, but must include solar PV requirements in CZs 2, 5-2, and 14-2.

Figure 11. Large Office Summary of Compliance Margin and Cost-effectiveness

CZ	Utility	All Electric (2019 TDV)			All Electric (2022 TDV)
		AE	AE + Eff	AE + Eff + PV	AE + Eff
CZ01	PG&E	-30%	-11%	-11%	<0
CZ02	PG&E	-12%	6%	6%	>0
CZ03	PG&E	-17%	5%	5%	>0
CZ04	PG&E	-11%	9%	9%	>0
CZ04-2	CPAU	-11%	9%	9%	>0
CZ05	PG&E	-18%	2%	2%	>0
CZ05-2	SoCalGas	-18%	2%	2%	>0
CZ06	SCE	-8%	13%	13%	>0
CZ06-2	LADWP	-8%	13%	13%	>0
CZ07	SDG&E	-8%	14%	14%	>0
CZ08	SCE	-5%	14%	14%	>0
CZ08-2	LADWP	-5%	14%	14%	>0
CZ09	SCE	-3%	14%	14%	>0
CZ09-2	LADWP	-3%	14%	14%	>0
CZ10	SDG&E	-5%	13%	13%	>0
CZ10-2	SCE	-5%	13%	13%	>0
CZ11	PG&E	-6%	9%	9%	>0
CZ12	PG&E	-7%	9%	9%	>0
CZ12-2	SMUD	-7%	9%	9%	>0
CZ13	PG&E	-6%	10%	10%	>0
CZ14	SDG&E	-7%	8%	8%	>0
CZ14-2	SCE	-7%	8%	8%	>0
CZ15	SCE	2%	16%	16%	>0
CZ16	PG&E	-38%	-19%	-19%	<0
CZ16-2	LADWP	-38%	-19%	-19%	<0

6 References

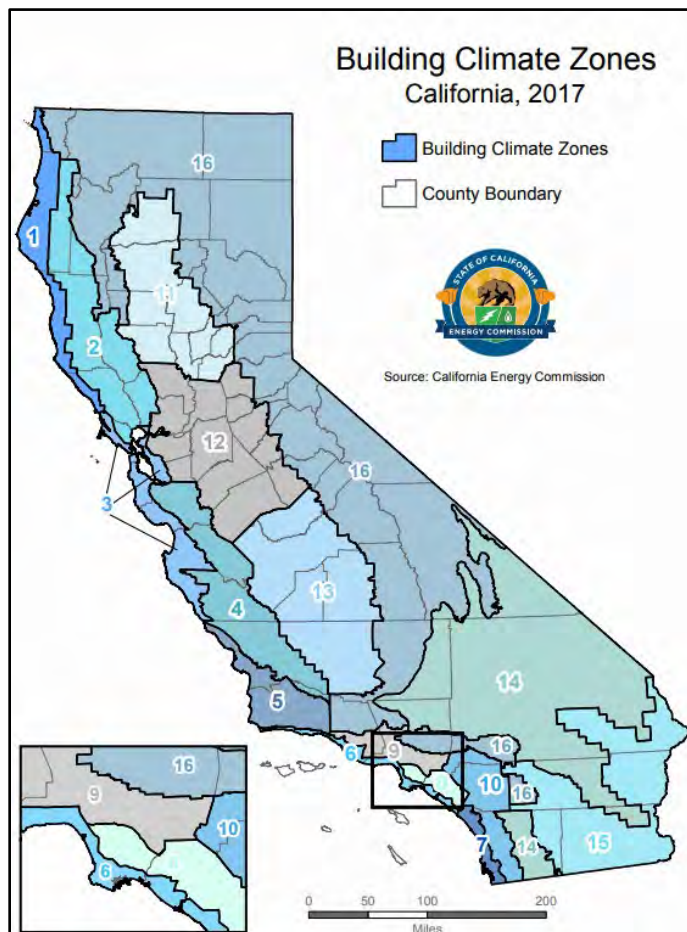
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7 Appendices

7.1 Map of California CZs

CZ geographical boundaries are depicted in Figure 12. The map in Figure 12 along with a zip-code search directory is available at: https://ww2.energy.ca.gov/maps/renewable/building_climate_zones.html

Figure 12. Map of California CZs



7.2 Utility Rate Schedules

The Reach Code Team used the IOU rate tariffs listed in to determine the on-bill savings for each prototype.

Figure 13. Utility Tariffs Analyzed Based on CZ: Detailed View

CZ	Electric/Gas Utility	Electricity (TOU)	Natural Gas
CZ01	PG&E	B-10	G-NR1
CZ02	PG&E	B-10	G-NR1
CZ03	PG&E	B-10	G-NR1
CZ04	PG&E	B-10	G-NR1
CZ04-2	CPAU	E-2	G-2
CZ05	PG&E	B-10	G-NR1
CZ05-2	PG&E/SoCalGas	B-10	G-10 (GN-10)
CZ06	SCE/SoCalGas	TOU-GS-3	G-10 (GN-10)
CZ06-2	LADWP/SoCalGas	A-2	G-10 (GN-10)
CZ07	SDG&E	AL-TOU+EECC	GN-3
CZ08	SCE/SoCalGas	TOU-GS-3	G-10 (GN-10)
CZ08-2	LADWP/SoCalGas	A-2	G-10 (GN-10)
CZ09	SCE/SoCalGas	TOU-GS-3	G-10 (GN-10)
CZ09-2	LADWP/SoCalGas	A-2	G-10 (GN-10)
CZ10	SDG&E	AL-TOU+EECC	GN-3
CZ10-2	SCE/SoCalGas	TOU-GS-3	G-10 (GN-10)
CZ11	PG&E	B-10	G-NR1
CZ12	PG&E	B-10	G-NR1
CZ12-2	SMUD/PG&E	GSS	G-NR1
CZ13	PG&E	B-10	G-NR1
CZ14	SDG&E	AL-TOU+EECC	GN-3
CZ14-2	SCE/SoCalGas	TOU-GS-3	G-10 (GN-10)
CZ15	SCE/SoCalGas	TOU-GS-3	G-10 (GN-10)
CZ16	PG&E	B-10	G-NR1
CZ16-2	LADWP/PG&E	A-2	G-NR1

Utility rates are assumed to escalate over time, using assumptions from research conducted by Energy and Environmental Economics (E3) in the 2019 study Residential Building Electrification in California (Energy & Environmental Economics, 2019) and escalation rates used in the development of the 2022 TDV multipliers (Energy & Environmental Economics, 2021). Figure 14 demonstrates the escalation rates used for nonresidential buildings above inflation.

Figure 14. Real Utility Rate Escalation Rate Assumptions Above Inflation

Year	Source	Statewide Electric Nonresidential Average Rate (%/year, real)	Natural Gas Nonresidential Core Rate (%/year, real)
2020	E3 2019	2.0%	4.3%
2021	E3 2019	2.0%	4.3%
2022	E3 2019	2.0%	2.7%
2023	E3 2019	2.0%	4.0%
2024	2022 TDV	0.7%	7.7%
2025	2022 TDV	0.5%	5.5%
2026	2022 TDV	0.7%	5.6%
2027	2022 TDV	0.2%	5.6%
2028	2022 TDV	0.6%	5.7%

2029	2022 TDV	0.7%	5.7%
2030	2022 TDV	0.6%	5.8%
2031	2022 TDV	0.6%	3.3%
2032	2022 TDV	0.6%	3.6%
2033	2022 TDV	0.6%	3.4%
2034	2022 TDV	0.6%	3.4%

7.3 Efficiency Measures for Large Office

The Reach Code Team applied the efficiency measures from the 2019 Nonresidential Reach Code Cost-Effectiveness Study to the Large Office. These measures are listed below. Refer to Figure 15 for cost information reproduced from the 2019 study.

- **Modify SHGC fenestration:** In all CZs, Reduce window SHGC from the prescriptive value of 0.25 to 0.22. The fenestration visible transmittance and U-factor remain at prescriptive values.
- **Fenestration as a function of orientation:** Limit the amount of fenestration area as a function of orientation. East-facing and west-facing windows are each limited to one-half of the average amount of north-facing and south-facing windows.
- **VAV box minimum flow:** Reduce VAV box minimum airflows from the current T24 prescriptive requirement of 20 percent of maximum (design) airflow to the T24 zone ventilation minimums.¹
- **Interior lighting reduced LPD:** Reduce LPD by 15 percent.
- **Institutional tuning:** Limit the maximum output or maximum power draw of lighting to 85 percent of full light output or full power draw.
- **Daylight dimming plus off:** Turn daylight-controlled lights completely off when the daylight available in the daylit zone is greater than 150 percent of the illuminance received from the general lighting system at full power. There is no associated cost with this measure, as the 2019 T24 Standards already require multilevel lighting and daylight sensors in primary and secondary daylit spaces. This measure is simply a revised control strategy, and does not increase the number of sensors required or labor to install and program a sensor
- **Occupant sensing in open plan offices:** In an open plan office area greater than 250 ft², control lighting based on occupant sensing controls. Two workstations per occupancy sensor.

Figure 15. Energy Efficiency Measures for Large Office

Measure	Baseline T24 Requirement	Incremental Cost	Sources & Notes
Modify SHGC Fenestration	SHGC of 0.25	\$1.60 /ft ² window for SHGC decreases, \$0/ft ² for SHGC increases	Costs from major U.S. manufacturer.
Fenestration as a Function of Orientation	Limit on total window area and west-facing window area as a function of wall area.	\$0	No additional cost associated with the measure; measure is a design consideration not an equipment cost.
VAV Box Minimum Flow	20 percent of maximum (design) airflow	\$0	No additional cost associated with the measure; measure is a design consideration not an equipment cost.
Interior Lighting Reduced LPD	Per Area Category Method, varies by Primary Function Area. Office area 0.60 – 0.70 W/ft ² depending on area of space.	\$0	Industry report on LED pricing analysis shows that costs are not correlated with efficacy (Navigant, 2018)
Institutional Tuning	No requirement, but Power Adjustment Factor (PAF) credit of 0.10 available for luminaires in non-daylit areas and 0.05 for luminaires in daylit areas ²	\$0.06/ft ²	Industry report on institutional tuning (Seventhwave, 2015)
Daylight Dimming Plus Off	No requirement, but PAF credit of 0.10 available.	\$0	Given the amount of lighting controls already required, this measure is no additional cost.
Occupant Sensing in Open Plan Offices	No requirement, but PAF credit of 0.30 available.	\$189 /sensor; \$74 /powered relay; \$108 /secondary relay	2 workstations per sensor; 1 fixture per workstation; 4 workstations per master relay; 120 ft ² /workstation in open office area, which is 53% of total floor area of the office

² Power Adjustment Factors allow designers to tradeoff increased lighting power densities for more efficient designs. In this study, PAF-related measures assume that the more efficient design is incorporated without a tradeoff for increased lighting power density.

7.4 Mixed-Fuel Baseline Energy Figures

Figure 16 show the annual electricity and natural gas consumption and cost, compliance TDV, and GHG emissions for the mixed-fuel design baseline Large Office. The compliance margins are non-zero in some cases and represent typical baseline compliance margins with prescriptive prototypes. The non-zero compliance margins are largely a result of compliance software complexities, and they are not expected to significantly impact the proposed case results or nature of recommendations.

Figure 16. Large Office: Mixed-Fuel Baseline

CZ	Utility	Annual Electricity Consumption (kWh)	Annual Natural Gas Consumption (therms)	Annual Electricity Cost	Annual Natural Gas Cost	Compliance Margin	Annual GHG Emissions (mton)
CZ01	PG&E	1,215,150	16,395	\$285,639	\$18,373	-0.2%	234
CZ02	PG&E	1,319,740	12,600	\$319,306	\$14,117	2.5%	223
CZ03	PG&E	1,266,120	9,905	\$301,581	\$11,148	-1.0%	202
CZ04	PG&E	1,317,420	8,779	\$315,439	\$9,962	0.3%	202
CZ04-2	CPAU	1,317,420	8,779	\$300,066	\$11,493	0.3%	202
CZ05	PG&E	1,274,340	11,756	\$304,572	\$13,106	-0.4%	212
CZ05-2	SoCalGas	1,274,340	11,756	\$304,572	\$9,512	-0.4%	212
CZ06	SCE	1,363,960	7,088	\$181,861	\$6,093	1.1%	196
CZ06-2	LADWP	1,363,960	7,088	\$138,338	\$6,093	1.1%	196
CZ07	SDG&E	1,346,930	5,092	\$411,744	\$4,401	-0.5%	186
CZ08	SCE	1,383,530	6,371	\$185,083	\$5,308	2.4%	195
CZ08-2	LADWP	1,383,530	6,371	\$140,976	\$5,308	2.4%	195
CZ09	SCE	1,407,310	6,444	\$190,030	\$5,259	4.0%	200
CZ09-2	LADWP	1,407,310	6,444	\$145,758	\$5,259	4.0%	200
CZ10	SDG&E	1,402,250	7,574	\$430,610	\$6,419	3.5%	205
CZ10-2	SCE	1,402,250	7,574	\$186,796	\$6,018	3.5%	205
CZ11	PG&E	1,401,560	10,792	\$336,954	\$12,362	4.2%	224
CZ12	PG&E	1,361,920	10,678	\$327,386	\$12,186	3.6%	218
CZ12-2	SMUD	1,361,920	10,678	\$190,932	\$12,186	3.6%	218
CZ13	PG&E	1,405,300	9,590	\$336,926	\$11,074	4.1%	217
CZ14	SDG&E	1,404,070	10,986	\$430,133	\$8,626	3.8%	224
CZ14-2	SCE	1,404,070	10,986	\$186,646	\$8,527	3.8%	224
CZ15	SCE	1,560,390	3,890	\$204,763	\$3,365	5.8%	204
CZ16	PG&E	1,311,220	18,599	\$307,718	\$21,068	-0.4%	258
CZ16-2	LADWP	1,311,220	18,599	\$127,503	\$14,046	-0.4%	258



**Contra
Costa
County**

To: Board of Supervisors
From: Mary Ann Mason, County Counsel
Date: December 14, 2021

Subject: Continuing Teleconference Meetings (AB 361, Government Code § 54953(e))

RECOMMENDATION(S):

1. FIND that the Board of Supervisors has reconsidered the circumstances of the Statewide state of emergency proclaimed by the Governor on March 4, 2020, and the Countywide local emergency proclaimed by the Governor on March 10, 2020.
2. FIND that the following circumstances exist: the County Health Officer's recommendations for safely holding public meetings, which recommend virtual meetings and other measures to promote social distancing, are still in effect.
3. AUTHORIZE the Board of Supervisors, in its capacity as the governing board of the County, the Contra Costa County Fire Protection District, the Housing Authority of the County of Contra Costa, the Contra Costa County Flood Control and Water Conservation District, and the Contra Costa County In-Home Supportive Services Public Authority, and its subcommittees, to continue teleconference meetings under Government Code section 54953(e) for the next 30 days.
4. AUTHORIZE and DIRECT all advisory bodies, committees, and commissions established by the Board in all its capacities, including but not limited to municipal advisory councils and the Measure X Community Advisory Body, to continue teleconference meetings under Government Code section 54953(e) for the next 30 days.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR ☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☒ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Mary Ann McNett Mason, County Counsel, (925) 655-2200

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Mary Ann McNett Mason, County Counsel, Monica Nino, Clerk of the Board of Supervisors

RECOMMENDATION(S): (CONT'D)

5. DIRECT the Planning Commission, Merit Board, and Assessment Appeals Board to consider teleconference meetings under Government Code section 54953(e) for the next 30 days.

6. DIRECT the County Administrator/Clerk of the Board and staff to the various Board advisory bodies to take all actions necessary to implement the intent and purpose of this Board order, including conducting open and public meetings in accordance with Government Code section 54953(e) and all other applicable provisions of the Brown Act.

7. DIRECT the County Administrator/Clerk of the Board to return to the Board acting in all its capacities, no later than 30 days after this Board order is adopted, with an item to reconsider the state of emergency and whether to continue meeting virtually under the provisions of Government Code section 54953(e) and to make required findings as to all bodies covered by this Board order.

FISCAL IMPACT:

This is an administrative action with no direct fiscal impact.

BACKGROUND:

On October 5, 2021, the Board adopted Resolution No. 2021/327, which authorized the Board, in all its capacities, and certain subcommittees and advisory bodies, to conduct teleconferencing meetings under Government Code section 54953(e). This section of the Brown Act, which was added by Assembly Bill 361, allows a local agency to use special teleconferencing rules during a State declared state of emergency. When a legislative body uses the emergency teleconferencing provisions under Government code section 54953(e), the following rules apply:

- The agency must provide notice of the meeting and post an agenda as required by the Brown Act and Better Government Ordinance, but the agenda does not need to list each teleconference location or be physically posted at each teleconference location.
- The agenda must state how members of the public can access the meeting and provide public comment.
- The agenda must include an option for all persons to attend via a call-in or internet-based service option.
- The body must conduct the meeting in a manner that protects the constitutional and statutory rights of the public.
- If there is a disruption in the public broadcast of the meeting, or of the public's ability to comment virtually for reasons within the body's control, the legislative body must stop the meeting and take no further action on agenda items until public access and/or ability to comment is restored.
- Local agencies may not require public comments to be submitted in advance of the meeting and must allow virtual comments to be submitted in real time.
- The body must allow a reasonable amount of time per agenda item to permit members of the public to comment, including time to register or otherwise be recognized for the purposes of comment.
- If the body provides a timed period for all public comment on an item, it may not close that period before the time has elapsed.
- AB 361 sunsets on January 1, 2024.

Under Government Code section 54953(e), if the local agency wishes to continue using these special

teleconferencing rules after adopting an initial resolution, the legislative body must reconsider the circumstances of the state of emergency every 30 days and make certain findings. The agency must find that the state declared emergency continues to exist and either that it continues to directly impact the ability of officials and members of the public to meet safely in person, or that state or local officials continue to impose or recommend measures to promote social distancing.

The Board last considered these matters on November 23, 2021, made the required finding and continued use of special teleconferencing rules. The Board can again make the finding that state or local officials continue to impose or recommend measures to promote social distancing. The statewide state of emergency continues to exist, and the state and the countywide local emergencies continue to directly impact the ability of the Board of Supervisors, in all its capacities, and its subcommittees and advisory bodies, to meet safely in person.

In addition, on December 3, 2021, the County Health Officer again issued recommendations for safely holding public meetings that included recommended measures to promote social distancing. (See Attachment A, Health Officer's Recommendations). In addition to increasing test positivity rates in the County, the Omicron variant of Covid-19 has been detected in the Bay Area, and the impact of this new variant on the spread of Covid-19 in our community is not yet well understood.

Among the Health Officer's recommendations: (1) on-line meetings (teleconferencing meetings) are strongly recommended as those meetings present the lowest risk of transmission of SARS-CoV-2, the virus that causes COVID-19; (2) if a local agency determines to hold in-person meetings, offering the public the opportunity to attend via a call-in option or an internet-based service option is recommended when possible to give those at higher risk of and/or higher concern about COVID-19 an alternative to participating in person; (3) a written safety protocol should be developed and followed, and it is recommended that the protocol require social distancing - i.e., six feet of separation between attendees - and face masking of all attendees; (4) seating arrangements should allow for staff and members of the public to easily maintain at least six-foot distance from one another at all practicable times. These recommendations are still in effect.

CONSEQUENCE OF NEGATIVE ACTION:

The Board, in all its capacities, and its subcommittees and advisory bodies, would no longer conduct teleconferencing meetings under Government Code section 54953(e).

ATTACHMENTS

Attachment A - Health Officer's Recommendations



Recommendations for safely holding public meetings

Each local government agency is authorized to determine whether to hold public meetings in person, on-line (teleconferencing only), or via a combination of methods. The following are recommendations from the Contra Costa County Health Officer to minimize the risk of COVID 19 transmission during a public meeting.

1. Online meetings (i.e. teleconferencing meetings) are strongly recommended as these meetings present the lowest risk of transmission of SARS CoV-2, the virus that causes COVID 19. This is particularly important in light of the current community prevalence rate as of December 2, 2021 which places Contra Costa County in the moderate community transmission tier as designated by the Centers For Disease Control, and our current trends as of December 2, 2021 in Covid-19 test positivity and Covid-19 hospitalizations which are increasing, and in light of the detection of the Omicron variant of Covid-19 in the Bay Area, the impact of which on the spread of Covid-19 in our community is not yet well understood.
2. If a local agency determines to hold in-person meetings, offering the public the opportunity to attend via a call-in option or an internet-based service option is recommended, when possible, to give those at higher risk of and/or higher concern about COVID-19 an alternative to participating in person.
3. A written safety protocol should be developed and followed. It is recommended that the protocol require social distancing – i.e., six feet of separation between attendees – and face masking of all attendees.
4. Seating arrangements should allow for staff and members of the public to easily maintain at least six-foot distance from one another at all practicable times.
5. Consider holding public meetings outdoors. Increasing scientific consensus is that outdoor airflow reduces the risk of COVID-19 transmission compared to indoor spaces. Hosting events outdoors also may make it easier to space staff and members of the public at least 6 feet apart.
6. Current evidence is unclear as to the added benefit of temperature checks in addition to symptom checks. We encourage focus on symptom checks as they may screen out individuals with other Covid-19 symptoms besides fever and help reinforce the message to not go out in public if you are not feeling well.
7. Consider a voluntary attendance sheet with names and contact information to assist in contact tracing of any cases linked to a public meeting.

Revised 12-3-2021

Chris Farnitano, MD
Health Officer, Contra Costa County





**Contra
Costa
County**

To: Board of Supervisors
From: Brian M. Balbas, Public Works Director/Chief Engineer
Date: December 14, 2021

Subject: APPROVE the Bridge Preventative Maintenance Program for various bridges in Contra Costa County Project and take related actions under CEQA.

RECOMMENDATION(S):

APPROVE the Bridge Preventative Maintenance Program (BPMP) for various bridges in Contra Costa County Project (Project) and AUTHORIZE the Public Works Director, or designee, to advertise the Project, Countywide. [County Project No.0662-6R4091/Federal Project No. BPMP 5928(155), DCD-CP#21-28] (All Districts).

DETERMINE the Project is a California Environmental Quality Act (CEQA), Class 1(c) Categorical Exemption, pursuant to Article 19, Section 15301(c) of the CEQA Guidelines, and

DIRECT the Director of Department of Conservation and Development to file a Notice of Exemption with the County Clerk, and

AUTHORIZE the Public Works Director or designee to arrange for payment of a \$25 fee to the Department of Conservation and Development for processing, and a \$50 fee to the County Clerk for filing the Notice of Exemption.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Alex Nattkemper
925-313-2364

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Alex Nattkemper, Ave' Brown

FISCAL IMPACT:

Estimated Project cost: \$1,111,500. 88.5% Highway Bridge Program Funds; 11.5% Local Road Funds.

BACKGROUND:

The project encompasses nine bridges of varying age and condition that have qualified for the Bridge Preventative Maintenance Program (BPMP) administered by Caltrans. The Project will repair, replace, and/or maintain various bridge components to prevent, delay, or reduce their deterioration, restore their function, and keep the bridges in good condition in order to extend their service lives.

CONSEQUENCE OF NEGATIVE ACTION:

Delay in approving the project may result in a delay of design, construction, and may jeopardize funding.

ATTACHMENTS

NOE

Locations Map



CALIFORNIA ENVIRONMENTAL QUALITY ACT
Notice of Exemption

To: ☐ Office of Planning and Research
P.O. Box 3044, Room 113
Sacramento, CA 95812-3044

From: Contra Costa County
Department of Conservation and
Development
30 Muir Road
Martinez, CA 94553

☒ County Clerk, County of Contra Costa

Project Title: Bridge Preventative Maintenance Program (BPMP) for Various Bridges in Contra Costa County, WO# 4091, CP#21-28

Project Applicant: Contra Costa County Public Works Dept., 255 Glacier Drive, Martinez CA 94553
Contact: Alex Nattkemper (925) 313-2364

Project Locations: El Sobrante: San Pablo Creek Bridge (28C0382) on La Honda Road; San Pablo Creek Bridge (28C0329) on Appian Way; Orinda/Lafayette area: Bear Creek Bridge (28C0227) on Bear Creek Road; Bay Point: Contra Costa Canal Bridge (28C0480) on Pomo Street; Contra Costa Canal Bridge (28C0077) on Bailey Road; Byron area: Kellogg Creek Bridge (28C0175) on Hoffman Lane; Unimin/Frisk Creek Bridge (28C0230) on Vasco Road; Knightsen/Oakley area: Rock Slough Bridge (28C0082) on Delta Road; Brentwood area: Marsh Creek Bridge (28C0144) on Marsh Creek Road.

Lead Agency: Department of Conservation and Development, 30 Muir Road, Martinez, CA 94553
Contact: Telma B. Moreira (925) 655-2863

Project Description: The project encompasses nine bridges of varying age and condition that have qualified for the Bridge Preventative Maintenance Program (BPMP) administered by Caltrans. The nine bridges included in this project are comprised of superstructures of varying lengths and spans, supported on reinforced concrete pile extensions, pier walls, and multi-column bents on varying types of foundations. The project includes the following types of repairs: cleaning and painting of painted steel members; replacing rotten and broken timber components; adding steel brackets at a timber cap beam; removing and replacing portions of damaged and settling asphalt concrete (AC) approach roadways; replacing Type A and B joint seals at abutments and bents; replacing and tightening connection hardware at bridge barrier railings; repairing damaged AC overlays at bridge deck longitudinal joints; patching edge spalls in deck and approach slabs at joints; and cleaning and treating a bridge deck with methacrylate. Real Estate transactions, such as temporary encroachment permits, and temporary traffic control will be necessary. Appropriate Best Management Practices (BMPs) to protect environmental resources will be implemented during construction such as plugging all drains in the bridge decks and debris containment systems to ensure no project materials enter associated waterways.

Exempt Status:

- | | |
|--|---|
| <input type="checkbox"/> Ministerial Project (Sec. 21080[b][1]; 15268) | <input checked="" type="checkbox"/> Categorical Exemption (Sec. 15301[c]) |
| <input type="checkbox"/> Declared Emergency (Sec. 21080[b][3]; 15269[a]) | <input type="checkbox"/> General Rule of Applicability (Sec. 15061[b][3]) |
| <input type="checkbox"/> Emergency Project (Sec. 21080[b][4]; 15269[b][c]) | <input type="checkbox"/> Other Statutory Exemption (Sec.) |

Reasons why project is exempt: The project consists of maintenance of existing public structures, involving no expansion of existing use, pursuant to Article 19, section 15301[c] of the CEQA guidelines.

If filed by applicant:

1. Attach certified document of exemption finding.

2. Has a Notice of Exemption been filed by the public agency approving the ☐ Yes ☐ No project?

Signature: Telma B. Moreira Date 11/3/2021 Title Principal Planner

Contra Costa County Department of Conservation and Development

☒ Signed by Lead Agency

☐ Signed by Applicant

AFFIDAVIT OF FILING AND POSTING

I declare that on _____ I received and posted this notice as required by California Public Resources Code Section 21152(c). Said notice will remain posted for 30 days from the filing date.

Signature

Title

Applicant

Public Works Department
255 Glacier Drive
Martinez, CA 94553
Attn: Alex Nattkemper *cg*
Environmental Services Division
Phone: (925) 313-2364

Department of Fish and Wildlife Fees Due

- ☐ De Minimis Finding - \$0
- ☒ County Clerk - \$50
- ☒ Conservation and Development - \$25

Total Due: \$75

Receipt #: _____

Bridge Preventative Maintenance Program (BPMP) for Various Bridges

CONTRA COSTA COUNTY CALIFORNIA

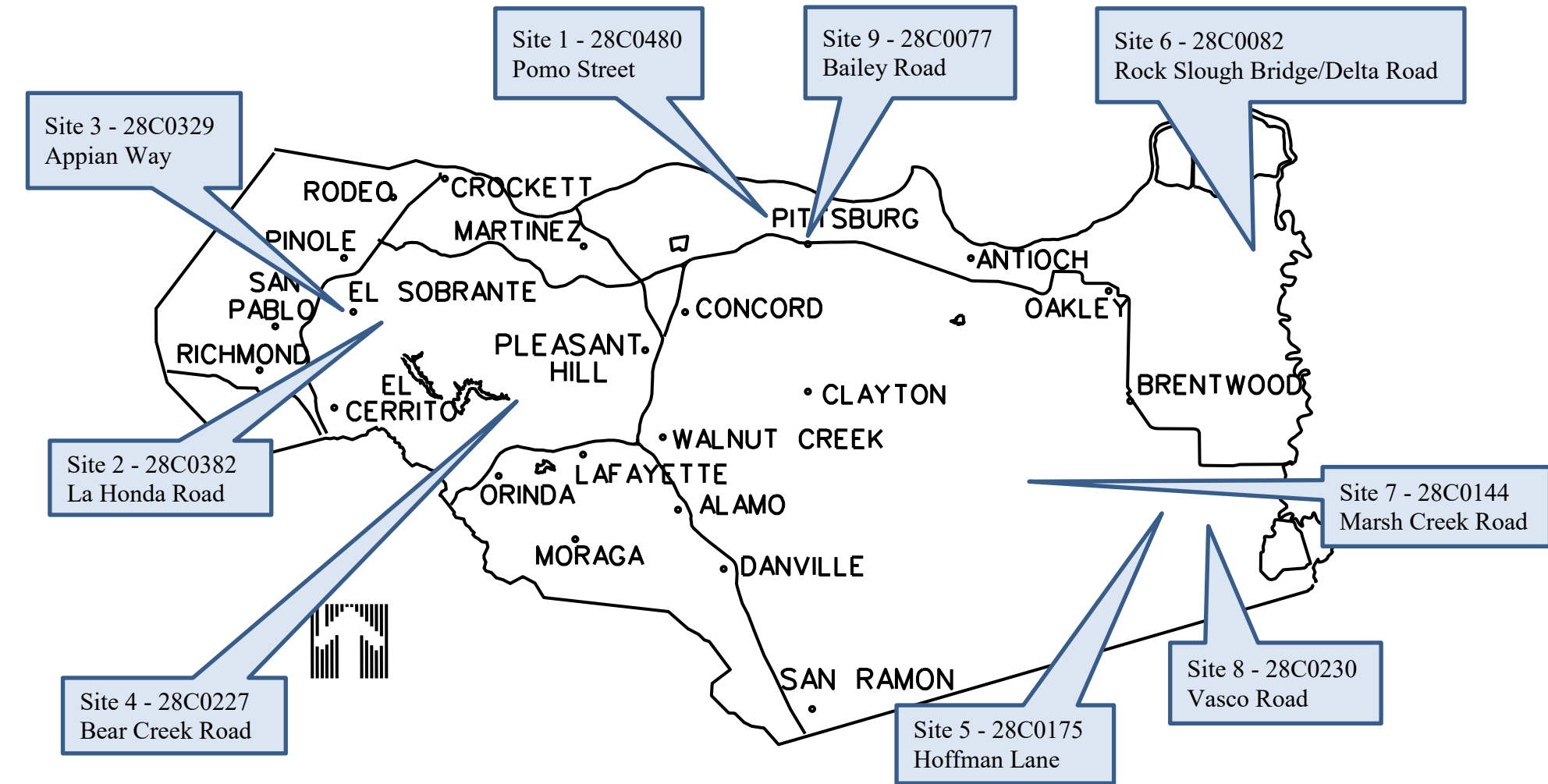


FIGURE 1: Regional Location Map



**Contra
Costa
County**

To: Board of Supervisors
From: Brian M. Balbas, Public Works Director/Chief Engineer
Date: December 14, 2021

Subject: Accepting for recording purposes only an Offer of Dedication for Roadway Purposes for minor subdivision MS18-00009, Alamo area.

RECOMMENDATION(S):

ADOPT Resolution No. 2021/394 accepting for recording purposes only an Offer of Dedication for Roadway Purposes for minor subdivision MS18-00009, for a project being developed by Michael Joseph Delahousaye, Trustee of the Michael Joseph Delahousaye Revocable Trust Dated December 29, 2015, as recommended by the Public Works Director, Alamo area. (District II)

FISCAL IMPACT:

No fiscal impact.

BACKGROUND:

The Offer of Dedication for Roadway Purposes is required per Condition of Approval No. 36.

CONSEQUENCE OF NEGATIVE ACTION:

The required right of way dedication will remain incomplete and the Offer of Dedication for Roadway Purposes will not be recorded.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR ☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Randolph Sanders
(925)313-2111

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Larry Gossett- Engineering Services, Randolph Sanders- Engineering Services, Joshua Laranang- Engineering Services, Adrian Veliz - DCD, Renee Hutchins - Records, Karen Piona- Records, Sherri Reed, Michael Joseph Delahousaye, Trustee of the Michael Joseph Delahousaye Revocable

ATTACHMENTS

Resolution No. 2021/394

Offer of Dedication - Road
Purposes

Recorded at the request of: Clerk of the Board

Return To: Public Works Dept- Simone Saleh

**THE BOARD OF SUPERVISORS OF CONTRA COSTA COUNTY, CALIFORNIA
and for Special Districts, Agencies and Authorities Governed by the Board**

Adopted this Resolution on 12/14/2021 by the following vote:

AYE: ☐

NO: ☐

ABSENT: ☐

ABSTAIN: ☐

RECUSE: ☐

Resolution No. 2021/394

IN THE MATTER OF accepting for recording purposes only an Offer of Dedication for Roadway Purposes for minor subdivision MS18-00009, for a project being developed by Michael Joseph Delahousaye, Trustee of the Michael Joseph Delahousaye Revocable Trust Dated December 29, 2015, as recommended by the Public Works Director, Alamo area. (District II)

NOW, THEREFORE, BE IT RESOLVED that the following instrument is hereby **ACCEPTED FOR RECORDING ONLY**:

INSTRUMENT: Offer of Dedication for Roadway Purposes

REFERENCE: APN 188-241-017

GRANTOR: Michael Joseph Delahousaye, Trustee of the Michael Joseph Delahousaye Revocable Trust Dated December 29, 2015

AREA: Alamo

DISTRICT: II

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

Contact: **Randolf Sanders (925)313-2111**

ATTESTED: December 14, 2021

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Larry Gossett- Engineering Services, Randolf Sanders- Engineering Services, Joshua Laranang- Engineering Services, Adrian Veliz - DCD, Renee Hutchins - Records, Karen Piona- Records, Sherri Reed, Michael Joseph Delahousaye, Trustee of the Michael Joseph Delahousaye Revocable

Recorded at the request of:
Contra Costa County
Board of Supervisors
Return to:
Public Works Department
Engineering Services Division
Records Section

Area: Alamo
Road: Crest Avenue
Co. Road No.: 3851B
Development No.: MS18-00009
APN: 188-241-017

OFFER OF DEDICATION - ROAD PURPOSES

Michael Joseph Delahousaye, Trustee of the Michael Joseph Delahousaye Revocable Trust Dated December 29, 2015, the undersigned, being the present title owner of record of the herein described parcel of land, do hereby make an irrevocable offer of dedication to **Contra Costa County**, a political subdivision of the State of California and its successors or assigns, for street, highway landscaping and other public purposes, including maintenance thereof, the fee title to real property situated in the County of Contra Costa, State of California, as described in Exhibit "A" (written description) and as shown on Exhibit "B" (plat map) attached hereto.

It is understood and agreed that **Contra Costa County** and its successors or assigns shall incur no liability with respect to such offer of dedication, and shall not assume any responsibility for the offered parcel of land or any improvements thereon or therein, until such offer has been accepted by appropriate action of the Board of Supervisors, or of the local governing bodies of its successors or assigns.

The provisions hereof shall inure to the benefit of **Contra Costa County** and its successors or assigns and will be binding upon the title owner of record and that owner's heirs, successors or assigns.

For more information, see attached resolution that was approved by the BOS for this offer of dedication.

The undersigned executed this instrument on Nov. 1st 2021
(Date)

(Signature) Michael Joseph Delahousaye
(Print Name & Title) **Michael Joseph Delahousaye, Trustee of the Michael Joseph Delahousaye Revocable Trust Dated December 29, 2015**

Attachments: Notary
Exhibit A & B
Resolution

ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California

County of Contra Costa

On November 1, 2021 before me, John DeBenedictis
(insert name and title of the officer)

personally appeared Michael Joseph Delahousaye
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature

John DeBenedictis (Seal)

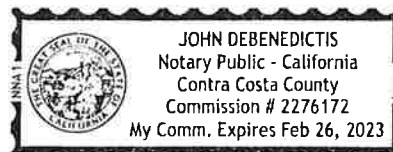


EXHIBIT 'A'
LEGAL DESCRIPTION
ROADWAY DEDICATION

ALL THAT CERTAIN REAL PROPERTY SITUATE IN THE UNINCORPORATED AREA OF COUNTY OF CONTRA COSTA, STATE OF CALIFORNIA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEING A PORTION OF PARCEL 'A' AS SAID PARCEL IS SHOWN ON THE MAP OF MS 89-69 FILED ON OCTOBER 20, 1969 IN BOOK 10 OF PARCEL MAPS AT PAGE 47 IN THE OFFICE OF THE COUNTY RECORDER OF CONTRA COSTA COUNTY, STATE OF CALIFORNIA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHWEST CORNER OF SAID PARCEL 'A' THENCE, ALONG THE NORTHERLY LINE OF SAID PARCEL 'A' ALONG A CURVE TO THE RIGHT WHOSE RADIUS POINT BEARS SOUTH 04°26'31" EAST 744.00 FEET, THROUGH A CENTRAL ANGLE OF 00°23'24", AND AN ARC LENGTH OF 5.06 FEET;

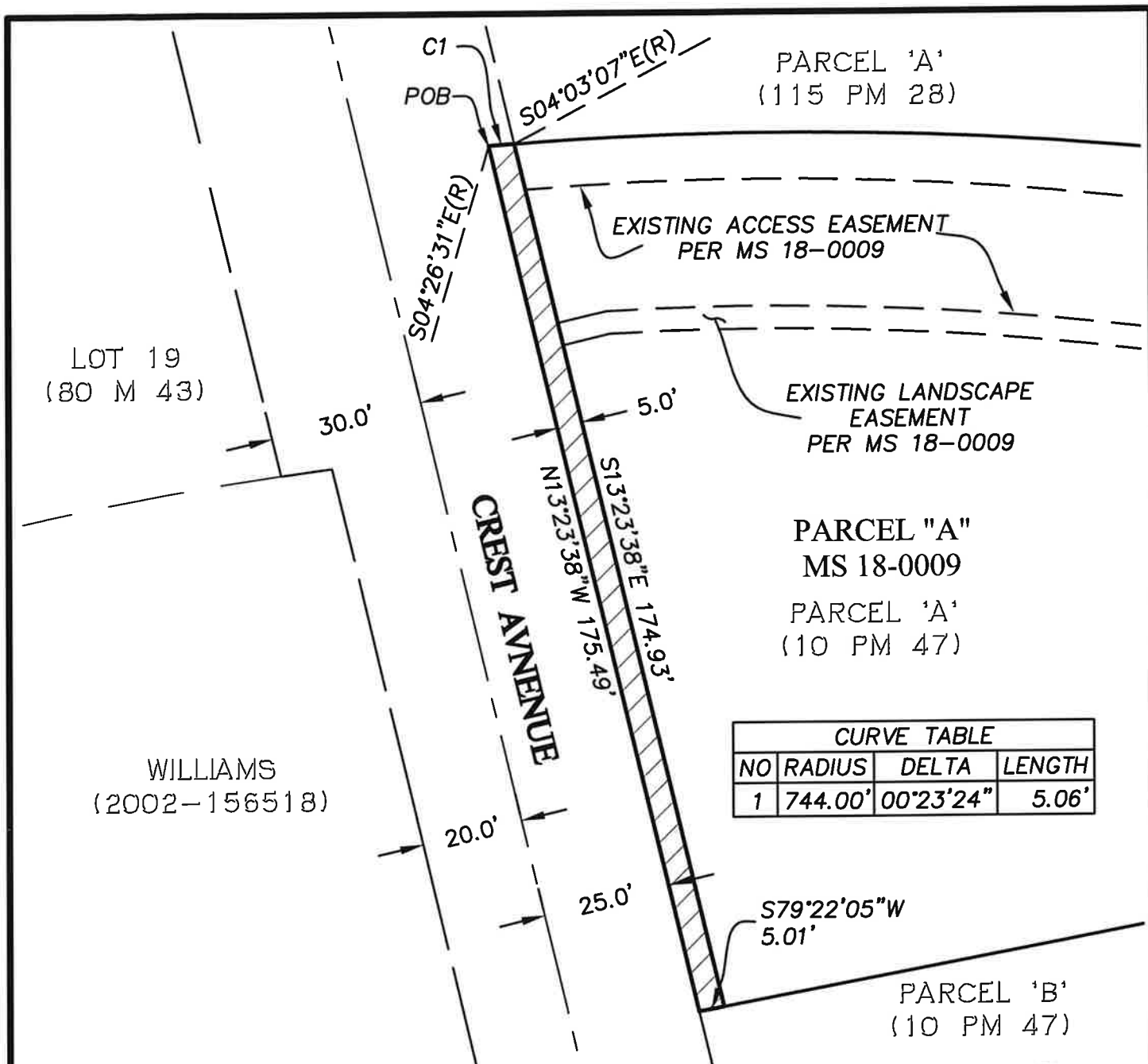
THENCE LEAVING SAID NORTHERLY LINE SOUTH 13°23'38" EAST, 174.93 FEET TO A POINT ON THE SOUTHERLY LINE OF SAID PARCEL 'A';

THENCE ALONG SAID SOUTHERLY LINE SOUTH 79°22'05" WEST, 5.01 FEET TO THE SOUTHWEST CORNER OF SAID PARCEL 'A', SAID POINT BEING ON THE EASTERLY RIGHT OF WAY LINE OF CREST AVENUE;

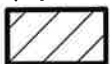
THENCE ALONG SAID RIGHT OF WAY LINE NORTH 13°23'38" WEST, 175.49 FEET TO THE **POINT OF BEGINNING**.

CONTAINING 876 SQUARE FEET OF LAND, MORE OR LESS.





LEGEND

POB POINT OF BEGINNING
POC POINT OF COMMENCEMENT
(R) RADIAL
 DEDICATION AREA = 876 SF±



BASIS OF BEARINGS

THE BEARING TAKEN BETWEEN
THE FOUND MONUMENT ON ETHEL
CIRCLE, TAKEN AS NORTH
74°29'22" EAST PER PARCEL MAP
10 PM 47.



817 Arnold Drive Ste. 50
Martinez, CA 94553
Ph: (925) 476-8499

EXHIBIT 'B'

PLAT TO
ACCOMPANY LEGAL
DESCRIPTION

DRAWN BY:
BJL

PROJECT NO:
18072

SCALE:
1"=30'

SHEET
1 OF 1

DATE:
9-29-2021



Contra
Costa
County

To: Board of Supervisors
From: Brian M. Balbas, Public Works Director/Chief Engineer
Date: December 14, 2021

Subject: Approve the Parcel Map and Subdivision Agreement for minor subdivision MS18-00009, Alamo area.

RECOMMENDATION(S):

ADOPT Resolution No. 2021/395 approving the Parcel Map and Subdivision Agreement for minor subdivision MS18-00009, for a project being developed by Crowell Development, Inc., as recommended by the Public Works Director, Alamo area. (District II)

FISCAL IMPACT:

No fiscal impact.

BACKGROUND:

The Public Works Department has reviewed the conditions of approval for minor subdivision MS18-00009 and has determined that all conditions of approval for Parcel Map approval have been satisfied.

CONSEQUENCE OF NEGATIVE ACTION:

The Parcel Map and the Subdivision Agreement will not be approved and recorded.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Randolph Sanders
(925)313-2111

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Larry Gossett- Engineering Services, Randolph Sanders- Engineering Services, Joshua Laranang- Engineering Services, Sherri Reed, Renee Hutchins - Records, Karen Piona- Records, Michael Mann- Finance, Chris Hallford -Mapping , Adrian Veliz - DCD, Crowell Development, Inc. , Atlantic Specialty Insurance Company, Old Republic Title Company, T-10/14/2022

ATTACHMENTS

Resolution No. 2021/395

Parcel Map

Subdivision Agreement & Improvement Security Bond

Tax Letter

THE BOARD OF SUPERVISORS OF CONTRA COSTA COUNTY, CALIFORNIA
and for Special Districts, Agencies and Authorities Governed by the Board

Adopted this Resolution on 12/14/2021 by the following vote:

AYE: ☐
NO: ☐
ABSENT: ☐
ABSTAIN: ☐
RECUSE: ☐



Resolution No. 2021/395

IN THE MATTER OF approving the Parcel Map and Subdivision Agreement for minor subdivision MS18-00009, for project being developed by Crowell Development, Inc., as recommended by the Public Works Director, Alamo area. (District II)

WHERE AS, the following documents were presented for board approval this date:

I. Map

The Parcel Map of minor subdivision MS18-00009, property located in the Alamo area, Supervisorial District II, said map having been certified by the proper officials.

II. Subdivision Agreement

A subdivision agreement with Crowell Development, Inc., principal, whereby said principal agrees to complete all improvements as required in said subdivision agreement within two years from the date of said agreement. Accompanying said subdivision agreement is security guaranteeing completion of said improvements as follows:

A. Cash Bond

Performance amount: \$1,720.00

Auditor's Deposit Permit No. DP838936 Date: November 17, 2021

Submitted by: Crowell Development, Inc.

B. Surety Bond

Bond Company: Atlantic Specialty Insurance Company

Bond Number: 810010559 Date: November 16, 2021

Performance Amount: \$170,280.00

Labor & Materials Amount: \$86,000.00

Principal: Crowell Development, Inc.

III. Tax Letter

Letter from the County Tax Collector stating that there are no unpaid County taxes heretofore levied on the property included in said map and that the 2021-2022 tax lien has been paid in full.

NOW, THEREFORE, BE IT RESOLVED:

1. That said subdivision, together with the provisions for its design and improvement, is DETERMINED to be consistent with the County's general and specific plans.
2. That said Parcel map is APPROVED.
3. That said subdivision agreement is also APPROVED.

Contact: Randolph Sanders (925)313-2111

ATTESTED: December 14, 2021

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Larry Gossett- Engineering Services, Randolph Sanders- Engineering Services, Joshua Laranang- Engineering Services, Sherri Reed, Renee Hutchins - Records, Karen Piona- Records, Michael Mann- Finance, Chris Hallford -Mapping , Adrian Veliz - DCD, Crowell Development, Inc. , Atlantic Specialty Insurance Company, Old Republic Title Company, T-10/14/2022

OWNER'S STATEMENT

THE UNDERSIGNED, BEING THE ONLY PARTY HAVING A RECORD TITLE INTEREST IN THE LANDS HEREIN, HAVE HEREBY SUBSCRIBED TO THE PREPARATION AND RECORDATION OF THIS FINAL MAP AND JOINS IN ALL OFFERS OF DEDICATION THEREIN.

THE AREA SHOWN AS "PRIVATE ACCESS AND UTILITY EASEMENT" (PAUE) IS NOT OFFERED FOR DEDICATION TO THE GENERAL PUBLIC, BUT IS FOR THE USE OF THE OWNERS OF PARCEL 'B' OF THIS SUBDIVISION, FOR, BUT NOT LIMITED TO, INGRESS, EGRESS, UTILITIES, WATER AND SANITARY SEWER.

THE AREA DESIGNATED AS "LANDSCAPE MAINTENANCE EASEMENT" IS FOR LANDSCAPE MAINTENANCE PURPOSES ONLY AND DOES NOT INCLUDE PRIVATE LANDSCAPING FOR THE BENEFIT OF PARCEL 'B'.

THE AREA DESIGNATED AS "PSDE" (PRIVATE STORM DRAIN EASEMENT) ARE FOR PRIVATE STORM DRAIN PURPOSES TO INCLUDE THE RIGHTS TO CONSTRUCT AND MAINTAIN PRIVATE STORM DRAIN STRUCTURES AND PIPES FOR THE BENEFIT OF PARCELS 'A' AND 'B' OF THIS SUBDIVISION.

THE AREA DESIGNATED AS "EVAE" (EMERGENCY VEHICLE ACCESS EASEMENT) IS FOR THE PURPOSE OF INGRESS AND EGRESS OF EMERGENCY VEHICLES.

THIS MAP SHOWS ALL EASEMENTS ON THE PREMISES OR OF RECORD.

MICHAEL JOSEPH DELAHOUSAVE REVOCABLE TRUST DATED DECEMBER 28, 2015

BY: MICHAEL JOSEPH DELAHOUSAVE, TRUSTEE

OWNER'S ACKNOWLEDGEMENT

A NOTARY PUBLIC OR OTHER OFFICER COMPLETING THIS CERTIFICATE VERIFIES ONLY THE IDENTITY OF THE INDIVIDUAL WHO SIGNED THE DOCUMENT TO WHICH THIS CERTIFICATE IS ATTACHED, AND NOT THE TRUTHFULNESS, ACCURACY, OR VALIDITY OF THAT DOCUMENT.

STATE OF CALIFORNIA)
COUNTY OF CONTRA COSTA) SS

ON _____, 20____, BEFORE ME, _____, A
NOTARY PUBLIC, PERSONALLY APPEARED _____, WHO
PROVED TO ME ON THE BASIS OF SATISFACTORY EVIDENCE TO BE THE
PERSON(S) WHOSE NAME(S) IS/ARE SUBSCRIBED TO THE WITHIN INSTRUMENT
AND ACKNOWLEDGED TO ME THAT HE/SHE/IT THEY EXECUTED THE SAME IN
HIS/HER/IT THEIR AUTHORIZED CAPACITY(IES), AND THAT BY HIS/HER/IT
SIGNATURE(S) ON THE INSTRUMENT THE PERSON(S), OR THE ENTITY UPON
BEHALF OF WHICH THE PERSON(S) ACTED, EXECUTED THE INSTRUMENT.

I CERTIFY UNDER PENALTY OF PERJURY UNDER THE LAWS OF THE STATE OF CALIFORNIA THAT THE FOREGOING IS TRUE AND CORRECT.

WITNESS MY HAND

SIGNATURE NOTARY: _____

NAME (PRINTED OR TYPED): _____

MY COMMISSION EXPIRES: _____

COUNTY OF NOTARY: _____

PRINCIPAL PLACE OF BUSINESS: _____

PARCEL MAP

SUBDIVISION MS 18-0009

BEING A RESUBDIVISION OF PARCEL 'A' AS SHOWN ON THE
PARCEL MAP MS 89-69 FILED IN BOOK 10 OF PARCEL
MAPS AT PAGE 47, PORTION OF THE RANCHO SAN RAMON
CONTRA COSTA COUNTY, CALIFORNIA



JULY, 2021

BENEFICIARY'S STATEMENT

THE UNDERSIGNED, AS BENEFICIARY UNDER THE DEED OF TRUST RECORDED MARCH 17, 2017 IN OFFICIAL RECORDS SERIES NO. 2017-0046885 CONTRA COSTA COUNTY RECORDS, HEREBY CONSENTS TO THE PREPARATION AND RECORDATION OF THIS FINAL MAP AND JOINS IN ALL OFFERS OF DEDICATION THEREIN.

MUFJ UNION BANK, N.A.

BY: _____

DATE: _____

PRINT NAME: _____

TITLE: _____

BENEFICIARY'S ACKNOWLEDGEMENT

A NOTARY PUBLIC OR OTHER OFFICER COMPLETING THIS CERTIFICATE VERIFIES ONLY THE IDENTITY OF THE INDIVIDUAL WHO SIGNED THE DOCUMENT TO WHICH THIS CERTIFICATE IS ATTACHED, AND NOT THE TRUTHFULNESS, ACCURACY, OR VALIDITY OF THAT DOCUMENT.

STATE OF CALIFORNIA)
COUNTY OF CONTRA COSTA) SS

ON _____, 20____, BEFORE ME, _____, A
NOTARY PUBLIC, PERSONALLY APPEARED _____, WHO
PROVED TO ME ON THE BASIS OF SATISFACTORY EVIDENCE TO BE THE
PERSON(S) WHOSE NAME(S) IS/ARE SUBSCRIBED TO THE WITHIN INSTRUMENT
AND ACKNOWLEDGED TO ME THAT HE/SHE/IT THEY EXECUTED THE SAME IN
HIS/HER/IT THEIR AUTHORIZED CAPACITY(IES), AND THAT BY HIS/HER/IT
SIGNATURE(S) ON THE INSTRUMENT THE PERSON(S), OR THE ENTITY UPON
BEHALF OF WHICH THE PERSON(S) ACTED, EXECUTED THE INSTRUMENT.

I CERTIFY UNDER PENALTY OF PERJURY UNDER THE LAWS OF THE STATE OF CALIFORNIA THAT THE FOREGOING IS TRUE AND CORRECT.

WITNESS MY HAND

SIGNATURE NOTARY: _____

NAME (PRINTED OR TYPED): _____

MY COMMISSION EXPIRES: _____

COUNTY OF NOTARY: _____

PRINCIPAL PLACE OF BUSINESS: _____

BENEFICIARY'S STATEMENT

THE UNDERSIGNED, AS BENEFICIARY UNDER THE DEED OF TRUST RECORDED DECEMBER 10, 2018 IN OFFICIAL RECORDS SERIES NO. 2018-0191788 CONTRA COSTA COUNTY RECORDS, HEREBY CONSENTS TO THE PREPARATION AND RECORDATION OF THIS FINAL MAP AND JOINS IN ALL OFFERS OF DEDICATION THEREIN.

MUFJ UNION BANK, N.A.

BY: _____

DATE: _____

PRINT NAME: _____

TITLE: _____

BENEFICIARY'S ACKNOWLEDGEMENT

A NOTARY PUBLIC OR OTHER OFFICER COMPLETING THIS CERTIFICATE VERIFIES ONLY THE IDENTITY OF THE INDIVIDUAL WHO SIGNED THE DOCUMENT TO WHICH THIS CERTIFICATE IS ATTACHED, AND NOT THE TRUTHFULNESS, ACCURACY, OR VALIDITY OF THAT DOCUMENT.

STATE OF CALIFORNIA)
COUNTY OF CONTRA COSTA) SS

ON _____, 20____, BEFORE ME, _____, A
NOTARY PUBLIC, PERSONALLY APPEARED _____, WHO
PROVED TO ME ON THE BASIS OF SATISFACTORY EVIDENCE TO BE THE
PERSON(S) WHOSE NAME(S) IS/ARE SUBSCRIBED TO THE WITHIN INSTRUMENT
AND ACKNOWLEDGED TO ME THAT HE/SHE/IT THEY EXECUTED THE SAME IN
HIS/HER/IT THEIR AUTHORIZED CAPACITY(IES), AND THAT BY HIS/HER/IT
SIGNATURE(S) ON THE INSTRUMENT THE PERSON(S), OR THE ENTITY UPON
BEHALF OF WHICH THE PERSON(S) ACTED, EXECUTED THE INSTRUMENT.

I CERTIFY UNDER PENALTY OF PERJURY UNDER THE LAWS OF THE STATE OF CALIFORNIA THAT THE FOREGOING IS TRUE AND CORRECT.

WITNESS MY HAND

SIGNATURE NOTARY: _____

NAME (PRINTED OR TYPED): _____

MY COMMISSION EXPIRES: _____

COUNTY OF NOTARY: _____

PRINCIPAL PLACE OF BUSINESS: _____

COUNTY RECORDER'S STATEMENT

THIS MAP ENTITLED "SUBDIVISION MS 18-0009" IS HEREBY ACCEPTED FOR RECORDATION SHOWING A CLEAR TITLE PER LETTER OF TITLE WRITTEN BY OLD REPUBLIC TITLE COMPANY, DATED MARCH 3, 2021, AND AFTER EXAMINING THE SAME, I DEEM THAT SAID MAP COMPLIES IN ALL RESPECTS WITH THE PROVISIONS OF STATE LAW AND LOCAL ORDINANCES GOVERNING THE FILING OF SUBDIVISION MAPS.

FILED THIS _____ DAY OF _____, 20____, AT _____ M. IN BOOK _____ OF
PARCEL MAPS, AT PAGE _____, AT THE REQUEST OF OLD REPUBLIC TITLE
COMPANY.

DEBORAH COOPER
COUNTY RECORDER
COUNTY OF CONTRA COSTA
STATE OF CALIFORNIA

BY: _____
DEPUTY COUNTY RECORDER

SURVEYOR'S STATEMENT

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION, IN ACCORDANCE WITH THE REQUIREMENTS OF THE SUBDIVISION MAP ACT AND LOCAL ORDINANCE AT THE REQUEST OF MICHAEL DELAHOUSSAINE IN AUGUST OF 2018. I HEREBY STATE THAT THIS PARCEL MAP SUBSTANTIALLY CONFORMS TO THE APPROVED OR CONDITIONAL APPROVED TENTATIVE MAP, IF ANY. ALL MONUMENTS SHOWN HEREON ACTUALLY EXIST AND ARE SUFFICIENT TO ENABLE THE SURVEY TO BE RETRACED.

BOB J. LEZCANO, LS 6514

DATED



ZONING ADMINISTRATOR'S STATEMENT

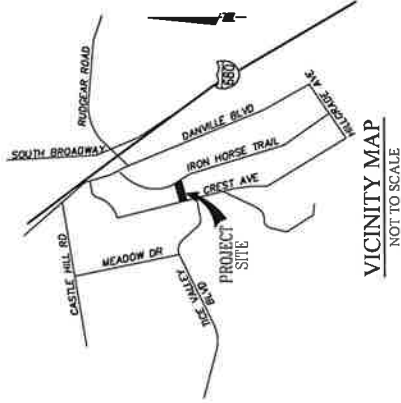
I HEREBY STATE THAT THE ZONING ADMINISTRATOR OF THE COUNTY OF CONTRA COSTA, STATE OF CALIFORNIA, HAS APPROVED THE TENTATIVE MAP OF THIS SUBDIVISION UPON WHICH THIS PARCEL MAP IS BASED.

ARUNA BHAT
DEPUTY DIRECTOR
DEPARTMENT OF CONSERVATION AND DEVELOPMENT
COMMUNITY DEVELOPMENT DIVISION

BY: _____ DATE: _____

PARCEL MAP
SUBDIVISION MS 18-0009

BEING A RESUBDIVISION OF PARCEL 'A' AS SHOWN ON THE PARCEL MAP MS 89-69 FILED IN BOOK 10 OF PARCEL MAPS AT PAGE 47, PORTION OF THE RANCHO SAN RAMON CONTRA COSTA COUNTY, CALIFORNIA



COUNTY SURVEYOR'S STATEMENT

THIS MAP WAS EXAMINED BY ME AND IS SUBSTANTIALLY THE SAME AS IT APPEARS ON THE TENTATIVE MAP, AND ANY APPROVED ALTERATIONS THEREOF. ALL PROVISIONS OF THE SUBDIVISION MAP ACT AND OF ANY LOCAL ORDINANCES APPLICABLE AT THE TIME OF APPROVAL OF THE TENTATIVE MAP HAVE BEEN COMPLIED WITH, AND I AM SATISFIED THAT THE SAME IS TECHNICALLY CORRECT.

DATE: _____ BY: JAMES A. STEIN, LS 6571
COUNTY SURVEYOR

CLERK OF THE BOARD OF SUPERVISORS' CERTIFICATE

STATE OF CALIFORNIA
CONTRA COSTA COUNTY

I, MONICA NINO, CLERK OF THE BOARD OF SUPERVISORS AND COUNTY ADMINISTRATOR OF CONTRA COSTA, STATE OF CALIFORNIA, DO HEREBY CERTIFY THAT THE ABOVE AND FOREGOING MAP ENTITLED "PARCEL MAP MS 18-0009" WAS PRESENTED TO SAID BOARD OF SUPERVISORS, AS PROVIDED BY LAW, AT A REGULAR MEETING THEREOF HELD ON THE _____ DAY OF _____, 20____, AND THAT SAID BOARD OF SUPERVISORS DID THEREUPON BY RESOLUTION DULY PASSED AND ADOPTED AT SAID MEETING APPROVE SAID MAP.

I FURTHER CERTIFY THAT ALL TAX LIENS HAVE BEEN SATISFIED AND THAT ALL BONDS AS REQUIRED BY LAW TO ACCOMPANY THE MAP HAVE BEEN OBTAINED AND APPROVED BY THE BOARD OF SUPERVISORS OF CONTRA COSTA COUNTY, AND FILED IN MY OFFICE.

IN WITNESS WHEREOF, I HAVE HEREUNTO SET MY HAND THIS DAY _____ OF _____, 20____.

MONICA NINO
CLERK OF THE BOARD OF SUPERVISORS AND
COUNTY ADMINISTRATOR
CONTRA COSTA COUNTY
STATE OF CALIFORNIA

BY: _____
DEPUTY CLERK

FND NAIL & TAG
ALLEGIBLE PER
(R4), HELD.
FND 1.5" IRON
PIPE NO TAG
PER (R2), HELD.
19
60 M 43

SHEET 3 OF 3

2000-01-01

SUBDIVISION AGREEMENT
(Gov. Code, §§ 66462 and 66463)

Subdivision: MS18-00009
Subdivider: Crowell Development, Inc.

Effective Date: BOS Approval Date
Completion Period: 2 years

THESE SIGNATURES ATTEST TO THE PARTIES' AGREEMENT HERETO:

CONTRA COSTA COUNTY
Brian M. Balbas, Public Works Director

By:

RECOMMENDED FOR APPROVAL:

By: Engineering Services Division

SUBDIVIDER
Crowell Development, Inc.
Charles M. Crowell
Print Name: Charles M. Crowell
Print Title: President
Charles M. Crowell
Print Name: Charles M. Crowell
Print Title: Secretary

FORM APPROVED: Silvano B. Marchesi, County Counsel

[Note: If Subdivider is a corporation, two officers must sign. The first must be the chairman of the board, president or any vice president; the second must be the secretary, assistant secretary, chief financial officer or any assistant treasurer. (Corp. Code, § 313; Civ. Code, § 1190.) If Subdivider is a limited liability company, Subdivider shall sign in the manner required of corporations, or by two managers, or by one manager, pursuant to the articles of organization (see Corp. Code, §§17151, 17154, 17157.) If Subdivider is a partnership, any authorized partner may sign. Signatures by Subdivider must be notarized.]

1. PARTIES & DATE. Effective on the above date, the County of Contra Costa, California (hereinafter "County"), and the above-mentioned Subdivider mutually promise and agree as follows concerning this Subdivision:

2. IMPROVEMENTS. Subdivider agrees to install certain road improvements (both public and private), drainage improvements, signs, street lights, fire hydrants, landscaping and such other improvements (including appurtenant equipment) as required in the improvement plans for this Subdivision as reviewed and on file with the Contra Costa County Public Works Department, as required by the Conditions of Approval for this Subdivision, and in conformance with the Contra Costa County Ordinance Code, including future amendments thereto (hereinafter "Ordinance Code").

Subdivider shall complete said improvements (hereinafter "Work") within the above completion period from date hereof, as required by the California Subdivision Map Act (Gov. Code, §§ 66410 et. seq.) in a good workmanlike manner, in accordance with accepted construction practices and in a manner equal or superior to the requirements of the Ordinance Code and rulings made thereunder; and where there is a conflict among the improvement plans, the Conditions of Approval and the Ordinance Code, the stricter requirements shall govern.

3. IMPROVEMENTS SECURITY. Upon executing this Agreement, the Subdivider shall, pursuant to Gov. Code § 66499 and the County Ordinance Code, provide as security to the County:

- A. For Performance and Guarantee: \$ 1,720.00 cash, plus additional security, in the amount of \$ 170,280.00 which together total one hundred percent (100%) of the estimated cost of the Work. Such additional security is presented in the form of:
Cash, certified check or cashier's check.
X Acceptable corporate surety bond.
Acceptable irrevocable letter of credit.

With this security, Subdivider guarantees performance under this Agreement and maintenance of the Work for one year after its completion and acceptance against any defective workmanship or materials or any unsatisfactory performance.

- B. For Payment: Security in the amount: \$ 86,000.00, which is fifty percent (50%) of the estimated cost of the Work. Such security is presented in the form of:
Cash, certified check, or cashier's check
X Acceptable corporate surety bond.
Acceptable irrevocable letter of credit.

With this security, Subdivider guarantees payment to the contractor, to its subcontractors and to persons renting equipment or furnishing labor or materials to them or to the Subdivider.

Upon acceptance of the Work as complete by the Board of Supervisors and upon request of Subdivider, the amounts held as security may be reduced in accordance with Sections 94-4.406 and 94-4.408 of the Ordinance Code.

4. GUARANTEE AND WARRANTY OF WORK. Subdivider guarantees that the Work shall be free from defects in material or workmanship and shall perform satisfactorily for a period of one (1) year from and after the Board of Supervisors accepts the Work as complete in accordance with Article 96-4.6, "Acceptance," of the Ordinance Code. Subdivider agrees to correct, repair, or replace, at Subdivider's expense, any defects in said Work.

The guarantee period does not apply to road improvements for private roads that are not to be accepted into the County road system.

5. PLANT ESTABLISHMENT WORK. Subdivider agrees to perform plant establishment work for landscaping installed under this Agreement. Said plant establishment work shall consist of adequately watering plants, replacing unsuitable plants, doing weed, rodent and other pest control and other work determined by the Public Works Department to be necessary to ensure establishment of plants. Said plant establishment work shall be performed for a period of one (1) year from and after the Board of Supervisors accepts the Work as complete.

6. IMPROVEMENT PLAN WARRANTY. Subdivider warrants the improvement plans for the Work are adequate to accomplish the Work as promised in Section 2 and as required by the Conditions of Approval for the Subdivision. If, at any time before the Board of Supervisors accepts the Work as complete or during the one year guarantee period, said improvement plans prove to be inadequate in any respect, Subdivider shall make whatever changes are necessary to accomplish the Work as promised.

7. NO WAIVER BY COUNTY. Inspection of the Work and/or materials, or approval of the Work and/or materials or statement by any officer, agent or employee of the County indicating the Work or any part thereof complies with the requirements of this Agreement, or acceptance of the whole or any part of said Work and/or materials, or payments therefor, or any combination or all of these acts, shall not relieve the Subdivider of its obligation to fulfill this Agreement as prescribed; nor shall the County be thereby stopped from bringing any action for damages arising from the failure to comply with any of the terms and conditions hereof.

8. INDEMNITY. Subdivider shall defend, hold harmless and indemnify the indemnitees from the liabilities as defined in this section:

A. The indemnitees benefitted and protected by this promise are the County and its special districts, elective and appointive boards, commissions, officers, agents and employees.

B. The liabilities protected against are any liability or claim for damage of any kind allegedly suffered, incurred or threatened because of actions defined below, and including personal injury, death, property damage, inverse condemnation, or any combination of these, and regardless of whether or not such liability, claim or damage was unforeseeable at any time before County reviewed said improvement plans or accepted the Work as complete, and including the defense of any suit(s), action(s), or other proceeding(s) concerning said liabilities and claims.

C. The actions causing liability are any act or omission (negligent or non-negligent) in connection with the matters covered by this Agreement and attributable to Subdivider, contractor, subcontractor, or any officer, agent, or employee of one or more of them.

D. Non-Conditions. The promise and agreement in this section are not conditioned or dependent on whether or not any indemnitee has prepared, supplied, or approved any plan(s) or specification(s) in connection with this Work or Subdivision, or has insurance or other indemnification covering any of these matters, or that the alleged damage resulted partly from any negligent or willful misconduct of any indemnitee.

9. COSTS. Subdivider shall pay, when due, all the costs of the Work, including but not limited to the costs of relocations of existing utilities required thereby; inspections; material checks and tests; and other costs incurred by County staff arising from or related to the Work, and prior to acceptance of the Work as complete or expiration of any applicable warranty periods, whichever is later.

10. SURVEYS. Subdivider shall set and establish survey monuments in accordance with the filed map and to the satisfaction of the County Road Commissioner-Surveyor before acceptance of the Work as complete by the Board of Supervisors.

11. NON-PERFORMANCE AND COSTS. If Subdivider fails to complete the Work within the time specified in this Agreement, and subsequent extensions, or fails to maintain the Work, County may proceed to complete and/or maintain the Work by contract or otherwise and Subdivider agrees to pay all costs and charges incurred by County (including, but not limited to, engineering, inspection, surveys, contract, overhead, etc.) immediately upon demand.

Once action is taken by County to complete or maintain the Work, Subdivider agrees to pay all costs incurred by County, even if Subdivider subsequently completes the Work.

Should County sue to compel performance under this Agreement or to recover costs incurred in completing or maintaining the Work, Subdivider agrees to pay all attorney's fees, staff costs and all other expenses of litigation incurred by County in connection therewith, even if Subdivider subsequently proceeds to complete the Work.

12. INCORPORATION/ANNEXATION. If, before the Board of Supervisors accepts the Work as complete, the Subdivision is included in territory incorporated as a city or is annexed to an existing city, except as provided in this paragraph, County's rights under this Agreement and/or any deposit, bond, or letter of credit securing said rights shall be transferred to the new or annexing city. Such city shall have all the rights of a third party beneficiary against Subdivider, who shall fulfill all the terms of this Agreement as though Subdivider had contracted with the city originally. The provisions of paragraph 8 (Indemnity) shall continue to apply in favor of the indemnitees listed in paragraph 8.A. upon any such incorporation or annexation.

13. RECORD MAP. In consideration hereof, County shall allow Subdivider to file and record the final map or parcel map for said Subdivision.

14. RIGHT OF ENTRY. Subdivider hereby consents to entry onto the Subdivision property, and onto any other property over which Subdivider has land rights and upon which any portion of the Work is to be installed pursuant to the improvement plans, by County and its forces, including contractors, for the purpose of inspection, and, in the event of non-performance of this Agreement by Subdivider, completion and/or maintenance of the Work.

ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California
County of CONTRA COSTA

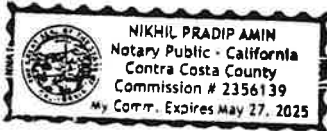
On NOV 9 2021 before me, NIKHIL PRADIP AMIN
(insert name and title of the officer)

personally appeared CHARLES M. CROWELL
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature  (Seal)



Subdivision: MS18-00009

Bond No.: 810010559

Premium: \$3,406.00

Any claim under this Bond should be sent

to the following address:

605 Highway 169 North Suite 800
Plymouth, MN 55441

**IMPROVEMENT SECURITY BOND
FOR SUBDIVISION AGREEMENT**
(Performance, Guarantee and Payment)
(Gov. Code, §§ 66499-66499.10)

1. **RECITAL OF SUBDIVISION AGREEMENT.** The Principal has executed an agreement with the County of Contra Costa (hereinafter "County") to install and pay for street, drainage and other improvements in Subdivision MS18-00009 as specified in the Subdivision Agreement, and to complete said work within the time specified for completion in the Subdivision Agreement, all in accordance with State and local laws and rulings thereunder in order to satisfy conditions for filing of the Final Map or Parcel Map for said subdivision. Under the terms of the Subdivision Agreement, Principal is required to furnish a bond to secure the faithful performance of the Subdivision Agreement and payment to laborers and materialmen.

2. **OBLIGATION.** Crowell Development Inc, as Principal,
and Atlantic Specialty Insurance Company, a corporation organized and existing
under the laws of the State of New York and authorized to transact surety business in California, as Surety, hereby jointly and
severally bind ourselves, our heirs, executors, administrators, successors and assigns to the County of Contra Costa, California to pay it:

(A. Performance and Guarantee) one hundred seventy thousand two hundred eighty and 00/100 Dollars
(\$ 170,280.00) for itself or any city assignee under the above Subdivision Agreement.

(B. Payment) eighty six thousand and 00/100 Dollars
(\$ 86,000.00) to secure the claims to which reference is made in Title XV (commencing with Section 3082) of Part 4 of Division III of the Civil Code of the
State of California.

3. **CONDITION.** This obligation is subject to the following condition.

A. The condition of this obligation as to Section 2.(A) above is such that if the above bounded Principal, his or its heirs, executors, administrators, successors or assigns, shall in all things stand to and abide by, and well and truly keep and perform the covenants, conditions and provisions in the said agreement and any alteration thereof made as therein provided, on his or their part, to be kept and performed at the time and in the manner therein specified, and in all respects according to their true intent and meaning, and shall indemnify and save harmless the County of Contra Costa (or city assignee), its officers, agents and employees, as therein stipulated, then this obligation shall become null and void; otherwise it shall be and remain in full force and effect.

As part of the obligation secured hereby and in addition to the face amount specified therefor, there shall be included costs and reasonable expenses and fees, including reasonable attorney's fees, incurred by the County of Contra Costa (or city assignee) in successfully enforcing such obligation, and to be taxed as costs and included in any judgment rendered.

B. The condition of this obligation, as to Section 2.(B) above, is such that said Principal and the undersigned as corporate surety are held firmly bound unto the County of Contra Costa and all contractors, subcontractors, laborers, materialmen and other persons employed in the performance of the aforesaid Subdivision Agreement and referred to in the aforesaid Civil Code for materials furnished or labor thereon of any kind, or for amounts due under the Unemployment Insurance Act with respect to this work or labor, and that the Surety will pay the same in an amount not exceeding the amount hereinabove set forth, and also in case suit is brought upon this bond, will pay, in addition to the face amount thereof, costs and reasonable expenses and fees, including reasonable attorney's fees, incurred by the County of Contra Costa (or city assignee) in successfully enforcing such obligation, to be awarded and fixed by the court, and to be taxed as costs and to be included in the judgment therein rendered.

It is hereby expressly stipulated and agreed that this bond shall inure to the benefit of any and all persons, companies, and corporations entitled to file claims under Title 15 (commencing with Section 3082) of Part 4 of Division 3 of the Civil Code, so as to give a right of action to them or their assigns in any suit brought upon this bond.

Should the condition of this bond be fully performed, then this obligation shall become null and void; otherwise it shall be and remain in full force and effect.

C. No change, extension of time, alteration, or addition to the terms of said Subdivision Agreement or the work to be performed thereunder or any plan or specifications of said work, agreed to by the Principal and the County of Contra Costa (or city assignee) shall relieve any Surety from liability on this bond; and consent is hereby given to make such change, extension of time, alteration or addition without further notice to or consent by Surety; and Surety hereby waives the provisions of Civil Code Section 2819 and holds itself bound without regard to and independently of any action against the Principal whenever taken.

SIGNED AND SEALED on November 16th, 2021.

Principal: Crowell Development, Inc.

Address: P.O. Box 763

Alamo, CA Zip: 94507

By: Charles M. Crowell

Print Name: Charles M. Crowell

Title: President and Secretary

Surety: Atlantic Specialty Insurance Company

Address: 605 Highway 169 North Suite 800

Plymouth, MN Zip: 55441

By: David Gonsalves

Print Name: David Gonsalves

Title: Attorney in fact



(Note: All signatures must be acknowledged. For corporations, two officers must sign. The first signature must be that of the chairman of the board, president, or vice president; the second signature must be that of the secretary, assistant secretary, chief financial officer, or assistant treasurer. (Civ. Code, § 1190 and Corps. Code, § 313.))

Form Approved by County Counsel
(Rev. 1/05)

ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of ~~California~~ North Carolina
County of Mecklenburg

On 11/16/2021 before me, Elspeth J. Murray, Notary Public
(insert name and title of the officer)

personally appeared David Gonsalves,
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are
subscribed to the within instrument and acknowledged to me that he/she/they executed the same in
his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the
person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of ~~California~~ that the foregoing
paragraph is true and correct.
North Carolina

WITNESS my hand and official seal.

**ELSPETH J. MURRAY
NOTARY PUBLIC
MECKLENBURG COUNTY
NORTH CAROLINA
MY COMMISSION EXPIRES 12/15/2023**

Signature  (Seal)

ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)

County of CONTRA COSTA)

On NOV 15 2021, before me, NIKHIL PRADIP AMIN

Notary Public, personally appeared CHARLES M. CROWELL

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s) or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.



Signature of Notary Public



(SEAL)



Power of Attorney

KNOW ALL MEN BY THESE PRESENTS, that ATLANTIC SPECIALTY INSURANCE COMPANY, a New York corporation with its principal office in Plymouth, Minnesota, does hereby constitute and appoint: **David Gonsalves, Sheralyn Barbara Gibson**, each individually if there be more than one named, its true and lawful Attorney-in-Fact, to make, execute, seal and deliver, for and on its behalf as surety, any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof; provided that no bond or undertaking executed under this authority shall exceed in amount the sum of: **unlimited** and the execution of such bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof in pursuance of these presents, shall be as binding upon said Company as if they had been fully signed by an authorized officer of the Company and sealed with the Company seal. This Power of Attorney is made and executed by authority of the following resolutions adopted by the Board of Directors of ATLANTIC SPECIALTY INSURANCE COMPANY on the twenty-fifth day of September, 2012:

Resolved: That the President, any Senior Vice President or Vice-President (each an "Authorized Officer") may execute for and in behalf of the Company any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof, and affix the seal of the Company thereto; and that the Authorized Officer may appoint and authorize an Attorney-in-Fact to execute on behalf of the Company any and all such instruments and to affix the Company seal thereto; and that the Authorized Officer may at any time remove any such Attorney-in-Fact and revoke all power and authority given to any such Attorney-in-Fact.

Resolved: That the Attorney-in-Fact may be given full power and authority to execute for and in the name and on behalf of the Company any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof, and any such instrument executed by any such Attorney-in-Fact shall be as binding upon the Company as if signed and sealed by an Authorized Officer and, further, the Attorney-in-Fact is hereby authorized to verify any affidavit required to be attached to bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof.

This power of attorney is signed and sealed by facsimile under the authority of the following Resolution adopted by the Board of Directors of ATLANTIC SPECIALTY INSURANCE COMPANY on the twenty-fifth day of September, 2012:

Resolved: That the signature of an Authorized Officer, the signature of the Secretary or the Assistant Secretary, and the Company seal may be affixed by facsimile to any power of attorney or to any certificate relating thereto appointing an Attorney-in-Fact for purposes only of executing and sealing any bond, undertaking, recognizance or other written obligation in the nature thereof, and any such signature and seal where so used, being hereby adopted by the Company as the original signature of such officer and the original seal of the Company, to be valid and binding upon the Company with the same force and effect as though manually affixed.

IN WITNESS WHEREOF, ATLANTIC SPECIALTY INSURANCE COMPANY has caused these presents to be signed by an Authorized Officer and the seal of the Company to be affixed this twenty-seventh day of April, 2020.

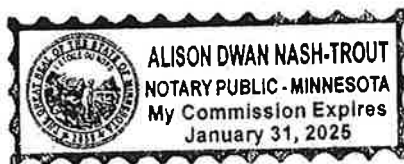


By

Paul J. Brehm, Senior Vice President

STATE OF MINNESOTA
HENNEPIN COUNTY

On this twenty-seventh day of April, 2020, before me personally came Paul J. Brehm, Senior Vice President of ATLANTIC SPECIALTY INSURANCE COMPANY, to me personally known to be the individual and officer described in and who executed the preceding instrument, and he acknowledged the execution of the same, and being by me duly sworn, that he is the said officer of the Company aforesaid, and that the seal affixed to the preceding instrument is the seal of said Company and that the said seal and the signature as such officer was duly affixed and subscribed to the said instrument by the authority and at the direction of the Company.



Notary Public

I, the undersigned, Secretary of ATLANTIC SPECIALTY INSURANCE COMPANY, a New York Corporation, do hereby certify that the foregoing power of attorney is in full force and has not been revoked, and the resolutions set forth above are now in force.

Signed and sealed. Dated 16th day of November, 2021.



Kara Barrow, Secretary

This Power of Attorney expires
January 31, 2025

Tax Collector's Office

625 Court Street
Finance Building, Room 100
P. O. Box 631
Martinez, California 94553-0063
(925) 608-9500
(925) 608-9598 (FAX)

Contra Costa County

Russell V. Watts
County Treasurer-Tax Collector

Lulis Lopez
Assistant Tax Collector

Danielle Goodbar
Tax Operations Supervisor



Date: 11/9/2021

IF THIS TRACT IS NOT FILED PRIOR TO THE DATE TAXES ARE OPEN FOR COLLECTION (R&T CODE 2608) **THIS LETTER IS VOID.**

This will certify that I have examined the map of the proposed subdivision entitled:

<u>Tract / MS #</u>	<u>City</u>	<u>T.R.A.</u>
MS 18-0009	Alamo	98018
Parcel #: 188-241-017-6		

and have determined from the official tax records that there are no unpaid County taxes heretofore levied on the property included in the map.

The 2021-2022 tax lien has been paid in full.

This tract is not subject to a 1915 Act Bond.

The amount calculated is **void** 45 days from the date of this letter, unless this letter is accompanied with security approved by the Contra Costa County Tax Collector
Subdivision bond must be presented to the County Tax Collector for review and approval of adequacy of security prior to filing with the Clerk of the Board of Supervisors.

RUSSEL V. WATTS
Treasurer-Tax Collector

By: Danielle Goodbar



Contra
Costa
County

To: Board of Supervisors
From: Brian M. Balbas, Public Works Director/Chief Engineer
Date: December 14, 2021

Subject: Approve the Final Map and Subdivision Agreement for subdivision SD17-9467, Bay Point area.

RECOMMENDATION(S):

ADOPT Resolution No. 2021/399 approving the Final Map and Subdivision Agreement for subdivision SD17-09467, for a project being developed by Forecast Land Investment, LLC, as recommended by the Public Works Director, Bay Point area. (District V)

FISCAL IMPACT:

No fiscal impact.

BACKGROUND:

The Public Works Department has reviewed the conditions of approval for subdivision SD17-09467 and has determined that all conditions of approval for Final Map approval have been satisfied.

CONSEQUENCE OF NEGATIVE ACTION:

The Final Map and the Subdivision Agreement will not be approved and recorded.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Randolph Sanders
(925)313-2111

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Larry Gossett- Engineering Services, Randolph Sanders- Engineering Services, Deborah Preciado - Engineering Services, Renee Hutchins - Records, Karen Piona- Records, Chris Hallford -Mapping , Michael Mann- Finance, Sherri Reed, Daniel Barrios- DCD, Forecast Land Investment, LLC, Lexon Insurance Company, t-10/14/2023

ATTACHMENTS

Resolution No. 2021/399

Final Map

Subdivision Agreement & Improvement Security Bond

Tax Letter

THE BOARD OF SUPERVISORS OF CONTRA COSTA COUNTY, CALIFORNIA
and for Special Districts, Agencies and Authorities Governed by the Board

Adopted this Resolution on 12/14/2021 by the following vote:

AYE: ☐
NO: ☐
ABSENT: ☐
ABSTAIN: ☐
RECUSE: ☐



Resolution No. 2021/399

IN THE MATTER OF approving the Final Map and Subdivision Agreement for subdivision SD17-09467, for project being developed by Forecast Land Investment, LLC, as recommended by the Public Works Director, Bay Point area. (District V)

WHERE AS, the following documents were presented for board approval this date:

I. Map

The Final Map of subdivision SD17-09467, property located in the Bay Point area, Supervisorial District V, said map having been certified by the proper officials.

II. Subdivision Agreement

A subdivision agreement with Forecast Land Investment, LLC principal, whereby said principal agrees to complete all improvements as required in said subdivision agreement within 2 year(s) from the date of said agreement. Accompanying said subdivision agreement is security guaranteeing completion of said improvements as follows:

A. Cash Bond

Performance amount: \$1,000.00

Auditor's Deposit Permit No. DP839131 Date: November 22, 2021

Submitted by: Discovery Builders, Inc.

B. Surety Bond

Bond Company: Lexon Insurance Company

Bond Number: LICX1210918 Date: November 30, 2021

Performance Amount: \$48,000.00

Labor & Materials Amount: \$24,500.00

Principal: Forecast Land Investment, LLC

III. Tax Letter

Letter from the County Tax Collector stating that there are no unpaid County taxes heretofore levied on the property included in said map and that the 2021-2022 tax lien has been paid in full.

NOW, THEREFORE, BE IT RESOLVED:

1. That said subdivision, together with the provisions for its design and improvement, is DETERMINED to be consistent with the County's general and specific plans.
2. That said map is APPROVED and this Board does hereby *accept subject to installation and acceptance of improvements* on behalf of the public any of the streets, paths, or easements shown thereon as dedicated to public use.
3. That said subdivision agreement is also APPROVED.

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

Contact: Randolph Sanders (925)313-2111

ATTESTED: December 14, 2021

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Larry Gossett- Engineering Services, Randolph Sanders- Engineering Services, Deborah Preciado - Engineering Services, Renee Hutchins - Records, Karen Piona- Records, Chris Hallford -Mapping , Michael Mann- Finance, Sherri Reed, Daniel Barrios- DCD, Forecast Land Investment, LLC, Lexon Insurance Company, t-10/14/2023

OWNER'S STATEMENT

I, THE UNDERSIGNED, BEING THE ONLY PARTY HAVING A RECORD TITLE INTEREST IN THE LANDS DELINEATED AND EMBRACED WITHIN THE HEAVY BLACK LINES UPON THIS MAP, DOES HEREBY CONSENT TO THE PREPARATION AND RECORDATION OF THE SAME.

THE UNDERSIGNED DOES HEREBY DEDICATE TO THE PUBLIC FOR PUBLIC USE THAT PORTION OF SAID LAND DELINEATED ON SAID MAP AS "STREET DEDICATION".

THE UNDERSIGNED FURTHER RELINQUISHES ALL ABUTTER'S RIGHTS OF ACCESS OF LOT 1 AS DEPICTED HEREIN BY THE SYMBOL, THIS / / / / /.

THIS MAP SHOWS ALL EASEMENTS ON THE PREMISES, OR OF RECORD.

AS OWNER, FORECAST LAND INVESTMENT, LLC, A CALIFORNIA LIMITED LIABILITY COMPANY

BY: _____ DATE: _____

NAME: _____

TITLE: _____

ACKNOWLEDGEMENT

I, A NOTARY PUBLIC OR OTHER OFFICER COMPLETING THIS CERTIFICATE VERIFIES ONLY THE IDENTITY OF THE INDIVIDUAL WHO SIGNED THE DOCUMENT TO WHICH THIS CERTIFICATE IS ATTACHED, AND NOT THE TRUTHFULNESS, ACCURACY, OR VALIDITY OF THAT DOCUMENT.

STATE OF CALIFORNIA
COUNTY OF CONTRA COSTA

ON _____, BEFORE ME, _____, A NOTARY PUBLIC, PERSONALLY APPEARED _____, WHO PROMISED TO ME ON THE BASIS OF SATISFACTORY EVIDENCE TO BE THE PERSON(S) WHOSE NAME(S) IS/ARE SUBSCRIBED TO THE WITHIN INSTRUMENT AND ACKNOWLEDGED TO ME THAT HE/SHE/IT/HEY EXECUTED THE SAME IN HIS/HER/ITS/THEIR OWN FREEDOM AND WITHOUT COERCION, UNLAWFUL INFLUENCE, OR UNLAWFUL INDUCEMENT, AND THAT HE/SHE/IT/HEY HAVE SIGNED THE INSTRUMENT.

I CERTIFY UNDER PENALTY OF PERJURY UNDER THE LAWS OF THE STATE OF CALIFORNIA THAT THE FOREGOING PARAGRAPH IS TRUE AND CORRECT.

WITNESS MY HAND:

SIGNATURE: _____

PRINTED NAME: _____

NOTARY PUBLIC IN AND FOR SAID COUNTY AND STATE

PRINCIPAL COUNTY OF BUSINESS: _____

COMMISSION EXPIRES: _____

COMMISSION # OF NOTARY: _____

TRUSTEE'S STATEMENT
THE UNDERSIGNED, AS TRUSTEE UNDER THE DEED OF TRUST RECORDED NOVEMBER 13, 2020, IN OFFICIAL RECORDS, UNDER RECORDER'S SERIES NO. 2020-0274086, CONTRA COSTA COUNTY RECORDS, DOES HEREBY JOIN IN AND CONSENT TO THE EXECUTION OF THE FOREGOING OWNERS' STATEMENT AND TO THE PREPARATION AND RECORDATION OF THIS MAP AND ALL DEDICATIONS THEREON.

OLD REPUBLIC TITLE COMPANY, A CALIFORNIA CORPORATION

(PRINT NAME, TITLE)

(PRINT NAME, TITLE)

ACKNOWLEDGEMENT

I, A NOTARY PUBLIC OR OTHER OFFICER COMPLETING THIS CERTIFICATE VERIFIES ONLY THE IDENTITY OF THE INDIVIDUAL WHO SIGNED THE DOCUMENT TO WHICH THIS CERTIFICATE IS ATTACHED, AND NOT THE TRUTHFULNESS, ACCURACY, OR VALIDITY OF THAT DOCUMENT.

STATE OF CALIFORNIA
COUNTY OF CONTRA COSTA

ON _____, BEFORE ME, _____, A NOTARY PUBLIC, PERSONALLY APPEARED _____, WHO PROMISED TO ME ON THE BASIS OF SATISFACTORY EVIDENCE TO BE THE PERSON(S) WHOSE NAME(S) IS/ARE SUBSCRIBED TO THE WITHIN INSTRUMENT AND ACKNOWLEDGED TO ME THAT HE/SHE/IT/HEY EXECUTED THE SAME IN HIS/HER/ITS/THEIR OWN FREEDOM AND WITHOUT COERCION, UNLAWFUL INFLUENCE, OR UNLAWFUL INDUCEMENT, AND THAT HE/SHE/IT/HEY HAVE SIGNED THE INSTRUMENT.

I CERTIFY UNDER PENALTY OF PERJURY UNDER THE LAWS OF THE STATE OF CALIFORNIA THAT THE FOREGOING PARAGRAPH IS TRUE AND CORRECT.

WITNESS MY HAND:

SIGNATURE: _____

PRINTED NAME: _____

NOTARY PUBLIC IN AND FOR SAID COUNTY AND STATE

PRINCIPAL COUNTY OF BUSINESS: _____

COMMISSION EXPIRES: _____

COMMISSION # OF NOTARY: _____

COUNTY SURVEYOR'S STATEMENT
I HEREBY STATE THAT I HAVE EXAMINED THE WITHIN MAP ENTITLED "SUBDIVISION 9467" THAT THE SUBDIVISION AS SHOWN HEREON IS SUBSTANTIALLY THE SAME AS THE MAP OF CHAIN OF TITLE FOR THE SUBDIVISION MAP ACT AND OF ANY LOCAL ORDINANCES APPLICABLE AT THE TIME OF APPROVAL OF THE VESTING TENTATIVE MAP HAVE BEEN COMPLIED WITH AND I AM SATISFIED THAT SAID MAP IS TECHNICALLY CORRECT.

JAMES A. STEIN, COUNTY SURVEYOR
L.S. No. 6571
DATE: _____

SURVEYOR'S STATEMENT

I HEREBY STATE THAT I HAVE EXAMINED THE WITHIN MAP ENTITLED "SUBDIVISION 9467" THAT THE SUBDIVISION AS SHOWN HEREON IS SUBSTANTIALLY THE SAME AS THE MAP OF CHAIN OF TITLE FOR THE SUBDIVISION MAP ACT AND OF ANY LOCAL ORDINANCES APPLICABLE AT THE TIME OF APPROVAL OF THE VESTING TENTATIVE MAP HAVE BEEN COMPLIED WITH AND I AM SATISFIED THAT SAID MAP IS TECHNICALLY CORRECT.

ALEXANDER V. FONG
P.L.S. 9252
DATE: _____



PLANNING COMMISSION'S STATEMENT

I HEREBY STATE THAT THE PLANNING COMMISSION OF THE COUNTY OF CONTRA COSTA, STATE OF CALIFORNIA, HAS APPROVED THE VESTING TENTATIVE MAP OF THIS SUBDIVISION, UPON WHICH THIS FINAL MAP IS BASED.

DATE: _____

ANNA BHATT
DEPUTY DIRECTOR, DEPARTMENT OF
CONSERVATION AND DEVELOPMENT
COMMUNITY DEVELOPMENT DIVISION

BY: _____

BUILDING INSPECTION STATEMENT

A GEOTECHNICAL INVESTIGATION REPORT PREPARED BY CALGEO TECH ENGINEERING CONSULTANTS, INC., DATED MAY 24, 2016, AGREEMENT NUMBER 758-16-1589, HAS BEEN RECEIVED AND APPROVED. THE REPORT IS ON FILE IN THE BUILDING INSPECTION DIVISION, COUNTY OF CONTRA COSTA, STATE OF CALIFORNIA.

DATE: _____

JASON CHEN
DEPUTY DIRECTOR, DEPARTMENT OF
CONSERVATION AND DEVELOPMENT
BUILDING INSPECTION DIVISION

BY: _____

SUBDIVISION 9467

ALL OF PARCEL 1 AND PARCEL 2 AS DESCRIBED IN GRANT DEED RECORDED NOVEMBER 13, 2020 AS SERIES NO. 2020-0274086 IN OFFICIAL RECORDS OF CONTRA COSTA COUNTY, STATE OF CALIFORNIA

DATE: AUGUST 2021
BELLECCHI & ASSOCIATES, INC.
CONCORD, CA



VICINITY MAP
NOT TO SCALE

CLERK OF THE BOARD OF SUPERVISORS CERTIFICATE

STATE OF CALIFORNIA
COUNTY OF CONTRA COSTA

I, MONICA NIÑO, CLERK OF THE BOARD OF SUPERVISORS AND COUNTY ADMINISTRATOR OF THE COUNTY OF CONTRA COSTA, STATE OF CALIFORNIA, DO HEREBY CERTIFY THAT THE WITHIN MAP ENTITLED "SUBDIVISION 9467" WAS PRESENTED TO SAID BOARD OF SUPERVISORS, AS PROVIDED BY LAW, AT A REGULAR MEETING THEREOF HELD ON THE _____ DAY OF _____, 2021, AND THAT SAID BOARD OF SUPERVISORS DID THEREUPON BY RESOLUTION DULY PASSED AND ADOPTED AT SAID MEETING, APPROVE SAID MAP AND DID ACCEPT SUBJECT TO INSTALLATION AND ACCEPTANCE OF IMPROVEMENTS ON BEHALF OF THE PUBLIC ALL OF THE PARCELS AND EASEMENTS OFFERED FOR DEDICATION TO PUBLIC USE.

I FURTHER CERTIFY THAT ALL TAX LIES HAVE BEEN SATISFIED AND THAT ALL BONDS AS REQUIRED BY LAW TO ACCOMPANY THE WITHIN MAP HAVE BEEN APPROVED BY THE BOARD OF SUPERVISORS OF CONTRA COSTA COUNTY, AND FILED IN MY OFFICE.

DATED: _____

BY: MONICA NIÑO
CLERK OF THE BOARD OF SUPERVISORS
AND COUNTY ADMINISTRATOR
COUNTY OF CONTRA COSTA
STATE OF CALIFORNIA

BY: _____
DEPUTY CLERK

RECORDER'S STATEMENT

THIS MAP, ENTITLED "SUBDIVISION 9467", IS HEREBY ACCEPTED FOR RECORDATION, SHOWING A CLEAR TITLE AS PER LETTER OF TITLE WRITTEN BY OLD REPUBLIC TITLE COMPANY, DATED NOVEMBER 19, 2020, AND AFTER EXAMINING SAID MAP, I HEREBY CERTIFY THAT IT CONFORMS WITH THE PROVISIONS OF SAID LAND AND LOCAL ORDINANCES GOVERNING THE FILING OF SUBDIVISION MAPS.

FILED AT THE REQUEST OF FORECAST LAND INVESTMENT, LLC, AT _____ AM/P.M. ON THE _____ DAY OF _____, 20____, IN BOOK _____ OF MAPS, AT PAGE _____, IN THE OFFICE OF THE COUNTY RECORDER OF THE COUNTY OF CONTRA COSTA, STATE OF CALIFORNIA.

REBEKAH COOPER
COUNTY RECORDER
COUNTY OF CONTRA COSTA
STATE OF CALIFORNIA

BY: _____
DEPUTY COUNTY RECORDER

ALL OF PARCEL 1 AND PARCEL 2 AS DESCRIBED IN
GRANT DEED RECORDED NOVEMBER 13, 2020 AS
SERIES No. 2020-0274086 IN OFFICIAL RECORDS
OF CONTRA COSTA COUNTY, STATE OF CALIFORNIA



BASIS OF BEARINGS

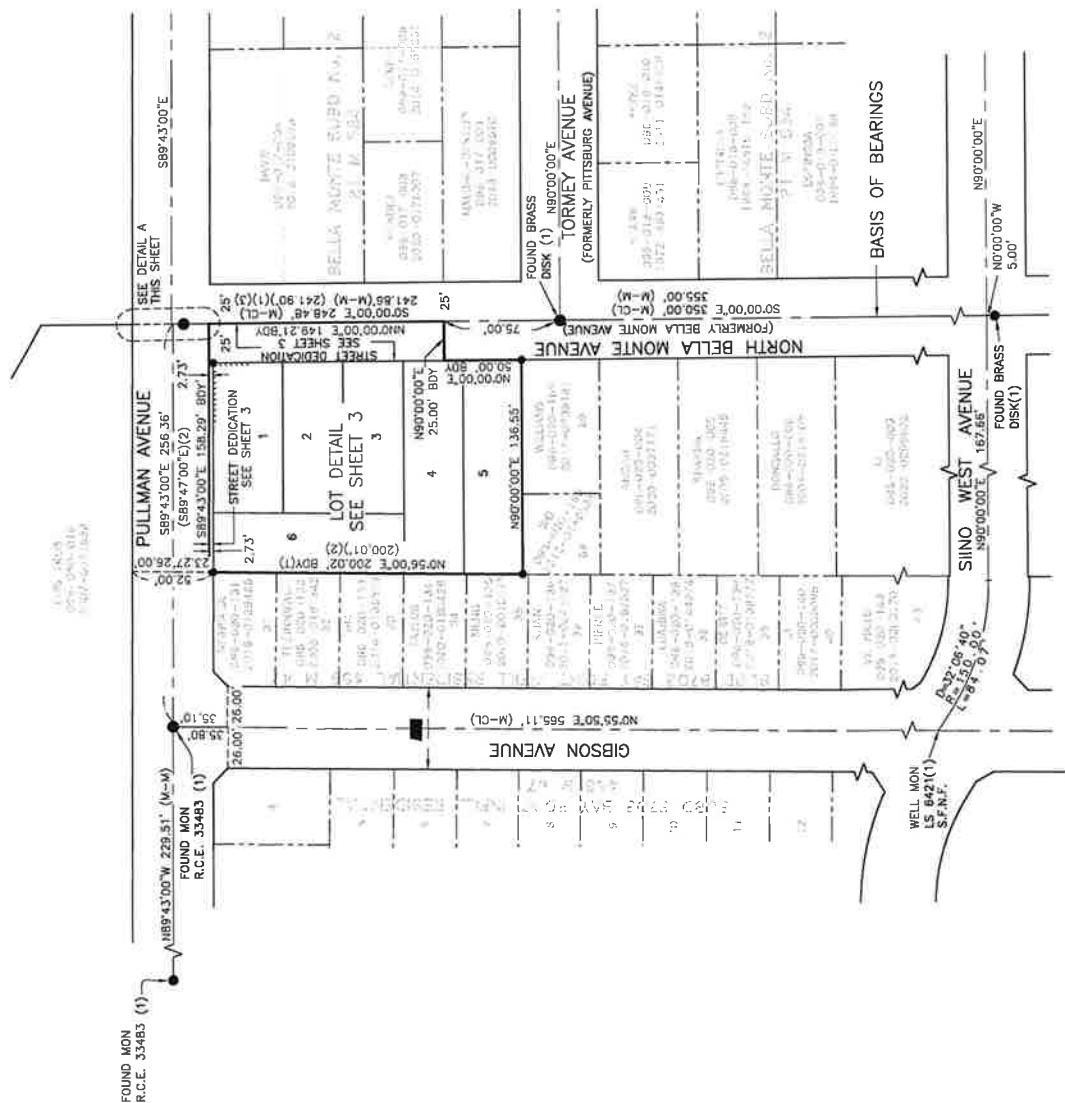
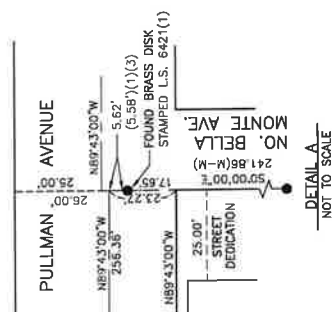
THE BASIS OF BEARINGS FOR THIS SURVEY IS DETERMINED BY FOUND MONUMENTS ALONG THE CENTERLINE OF NORTH BELLA MONTE AVENUE (FORMERLY BELLA MONTE AVENUE) AS SHOWN UPON THE MAP OF "SUBDIVISION 8703 BAY POINT INFILL RESIDENTIAL" (1458 MAPS 47) BEARING TAKEN AS SOUTH 89°43'00" EAST.

REFERENCES

- (1) SUBD 8703 "BAY POINT INFILL RESIDENTIAL" (458 M 47)
(2) GRANT DEED 2020-0274086
(3) CERTIFICATE OF CORRECTION 2004-0220428

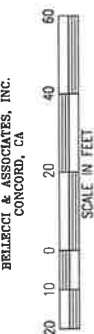
LEGEND

- SUBDIVISION BOUNDARY LINE
 _____ CENTER LINE
 _____ TIE LINE
 _____ LOT LINE
 /// ABUTTER'S RIGHTS OF ACCESS RELINQUISHED
 (1) TOTAL
 (M-H) MONUMENT TO MONUMENT
 (M-CL) MONUMENT TO CENTER LINE
 ● FOUND STANDARD STREET MONUMENT AS NOTED
 SET 8" REBAR W/ PLASTIC CAP LS 9252
 B'DY BOUNDARY
 () RECORD DATA
 S.F.N.F. SEARCHED FOR, NOT FOUND



ALL OF PARCEL 1 AND PARCEL 2 AS DESCRIBED IN GRANT DEED RECORDED NOVEMBER 13, 2020 AS SERIES No. 2020-0274086 IN OFFICIAL RECORDS OF CONTRA COSTA COUNTY, STATE OF CALIFORNIA

DATE: AUGUST 2021
 BELLEFONT & ASSOCIATES, INC.
 CONCORD, CA

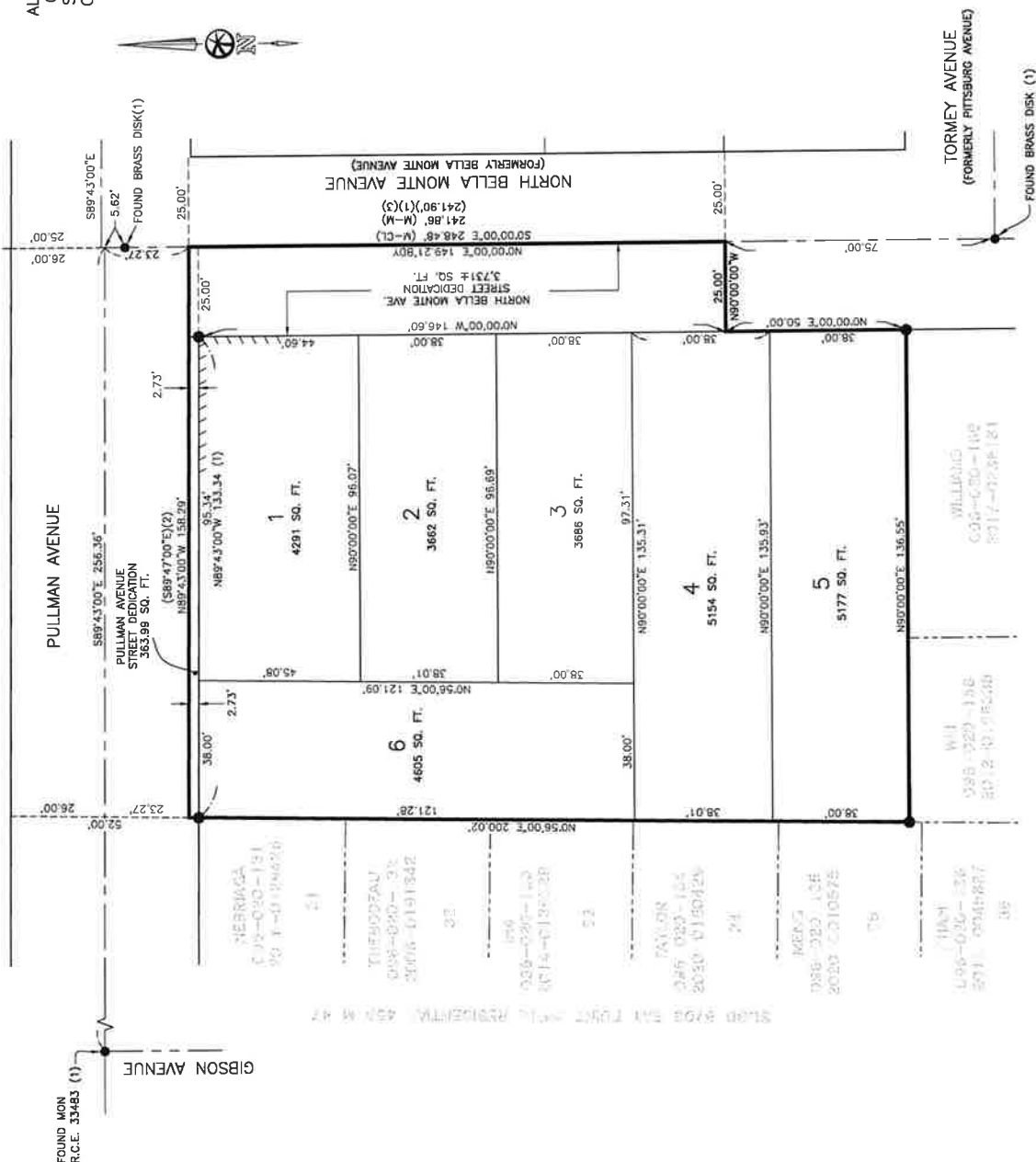


REFERENCES

- (1) SUBD 8703 "BAY POINT INFILL RESIDENTIAL" (458 M 47)
(2) GRANT DEED 2020-0274086
(3) CERTIFICATE OF CORRECTION 2004-0220428

LEGEND

- | | |
|----------------|--|
| <u>SECTION</u> | SUBDIVISION BOUNDARY LINE |
| -- -- | CENTER LINE |
| - - - - | TIE LINE |
| ===== | LOT LINE |
| / / / / | ABUTTER'S RIGHTS OF ACCESS RELINQUISHED |
| (T) | TOTAL |
| (M-W) | MONUMENT TO MONUMENT |
| (M-CI) | MONUMENT TO CENTER LINE |
| ● | FOUND STANDARD STREET MONUMENT AS NOTED |
| ● | SET $\frac{3}{8}$ " REBAR W/ PLASTIC CAP LS 9252 |
| BODY | BOUNDARY |
| () | RECORD DATA |
| S.F.N.F. | SEARCHED FOR, NOT FOUND |



SUBDIVISION AGREEMENT
(Gov. Code, §§ 66462 and 66463)

Subdivision: SD17-9467
Subdivider: Forecast Land Investment, LLC

Effective Date: Date approve BOS
Completion Period: 2 years

THESE SIGNATURES ATTEST TO THE PARTIES' AGREEMENT HERETO:

CONTRA COSTA COUNTY

Brian M. Balbas, Public Works Director

By: _____

RECOMMENDED FOR APPROVAL:

By: _____
Engineering Services Division

FORM APPROVED: Silvano B. Marchesi, County Counsel

SUBDIVIDER

Print Name Albert D. Seero III

Print Title Manager/Agent

Print Name: _____

Print Title: _____

[Note: If Subdivider is a corporation, two officers must sign. The first must be the chairman of the board, president or any vice president; the second must be the secretary, assistant secretary, chief financial officer or any assistant treasurer. (Corp. Code, § 313; Civ. Code, § 1190.) If Subdivider is a limited liability company, Subdivider shall sign in the manner required of corporations, or by two managers, or by one manager, pursuant to the articles of organization (see Corp. Code, §§ 17151, 17154, 17157.) If Subdivider is a partnership, any authorized partner may sign. Signatures by Subdivider must be notarized.]

1. PARTIES & DATE. Effective on the above date, the County of Contra Costa, California (hereinafter "County"), and the above-mentioned Subdivider mutually promise and agree as follows concerning this Subdivision:

2. IMPROVEMENTS. Subdivider agrees to install certain road improvements (both public and private), drainage improvements, signs, street lights, fire hydrants, landscaping and such other improvements (including appurtenant equipment) as required in the improvement plans for this Subdivision as reviewed and on file with the Contra Costa County Public Works Department, as required by the Conditions of Approval for this Subdivision, and in conformance with the Contra Costa County Ordinance Code, including future amendments thereto (hereinafter "Ordinance Code").

Subdivider shall complete said improvements (hereinafter "Work") within the above completion period from date hereof, as required by the California Subdivision Map Act (Gov. Code, §§ 66410 et. seq.) in a good workmanlike manner, in accordance with accepted construction practices and in a manner equal or superior to the requirements of the Ordinance Code and rulings made thereunder; and where there is a conflict among the improvement plans, the Conditions of Approval and the Ordinance Code, the stricter requirements shall govern.

3. IMPROVEMENTS SECURITY. Upon executing this Agreement, the Subdivider shall, pursuant to Gov. Code § 66499 and the County Ordinance Code, provide as security to the County:

A. For Performance and Guarantee: \$ 1,000 cash, plus additional security, in the amount of \$ 48,000, which together total one hundred percent (100%) of the estimated cost of the Work. Such additional security is presented in the form of:

- ☒ Cash, certified check or cashier's check.
☐ Acceptable corporate surety bond.
☐ Acceptable irrevocable letter of credit.

With this security, Subdivider guarantees performance under this Agreement and maintenance of the Work for one year after its completion and acceptance against any defective workmanship or materials or any unsatisfactory performance.

B. For Payment: Security in the amount: \$ 24,500, which is fifty percent (50%) of the estimated cost of the Work. Such security is presented in the form of:

- ☒ Cash, certified check, or cashier's check
☐ Acceptable corporate surety bond.
☐ Acceptable irrevocable letter of credit.

With this security, Subdivider guarantees payment to the contractor, to its subcontractors and to persons renting equipment or furnishing labor or materials to them or to the Subdivider.

Upon acceptance of the Work as complete by the Board of Supervisors and upon request of Subdivider, the amounts held as security may be reduced in accordance with Sections 94-4.406 and 94-4.408 of the Ordinance Code.

Form Approved by County Counsel
[Rev. 8/06]

4. **GUARANTEE AND WARRANTY OF WORK.** Subdivider guarantees that the Work shall be free from defects in material or workmanship and shall perform satisfactorily for a period of one (1) year from and after the Board of Supervisors accepts the Work as complete in accordance with Article 96-4.6, "Acceptance," of the Ordinance Code. Subdivider agrees to correct, repair, or replace, at Subdivider's expense, any defects in said Work.

The guarantee period does not apply to road improvements for private roads that are not to be accepted into the County road system.

5. **PLANT ESTABLISHMENT WORK.** Subdivider agrees to perform plant establishment work for landscaping installed under this Agreement. Said plant establishment work shall consist of adequately watering plants, replacing unsuitable plants, doing weed, rodent and other pest control and other work determined by the Public Works Department to be necessary to ensure establishment of plants. Said plant establishment work shall be performed for a period of one (1) year from and after the Board of Supervisors accepts the Work as complete.

6. **IMPROVEMENT PLAN WARRANTY.** Subdivider warrants the improvement plans for the Work are adequate to accomplish the Work as promised in Section 2 and as required by the Conditions of Approval for the Subdivision. If, at any time before the Board of Supervisors accepts the Work as complete or during the one year guarantee period, said improvement plans prove to be inadequate in any respect, Subdivider shall make whatever changes are necessary to accomplish the Work as promised.

7. **NO WAIVER BY COUNTY.** Inspection of the Work and/or materials, or approval of the Work and/or materials or statement by any officer, agent or employee of the County indicating the Work or any part thereof complies with the requirements of this Agreement, or acceptance of the whole or any part of said Work and/or materials, or payments therefor, or any combination or all of these acts, shall not relieve the Subdivider of its obligation to fulfill this Agreement as prescribed; nor shall the County be thereby stopped from bringing any action for damages arising from the failure to comply with any of the terms and conditions hereof.

8. **INDEMNITY.** Subdivider shall defend, hold harmless and indemnify the indemnitees from the liabilities as defined in this section:

A. The indemnitees benefitted and protected by this promise are the County and its special districts, elective and appointive boards, commissions, officers, agents and employees.

B. The liabilities protected against are any liability or claim for damage of any kind allegedly suffered, incurred or threatened because of actions defined below, and including personal injury, death, property damage, inverse condemnation, or any combination of these, and regardless of whether or not such liability, claim or damage was unforeseeable at any time before County reviewed said improvement plans or accepted the Work as complete, and including the defense of any suit(s), action(s), or other proceeding(s) concerning said liabilities and claims.

C. The actions causing liability are any act or omission (negligent or non-negligent) in connection with the matters covered by this Agreement and attributable to Subdivider, contractor, subcontractor, or any officer, agent, or employee of one or more of them.

D. **Non-Conditions.** The promise and agreement in this section are not conditioned or dependent on whether or not any indemnitee has prepared, supplied, or approved any plan(s) or specification(s) in connection with this Work or Subdivision, or has insurance or other indemnification covering any of these matters, or that the alleged damage resulted partly from any negligent or willful misconduct of any indemnitee.

9. **COSTS.** Subdivider shall pay, when due, all the costs of the Work, including but not limited to the costs of relocations of existing utilities required thereby; inspections; material checks and tests; and other costs incurred by County staff arising from or related to the Work, and prior to acceptance of the Work as complete or expiration of any applicable warranty periods, whichever is later.

10. **SURVEYS.** Subdivider shall set and establish survey monuments in accordance with the filed map and to the satisfaction of the County Road Commissioner-Surveyor before acceptance of the Work as complete by the Board of Supervisors.

11. **NON-PERFORMANCE AND COSTS.** If Subdivider fails to complete the Work within the time specified in this Agreement, and subsequent extensions, or fails to maintain the Work, County may proceed to complete and/or maintain the Work by contract or otherwise and Subdivider agrees to pay all costs and charges incurred by County (including, but not limited to, engineering, inspection, surveys, contract, overhead, etc.) immediately upon demand.

Once action is taken by County to complete or maintain the Work, Subdivider agrees to pay all costs incurred by County, even if Subdivider subsequently completes the Work.

Should County sue to compel performance under this Agreement or to recover costs incurred in completing or maintaining the Work, Subdivider agrees to pay all attorney's fees, staff costs and all other expenses of litigation incurred by County in connection therewith, even if Subdivider subsequently proceeds to complete the Work.

12. **INCORPORATION/ANNEXATION.** If, before the Board of Supervisors accepts the Work as complete, the Subdivision is included in territory incorporated as a city or is annexed to an existing city, except as provided in this paragraph, County's rights under this Agreement and/or any deposit, bond, or letter of credit securing said rights shall be transferred to the new or annexing city. Such city shall have all the rights of a third party beneficiary against Subdivider, who shall fulfill all the terms of this Agreement as though Subdivider had contracted with the city originally. The provisions of paragraph 8 (Indemnity) shall continue to apply in favor of the indemnitees listed in paragraph 8.A. upon any such incorporation or annexation.

13. **RECORD MAP.** In consideration hereof, County shall allow Subdivider to file and record the final map or parcel map for said Subdivision.

14. **RIGHT OF ENTRY.** Subdivider hereby consents to entry onto the Subdivision property, and onto any other property over which Subdivider has land rights and upon which any portion of the Work is to be installed pursuant to the improvement plans, by County and its forces, including contractors, for the purpose of inspection, and, in the event of non-performance of this Agreement by Subdivider, completion and/or maintenance of the Work.

Subdivision: SD17-9467
Bond No.: LICX1210918
Premium: \$300.00
Any claim under this Bond should be sent
to the following address:
10002 Shelbyville Rd, Suite 100
Louisville, KY 40223

**IMPROVEMENT SECURITY BOND
FOR SUBDIVISION AGREEMENT**
(Performance, Guarantee and Payment)
(Gov. Code, §§ 66499-66499.10)

1. **RECITAL OF SUBDIVISION AGREEMENT.** The Principal has executed an agreement with the County of Contra Costa (hereinafter "County") to install and pay for street, drainage and other improvements in Subdivision _____ as specified in the Subdivision Agreement, and to complete said work within the time specified for completion in the Subdivision Agreement, all in accordance with State and local laws and rulings thereunder in order to satisfy conditions for filing of the Final Map or Parcel Map for said subdivision. Under the terms of the Subdivision Agreement, Principal is required to furnish a bond to secure the faithful performance of the Subdivision Agreement and payment to laborers and materialmen.

*Bella Monte Subdivision SD17-9467
2. **OBLIGATION.** Forecast Land Investment, LLC, as Principal,
and Lexon Insurance Company, a corporation organized and existing
under the laws of the State of Texas and authorized to transact surety business in California, as Surety, hereby jointly and
severally bind ourselves, our heirs, executors, administrators, successors and assigns to the County of Contra Costa, California to pay it:

(A. Performance and Guarantee) forty eight thousand and no/xx Dollars
(\$ 48,000.00) for itself or any city assignee under the above Subdivision Agreement.

(B. Payment) twenty four thousand five hundred and no/xx Dollars
(\$ 24,500.00) to secure the claims to which reference is made in Title XV (commencing with Section 3082) of Part 4 of Division III of the Civil Code of the
State of California.

3. **CONDITION.** This obligation is subject to the following condition.

A. The condition of this obligation as to Section 2(A) above is such that if the above bounded Principal, his or its heirs, executors, administrators, successors or assigns, shall in all things stand to and abide by, and well and truly keep and perform the covenants, conditions and provisions in the said agreement and any alteration thereof made as therein provided, on his or their part, to be kept and performed at the time and in the manner therein specified, and in all respects according to their true intent and meaning, and shall indemnify and save harmless the County of Contra Costa (or city assignee), its officers, agents and employees, as therein stipulated, then this obligation shall become null and void; otherwise it shall be and remain in full force and effect.

As part of the obligation secured hereby and in addition to the face amount specified therefor, there shall be included costs and reasonable expenses and fees, including reasonable attorney's fees, incurred by the County of Contra Costa (or city assignee) in successfully enforcing such obligation, and to be taxed as costs and included in any judgment rendered.

B. The condition of this obligation, as to Section 2(B) above, is such that said Principal and the undersigned as corporate surety are held firmly bound unto the County of Contra Costa and all contractors, subcontractors, laborers, materialmen and other persons employed in the performance of the aforesaid Subdivision Agreement and referred to in the aforesaid Civil Code for materials furnished or labor thereon of any kind, or for amounts due under the Unemployment Insurance Act with respect to this work or labor, and that the Surety will pay the same in an amount not exceeding the amount hereinabove set forth, and also in case suit is brought upon this bond, will pay, in addition to the face amount thereof, costs and reasonable expenses and fees, including reasonable attorney's fees, incurred by the County of Contra Costa (or city assignee) in successfully enforcing such obligation, to be awarded and fixed by the court, and to be taxed as costs and to be included in the judgment therein rendered.

It is hereby expressly stipulated and agreed that this bond shall inure to the benefit of any and all persons, companies, and corporations entitled to file claims under Title 15 (commencing with Section 3082) of Part 4 of Division 3 of the Civil Code, so as to give a right of action to them or their assigns in any suit brought upon this bond.


Should the condition of this bond be fully performed, then this obligation shall become null and void; otherwise it shall be and remain in full force and effect.


C. No change, extension of time, alteration, or addition to the terms of said Subdivision Agreement or the work to be performed thereunder or any plan or specifications of said work, agreed to by the Principal and the County of Contra Costa (or city assignee) shall relieve any Surety from liability on this bond; and consent is hereby given to make such change, extension of time, alteration or addition without further notice to or consent by Surety; and Surety hereby waives the provisions of Civil Code Section 2819 and holds itself bound without regard to and independently of any action against the Principal whenever taken.

SIGNED AND SEALED on November 30, 20 21

Principal: Forecast Land Investment, LLC
Address: 4021 Port Chicago Highway
Concord, CA Zip: 94520

Surety: Lexon Insurance Company
Address: 10002 Shelbyville Rd, Suite 100
Louisville, KY Zip: 40223

By: 
Print Name: Albert D. Seeno, III
Title: Manager

By: 
Print Name: Jessica L. Nowlin
Title: Attorney-in-Fact

[Note: All signatures must be acknowledged. For corporations, two officers must sign. The first signature must be that of the chairman of the board, president, or vice-president; the second signature must be that of the secretary, assistant secretary, chief financial officer, or assistant treasurer. (Civ. Code, § 1190 and Corps. Code, § 313.)]

Form Approved by County Counsel
[Rev. 1/06]

ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California
County of Contra Costa)

On November 30th, 2021 before me, Nancy McMillin, Notary Public
(insert name and title of the officer)

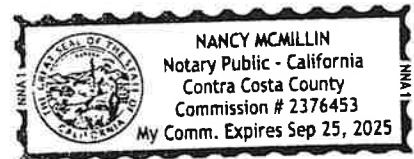
personally appeared Albert D. Seeno, III
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature

(Seal)



CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

Civil Code § 1189

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy or validity of that document.

State of California)
) ss
County of San Francisco)

On NOV 30 2021, before me, Natalie K. Trofimoff, Notary Public, personally appeared Jessica L. Nowlin, who proved to me on the basis of satisfactory evidence to be the person~~(s)~~ whose name~~(s)~~ is/~~are~~ subscribed to the within instrument and acknowledged to me that he/~~she/they~~ executed the same in his/~~her/their~~ authorized capacity~~(ies)~~, and that by his/~~her/their~~ signature~~(s)~~ on the instrument the person~~(s)~~, or the entity upon behalf of which the person~~(s)~~ acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.



(Seal)

Signature: 
Natalie K. Trofimoff, Notary Public



KNOW ALL BY THESE PRESENTS, that **Endurance Assurance Corporation**, a Delaware corporation, **Endurance American Insurance Company**, a Delaware corporation, **Lexon Insurance Company**, a Texas corporation, and/or **Bond Safeguard Insurance Company**, a South Dakota corporation, each, a "Company" and collectively, "**Sompo International**," do hereby constitute and appoint: **Jessica L. Nowlin, John T. Lettieri, Natalie K. Trofimoff, Patricia S. Arana** as true and lawful Attorney(s)-In-Fact to make, execute, seal, and deliver for, and on its behalf as surety or co-surety; bonds and undertakings given for any and all purposes, also to execute and deliver on its behalf as aforesaid renewals, extensions, agreements, waivers, consents or stipulations relating to such bonds or undertakings provided, however, that no single bond or undertaking so made, executed and delivered shall obligate the Company for any portion of the penal sum thereof in excess of the sum of **ONE HUNDRED MILLION Dollars (\$100,000,000.00)**.

Such bonds and undertakings for said purposes, when duly executed by said attorney(s)-in-fact, shall be binding upon the Company as fully and to the same extent as if signed by the President of the Company under its corporate seal attested by its Corporate Secretary.

This appointment is made under and by authority of certain resolutions adopted by the sole shareholder of each Company by unanimous written consent effective the 15th day of June, 2019, a copy of which appears below under the heading entitled "Certificate".

This Power of Attorney is signed and sealed by facsimile under and by authority of the following resolution adopted by the sole shareholder of each Company by unanimous written consent effective the 15th day of June, 2019 and said resolution has not since been revoked, amended or repealed:

RESOLVED, that the signature of an individual named above and the seal of the Company may be affixed to any such power of attorney or any certificate relating thereto by facsimile, and any such power of attorney or certificate bearing such facsimile signature or seal shall be valid and binding upon the Company in the future with respect to any bond or undertaking to which it is attached.

IN WITNESS WHEREOF, each Company has caused this instrument to be signed by the following officers, and its corporate seal to be affixed this 15th day of June, 2019.

Endurance Assurance Corporation

Endurance American Insurance Company

Lexon Insurance Company

Bond Safeguard Insurance Company

By: *Richard M Appel*
Richard Appel; SVP & Senior Counsel

By: *Richard M Appel*
Richard Appel; SVP & Senior Counsel

By: *Richard M Appel*
Richard Appel; SVP & Senior Counsel

By: *Richard M Appel*
Richard Appel; SVP & Senior Counsel



ACKNOWLEDGEMENT

On this 15th day of June, 2019, before me, personally came the above signatories known to me, who being duly sworn, did depose and say that he/she is an officer of each of the Companies, and that he executed said instrument on behalf of each Company by authority of his office under the by-laws of each Company.

By: *Amy Taylor*
Amy Taylor, Notary Public - My Commission Expires 5/9/23



CERTIFICATE

I, the undersigned Officer of each Company, DO HEREBY CERTIFY that:

1. That the original power of attorney of which the foregoing is a copy was duly executed on behalf of each Company and has not since been revoked, amended or modified; that the undersigned has compared the foregoing copy thereof with the original power of attorney, and that the same is a true and correct copy of the original power of attorney and of the whole thereof;
2. The following are resolutions which were adopted by the sole shareholder of each Company by unanimous written consent effective June 15, 2019 and said resolutions have not since been revoked, amended or modified:

"RESOLVED, that each of the individuals named below is authorized to make, execute, seal and deliver for and on behalf of the Company any and all bonds, undertakings or obligations in surety or co-surety with others: **RICHARD M. APPEL, BRIAN J. BEGGS, CHRISTOPHER DONELAN, SHARON L. SIMS, CHRISTOPHER L. SPARRO, MARIANNE L. WILBERT**

; and be it further

RESOLVED, that each of the individuals named above is authorized to appoint attorneys-in-fact for the purpose of making, executing, sealing and delivering bonds, undertakings or obligations in surety or co-surety for and on behalf of the Company."

3. The undersigned further certifies that the above resolutions are true and correct copies of the resolutions as so recorded and of the whole thereof.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the corporate seal this 30th day of November, 2021.

By: *Daniel S. Lurie*
Daniel S. Lurie, Secretary

NOTICE: U. S. TREASURY DEPARTMENT'S OFFICE OF FOREIGN ASSETS CONTROL (OFAC)

No coverage is provided by this Notice nor can it be construed to replace any provisions of any surety bond or other surety coverage provided. This Notice provides information concerning possible impact on your surety coverage due to directives issued by OFAC. Please read this Notice carefully.

The Office of Foreign Assets Control (OFAC) administers and enforces sanctions policy, based on Presidential declarations of "national emergency". OFAC has identified and listed numerous foreign agents, front organizations, terrorists, terrorist organizations, and narcotics traffickers as "Specially Designated Nationals and Blocked Persons". This list can be located on the United States Treasury's website - <https://www.treasury.gov/resource-center/sanctions/SDN-List>.

In accordance with OFAC regulations, if it is determined that you or any other person or entity claiming the benefits of any coverage has violated U.S. sanctions law or is a Specially Designated National and Blocked Person, as identified by OFAC, any coverage will be considered a blocked or frozen contract and all provisions of any coverage provided are immediately subject to OFAC. When a surety bond or other form of surety coverage is considered to be such a blocked or frozen contract, no payments nor premium refunds may be made without authorization from OFAC. Other limitations on the premiums and payments may also apply.

Any reproductions are void.

Surety Claims Submission: LexonClaimAdministration@sompo-intl.com

Telephone: 615-553-9500 Mailing Address: Sompo International; 12890 Lebanon Road; Mount Juliet, TN 37122-2870

12/25/21

Old Republic \$ 47.00

Tax Collector's Office

625 Court Street
Finance Building, Room 100
P. O. Box 631
Martinez, California 94553-0063
(925) 608-9500
(925) 608-9598 (FAX)

**Contra
Costa
County**



Date: 11/10/2021

Russell V. Watts
County Treasurer-Tax Collector

Lulis Lopez
Assistant Tax Collector

Danielle Goodbar
Tax Operations Supervisor

IF THIS TRACT IS NOT FILED PRIOR TO THE DATE TAXES ARE OPEN FOR COLLECTION (R&T CODE 2608) **THIS LETTER IS VOID.**

This will certify that I have examined the map of the proposed subdivision entitled:

<u>Tract / MS #</u>	<u>City</u>	<u>T.R.A.</u>
9467	Bay Point	79024
Parcel #: 096-020-081-4		

and have determined from the official tax records that there are no unpaid County taxes heretofore levied on the property included in the map.

The 2021-2022 tax lien has been paid in full.

This tract is not subject to a 1915 Act Bond.

The amount calculated is **void** 45 days from the date of this letter, unless this letter is accompanied with security approved by the Contra Costa County Tax Collector
Subdivision bond must be presented to the County Tax Collector for review and approval of adequacy of security prior to filing with the Clerk of the Board of Supervisors.

RUSSEL V. WATTS
Treasurer-Tax Collector

By: A blue ink signature of Russell V. Watts, written over a horizontal line.



**Contra
Costa
County**

To: Board of Supervisors
From: Brian M. Balbas, Public Works Director/Chief Engineer
Date: December 14, 2021

Subject: APPROVE conveyance and assignment of property rights to the City of Antioch in connection with the West Antioch Creek Project, Antioch area,

RECOMMENDATION(S):

Acting as the governing body of the Contra Costa County Flood Control and Water Conservation District (District), APPROVE and AUTHORIZE the conveyance of five (5) Fee parcels, one (1) Permanent Utility and Access Easement, and two (2) access easements to the City of Antioch (City) in connection with the West Antioch Creek Project, pursuant to Government Code Section 25365, Section 6.1 of the Contra Costa County Flood Control and Water Conservation District Act, and a cooperative agreement between the District and the City. (Project No.: 7579-6D8399)[CP#15-05, SCH2014042078]

AUTHORIZE the Chair, Board of Supervisors, to execute on behalf of the District, a Grant Deed and two (2) Assignment of Easements.

DIRECT the Real Estate Division of the Public Works Department to deliver a certified copy of this Board Order with the Grant Deed and Assignment of Easements to the City for acceptance and recording in the office of the County Clerk-Recorder.

FISCAL IMPACT:

100% Drainage Area 55 Funds.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Jewel Lopez, 925.
957-2485

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:

BACKGROUND:

On October 23, 2012, the District entered into a cooperative agreement (Agreement) with the City of Antioch (City) to jointly improve the drainage between 10th Street and 200 feet downstream to the Burlington Northern Santa Fe railroad trestle in Antioch. As part of the Agreement, the District is responsible for acquiring the necessary property rights to construct the Project and, after completion, the City will accept ownership of those facilities and property rights.

The Project has been completed and in order for the City to accept ownership and maintain their facilities, it is necessary for the District to convey the fee parcels and said easement rights.

The Notice of Intention to convey and assign property rights to the City was published in the Contra Costa Times at least one week prior to this Board meeting, as required by Government Code Section 6061.

CONSEQUENCE OF NEGATIVE ACTION:

The District will not have fulfilled their responsibilities in the Agreement and the City will not have the necessary access rights to properly maintain and repair their facilities.

ATTACHMENTS

Grant Deed

Assignment of Easement

Assignment of Easement

Recorded at the request of:
Contra Costa County Flood Control
and Water Conservation District

When recorded mail tax statements
and return to:
City of Antioch
P.O. Box 5007
Antioch, CA 94531
Attn: John Samuelson

**EXEMPT FROM RECORDING FEES PURSUANT TO GOV'T. CODE SECTION 27383 AND DOCUMENTARY TRANSFER TAX
PURSUANT TO REVENUE AND TAXATION CODE SECTION 11922.**

Assessor's Parcel No. 074-130-060, 074-130-088 (formerly APN Nos.:074-130-056, 057, &
058), 074-XXX-XXX (formerly APN Nos.: 074-130-064 & 076)

GRANT DEED

For valuable consideration, receipt of which is hereby acknowledged,

CONTRA COSTA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, a flood
control district, organized under the laws of the State of California,

Grants to the City of Antioch, a municipal corporation, the real property described in the
Deed and Final Order of Condemnation and Grant Deeds set forth in Exhibit "A" attached
hereto and made a part hereof, in the City of Antioch, of the County of Contra Costa, State of
California.

CONTRA COSTA COUNTY FLOOD CONTROL AND WATER
CONSERVATION DISTRICT

Dated _____

By _____
Diane Burgis
Chair, Board of Supervisors

EXHIBIT "A"

Parcel 8 – Fee conveyed by Final Order of Condemnation, recorded October 30, 2019, Series No. 2019-0192286-00, Official Records of Contra Costa County, State of California.

Parcel 5 – Fee conveyed by Grant Deed, recorded January 29, 2016, Series No. 2016-0016274-00, Official Records of Contra Costa County, State of California.

Parcel 6 – Fee conveyed by Grant Deed, recorded January 29, 2016, Series No. 2016-0016274-00, Official Records of Contra Costa County, State of California.

Parcel 7 – Fee conveyed by Grant Deed, recorded January 29, 2016, Series No. 2016-0016274-00, Official Records of Contra Costa County, State of California.

Parcels 11 – Fee conveyed by Grant Deed, recorded January 7, 2016, Series No. 2016-0002794-00, Official Records of Contra Costa County, State of California.

REMAINDER OF PAGE INTENTIONALLY LEFT BLANK

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

A Notary Public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF CALIFORNIA
COUNTY OF CONTRA COSTA

On _____, before me, _____,

Notary Public, personally appeared _____, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____ (Seal)
Notary Public

Recorded at the request of:
Contra Costa County Flood Control
and Water Conservation District

When recorded return to:
City of Antioch
P.O. Box 5007
Antioch, CA 94531
Attn: John Samuelson

Mail tax statements to:
Kraig K. Terazono
1400 W 10th St.
Antioch, CA 94509

EXEMPT FROM RECORDING FEES PURSUANT TO GOV'T. CODE SECTION 27383 AND DOCUMENTARY TRANSFER TAX PURSUANT TO
REVENUE AND TAXATION CODE SECTION 11922.

Portion of Assessor's Parcel No: 074-130-060

ASSIGNMENT OF EASEMENT

For valuable consideration, receipt of which is hereby acknowledged,

CONTRA COSTA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, a flood control district, organized under the laws of the State of California ("Assignor"),

Hereby assigns, transfers and conveys to CITY OF ANTIOCH, a municipal corporation, all of "Assignor's" rights, title, interests and obligations described in the Deed and Final Order of Condemnation set forth in Exhibit "A" attached hereto and made a part hereof, which is recorded in the Office of the County Recorder of the County of Contra, State of California.

CONTRA COSTA COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT

Dated _____

By _____
Diane Burgis
Chair, Board of Supervisors

JL:dw

G:\realprop\West Antioch Creek Project\Transfer to City\EA.08 Assignment PUAE.doc
Updated 08/18/15

EXHIBIT "A"

Parcel 9 – Permanent Utility and Access Easement conveyed by Final Order of Condemnation, recorded October 30, 2019, Series No. 2019-0192286-00, Official Records of Contra Costa County, State of California.

REMAINDER OF PAGE INTENTIONALLY LEFT BLANK

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

A Notary Public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF CALIFORNIA
COUNTY OF CONTRA COSTA

On _____, before me, _____,
Notary Public, personally appeared _____, who proved to
me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to
the within instrument and acknowledged to me that he/she/they executed the same in his/her/their
authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or
the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing
paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____ (Seal)
Notary Public

Recorded at the request of:
Contra Costa County Flood Control
and Water Conservation District

When recorded return to:
City of Antioch
P.O. Box 5007
Antioch, CA 94531
Attn: John Samuelson

Mail tax statements to:
Hall & Loads, Inc
777 N 1st Street, Fl 5
San Jose, CA 95112

EXEMPT FROM RECORDING FEES PURSUANT TO GOV'T. CODE SECTION 27383 AND DOCUMENTARY TRANSFER TAX PURSUANT TO
REVENUE AND TAXATION CODE SECTION 11922.

Portion of Assessor's Parcel Nos: 074-040-025 & 074-040-036

ASSIGNMENT OF EASEMENT

For valuable consideration, receipt of which is hereby acknowledged,

CONTRA COSTA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, a flood control district, organized under the laws of the State of California ("Assignor"),

Hereby assigns, transfers and conveys to CITY OF ANTIOCH, a municipal corporation, all of "Assignor's" rights, title, interests and obligations under that certain easement recorded February 23, 2016, at the Contra Costa County Recorder's Office (Series # 2016-0030542 from Hall & Loads, Inc., a California corporation, to Contra Costa County Flood Control and Water Conservation District, the following described real property in the City of Antioch, County of Contra Costa, State of California,

FOR DESCRIPTIONS AND PLAT MAPS SEE EXHIBITS "A", "A-1", "B-1" AND "B-2" ATTACHED TO ATTACHMENT "A" ATTACHED HERETO AND MADE A PART HEREOF.

CONTRA COSTA COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT

Dated _____

By _____
Diane Burgis
Chair, Board of Supervisors

ATTACHMENT "A"

Not for Official Use : This copy has not been QUALITY ASSURED.

Recorded at the request of:
Contra Costa County

Return to:
Contra Costa County
Public Works Department
Real Estate Division
255 Glacier Drive
Martinez, CA 94553
Attn: Angela Bell

CONTRA COSTA Co Recorder Office
JOSEPH CANCIAMILLA, Clerk-Recorder
DOC - 2016-0030542-00
Tuesday, FEB 23, 2016 14:14:08
FRE \$0.00
Ttl Pd \$0.00 Nbr-0002516672 JEB / RR / 1-9



9

Ptn. of Assessor's Parcel Nos. 074-040-025 and 074-040-036

GRANT OF EASEMENT

THIS INDENTURE, made by and between HALL & LOADS, INC., a California Corporation, hereinafter called the GRANTOR, and CONTRA COSTA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, a Flood Control District operating under the laws of the State of California, hereinafter called the GRANTEE, is made with regard to the following:

WITNESSETH:

A. That the GRANTOR, for value received, hereby grants to the GRANTEE, and its successors and assigns, perpetual easements and right of way for ingress and egress purposes (not to be exclusive) over and across that certain real property in the County of Contra Costa, State of California, as described in Exhibits "A" and "B" attached hereto and made a part hereof.

The easements herein granted shall include the right by said GRANTEE, its officers, agents and employees, and by persons under contract with it and their employees whenever and wherever necessary for ingress and egress purposes, to enter upon said land with personnel, vehicles and equipment, to remove all trees, vegetation and structures thereon that interfere with the purpose for which the easements herein are granted.

It is understood that GRANTEE is not responsible for repairing or replacing any of GRANTOR's improvements within the area described in Exhibit "A" and "B".

B. That the GRANTOR, for value received, hereby grants to the GRANTEE, and its successors and assigns, Permanent Access Easements, for purposes of ingress and egress, in, on, over and across, that certain real property in the County of Contra Costa, State of California, as described and shown on Exhibits "A", "B", "A-1" and "B-1" attached hereto and made a part hereof.

TO HAVE AND TO HOLD, all and singular, the rights above described unto the GRANTEE and the GRANTEE's successors and assigns forever.

IN WITNESS WHEREOF, the GRANTOR has executed this indenture this 8 day of Oct, 2015.

Case B. Swenson

Lisa M. Swenson

ABOVE SIGNATURES MUST BE NOTARIZED

AB:mc

G:\realprop\West Antioch Creek Project\Deeds\DE.01 Grant of Easement (revised)-Hall & Loads 10-6-15.doc

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WEST ANTIOCH CREEK PROJECT
APN 074-040-025 - HALL & LOADS, INC
PARCEL 15

EXHIBIT "A"
PARCEL 15
PERMANENT ACCESS EASEMENT
HALL and LOADS, INC.
APN 074-040-025 - DN 2015-0169749

A Permanent Access Easement to be used for the ingress and egress on, over and across the following described parcel of land:

All that property situated in the City of Antioch, County of Contra Costa, State of California described as follows: Being all of that certain parcel of land described as Parcel Two and a portion of that certain parcel described as Parcel One, both in the Grant Deed to Hall & Loads, Inc., a California Corporation, recorded August 14, 2015 as Document No. 2015-0169749 in Contra Costa County Records, more particularly described as follows:

BEGINNING at the southwest corner of said Parcel Two (DN 2015-0169749); thence, along westerly line of said parcel, North 00°49'48" East, 488.52 feet; thence, leaving said westerly line, North 44°10'12" West, 122.79 feet to the southwesterly line of Parcel Four as said Parcel Four is described in above said document (DN 2015-0169749); thence, along said southwesterly line, along a non-tangent curve to the left, having radius 411.20 feet, from which the center bears North 22°03'13" East, through a central angle of 12°32'48", an arc distance of 90.04 feet to the northwest corner of said Parcel Two; thence along the exterior boundary of said parcel, the following three (3) courses: 1) South 89°10'12" East, 30.00 feet, 2) South 00°49'48" West, 552.18 feet and 3) North 89°07'45" West, 30.00 feet to the **POINT of BEGINNING**.

Containing 19,180 square feet or 0.44 acres, more or less.

Bearings used in the above description are based upon the California Coordinate System of 1983 (CCS83), Epoch 2010.00, Zone 3. Multiply grid distances shown above by 1.000056 to obtain ground distances.

This real property description has been prepared at Mark Thomas & Company, Inc., by me, or under my direction, in conformance with the Professional Land Surveyors Act.



Joel Garcia, LS 5285



Date

License expires 12-31-15

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WEST ANTIOCH CREEK PROJECT
APN 074-040-036- HALL & LOADS, INC
PARCELS 16

Exhibit "A-1"

**PARCEL 16 - PERMANENT ACCESS EASEMENT
HALL & LOADS, INC.
APN 074-040-036 - DN 2015-0169749**

All that property situated in the City of Antioch, County of Contra Costa, State of California described as follows: Being a portion of that certain parcel of land described as Parcel Four in the Grant Deed to Hall & Loads, Inc., a California Corporation, recorded August 14, 2015 as Document No. 2015-0169749 in Contra Costa County Records, more particularly described as follows:

PARCEL 16- PERMANENT ACCESS EASEMENT

A Permanent Access Easement for purposes of ingress and egress, in, on, over and across the following described parcel of land:

A strip of land, the westerly and southwesterly line of which is more particularly described as follows:

COMMENCING at the southeasterly corner of said parcel of land (DN 2015-0169749); thence, along southwesterly line of said parcel, along a non-tangent curve to the right, having radius 411.20 feet, from which the center bears North 09°30'25" East, through a central angle of 4°15'24", an arc distance of 30.55 feet to the POINT OF BEGINNING; thence, leaving said southwesterly line, North 00°49'48" East, 170.01 feet; thence, North 37°54'46" West, 77.82 feet; thence, North 42°53'38" West, 82.91 feet; thence, North 48°31'27" West, 111.53 feet; thence, North 67°10'21" West, 206.07 feet to said southwesterly line of Parcel Four and the POINT OF TERMINUS.

Containing 20,874 square feet or 0.48 acres, more or less.

Bearings used in the above description are based upon the California Coordinate System of 1983 (CCS83), Epoch 2010.00, Zone 3. Multiply grid distances shown above by 1.000056 to obtain ground distances.

This real property description has been prepared at Mark Thomas & Company, Inc., by me, or under my direction, in conformance with the Professional Land Surveyors Act.



Joel Garcia, LS 5285

License expires 12-31-15

September 3, 2015

Date

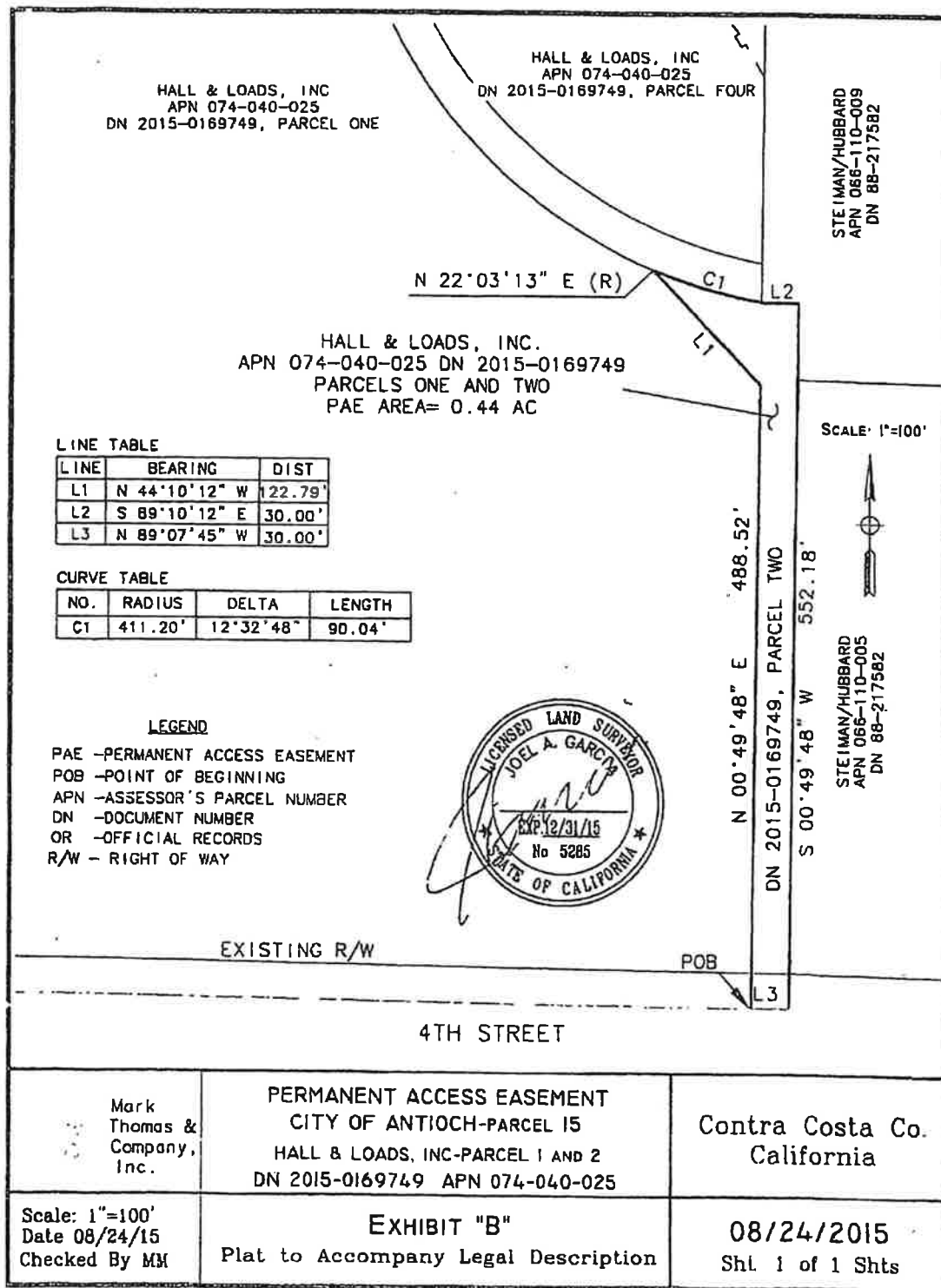


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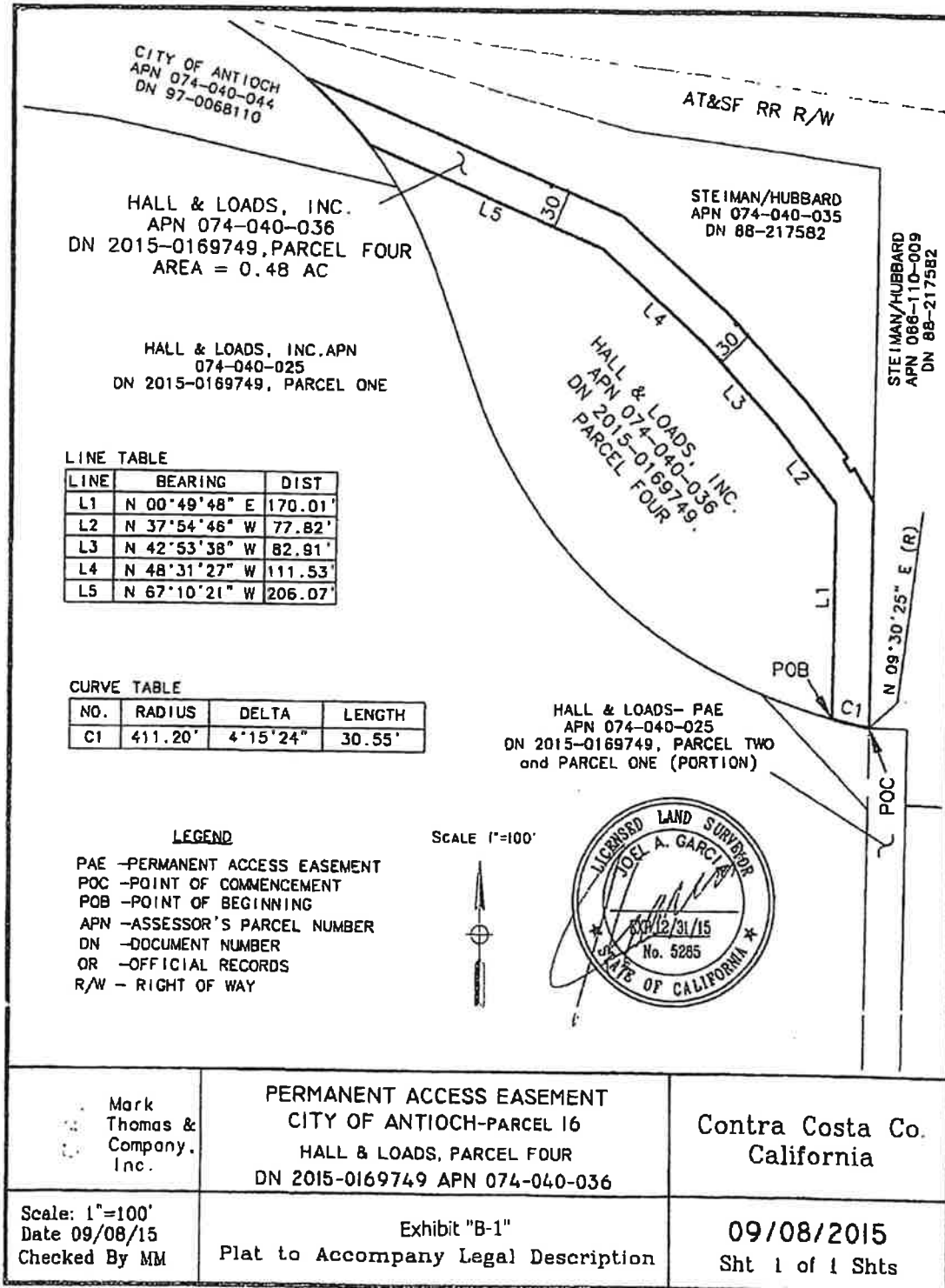
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ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California
County of Santa Clara

On October 8, 2015 before me, Joshua David Burroughs Notary Public
(insert name and title of the officer)

personally appeared Lisa M. Swenson
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature



(Seal)



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ACKNOWLEDGMENT

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State of California
County of Santa Clara

On October 8, 2015 before me, Joshua David Burroughs Notary Public
(insert name and title of the officer)

personally appeared Case B. Swenson
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are
subscribed to the within instrument and acknowledged to me that ~~he~~/she/they executed the same in
~~his~~/her/their authorized capacity(ies), and that by ~~his~~/her/their signature(s) on the instrument the
person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

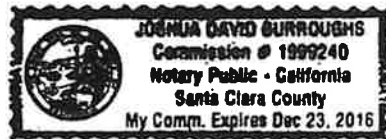
I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing
paragraph is true and correct.

WITNESS my hand and official seal.

Signature



(Seal)



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C. 11



Contra
Costa
County

To: Board of Supervisors

From: Julia R. Bueren, Public Works Director/Chief Engineer

Date: November 10, 2015

Subject: West Antioch Creek Channel Improvements Project - Hall & Loads

RECOMMENDATION(S):

The Board of Supervisors, as the Governing Board of the Contra Costa County Flood Control and Water Conservation District (District):

APPROVE the Right of Way Contract; and ACCEPT the Grant of Easement dated October 8,

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY
ADMINISTRATOR

☐ RECOMMENDATION OF BOARD
COMMITTEE

Action of Board On: 11/10/2015

☒ APPROVED AS
RECOMMENDED

☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

AYE John Gioia, District I Supervisor
Candace Andersen, District II
Supervisor
Mary N. Prepko, District III
Supervisor
Karen Mitchoff, District IV
Supervisor

ABSENT Federal D. Glover, District V
Supervisor

Contact: Angela Bell, 925-313-2337

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown

ATTESTED: November 10, 2015

David J. Twa, County Administrator and Clerk of the Board of Supervisors

By: Stacey M. Boyd, Deputy



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Not for Official Use : This copy has not been QUALITY ASSURED.

cc:

Not for Official Use : This copy has not been QUALITY ASSURED.

• RECOMMENDATION(S): (CONTD)

2015 from Hall and Loads, Inc. for property rights located on a portion of APN Nos. 074-020-025 and 036 in Antioch, pursuant to Section 31 of the Contra Costa County Flood Control and Water Conservation District Act. (Project No. 7579-6D8399 [SCH#: 2014042078])

AUTHORIZE the Chief Engineer, or designee, to execute the Right of Way Contract on behalf of the District.

APPROVE payment in the amount of \$70,000 for said property rights; and AUTHORIZE the Auditor-Controller to issue a check in said amount payable to Fidelity National Title Company, 191 Sand Creek Road, Suite 160, Brentwood, CA 94513, Escrow No. FCHC-T015001886 to be forwarded to the Real Estate Division for delivery.

DIRECT the Real Estate Division to have the above referenced Grant of Easement and check delivered to the Title Company for recording in the Office of the County Clerk-Recorder.

FISCAL IMPACT:

100% Drainage Area 55 funds.

BACKGROUND:

On March 10, 2015, this Board approved the proposed project and adopted the Mitigated Negative Declaration pertaining to the Project, SCH # 2014042078. These property rights are required for the West Antioch Creek Channel Improvements Project in accordance with the approved plans and specifications.

CONSEQUENCE OF NEGATIVE ACTION:

The project will not have sufficient land rights to allow construction in accordance with the approved plans and specifications.

ATTACHMENTS

Contract
Grant of Easement

Not for Official Use : This copy has not been QUALITY ASSURED.

Not for Official Use : This copy has not been QUALITY ASSURED.

END OF DOC

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

A Notary Public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF CALIFORNIA
COUNTY OF CONTRA COSTA

On _____, before me, _____,

Notary Public, personally appeared _____, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____ (Seal)
Notary Public



**Contra
Costa
County**

To: Board of Supervisors
From: Brian M. Balbas, Public Works Director/Chief Engineer
Date: December 14, 2021

Subject: APPROVE the Montalvin Park Sports Court Improvements Project and take related actions under CEQA.

RECOMMENDATION(S):

APPROVE the Montalvin Park Sports Court Improvements Project (Project) and AUTHORIZE the Public Works Director, or designee, to advertise the Project, San Pablo area. [County Project No. WO#5039 DCD-CP#21-39] (District I).

DETERMINE the Project is a California Environmental Quality Act (CEQA), Class 1 and Class 3(e) Categorical Exemption, pursuant to Article 19, Sections 15301 and 15303 of the CEQA Guidelines, and

DIRECT the Director of Department of Conservation and Development to file a Notice of Exemption with the County Clerk, and

AUTHORIZE the Public Works Director, or designee, to arrange for payment of a \$25 fee to the Department of Conservation and Development for processing, and a \$50 fee to the County Clerk for filing the Notice of Exemption.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Shravan Sundaram (925)
313-2366

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Shravan Sundaram, Ave' Brown

FISCAL IMPACT:

Estimated Project cost: \$520,000; (13% Community Development Block Grant Funds, 15% California Prop 68 Per Capita Grant Funds, and 72% County Service Area M-17)

BACKGROUND:

Contra Costa County Public Works Department (County) proposes to improve the recreational sports facilities located in Montalvin Park. These improvements will benefit the residents in the Montalvin neighborhood, who rely on Montalvin Park for outdoor recreational activities. The improvements will also encourage youth to utilize the facilities in a positive way, and will enhance the overall aesthetic appearance of the park. Improvements will be conducted in four phases which include: additional parking stalls and path improvements with Americans with Disabilities Act (ADA) features; new shade structure, picnic tables, benches, fitness stations; converting the existing tennis court to basketball courts, renovation of the turf fields, and relocation of a portable toilet area. The improvement work is anticipated to begin August 2022 and may take multiple years for different phases.

CONSEQUENCE OF NEGATIVE ACTION:

Delay in approving the project may result in a delay of design, construction, and may jeopardize funding.

ATTACHMENTS

NOE

Montalvin Park Location Map

Montalvin Park Vicinity Map



CALIFORNIA ENVIRONMENTAL QUALITY ACT
Notice of Exemption

To: ☒ Office of Planning and Research
P.O. Box 3044, Room 113
Sacramento, CA 95812-3044

From: Contra Costa County
Department of Conservation and
Development
30 Muir Road
Martinez, CA 94553

☒ County Clerk, County of Contra Costa

Project Title: Montalvin Park Sports Court Improvements, WO#5039, CP#21-39

Project Applicant: Contra Costa County Public Works Dept., 255 Glacier Drive, Martinez CA 94553
Contact: Shravan Sundaram (925) 313-2366

Project Location: APN 405-141-002, Montalvin Park, Denise Drive, San Pablo, CA 94806

Lead Agency: Department of Conservation and Development, 30 Muir Road, Martinez, CA 94553.
Contact: Telma B. Moreira (925) 655-2863

Project Description: Contra Costa County Public Works Department (County) proposes to improve the recreational sports facilities located in Montalvin Park. These improvements will benefit the residents in the Montalvin neighborhood, who rely on Montalvin Park for outdoor recreational activities. The improvements will also encourage youth to utilize the facilities in a positive way, and will enhance the overall aesthetic appearance of the park. Improvements will be conducted in four phases which include: additional parking stalls and path improvements with Americans with Disabilities Act (ADA) features; new shade structure, picnic tables, benches, fitness stations; converting the existing tennis court to basketball courts, renovation of the turf fields, and relocation of a portable toilet area. Ground disturbance and excavation will occur to an anticipated depth of approximately 1-2 feet. Vegetation removal is anticipated, including removal of 6 non-native trees. If any work is needed within the nesting bird season, then nesting bird surveys will be conducted. No utility relocations, traffic control, or real property transactions are anticipated. The improvement work is anticipated to begin August 2022 and may take multiple years for different phases. This project is partially funded by the California Proposition 68 Per Capita Program Grant.

Exempt Status:

- | | |
|--|--|
| <input type="checkbox"/> Ministerial Project (Sec. 21080[b][1]; 15268) | <input checked="" type="checkbox"/> Categorical Exemption (Sec. 15301, Sec. 15303 (e)) |
| <input type="checkbox"/> Declared Emergency (Sec. 21080[b][3]; 15269[a]) | <input type="checkbox"/> General Rule of Applicability (Sec. 15061[b][3]) |
| <input type="checkbox"/> Emergency Project (Sec. 21080[b][4]; 15269[b][c]) | <input type="checkbox"/> Other Statutory Exemption (Sec.) |

Reasons why project is exempt:

The project consists of minor alterations and the installation of new accessory (appurtenant) equipment to an existing public park pursuant to Article 19, Section 15301 and Section 15303 (e) of the CEQA guidelines.

If filed by applicant:

1. Attach certified document of exemption finding.

2. Has a Notice of Exemption been filed by the public agency approving the project? ☐ Yes ☐ No

Signature: Telma B. Moreira Date: 11/24/2021 Title: Principal Planner

Contra Costa County Department of Conservation and Development

☒ Signed by Lead Agency

☐ Signed by Applicant

AFFIDAVIT OF FILING AND POSTING

I declare that on _____ I received and posted this notice as required by California Public Resources Code Section 21152(c). Said notice will remain posted for 30 days from the filing date.

Signature

Title

Applicant

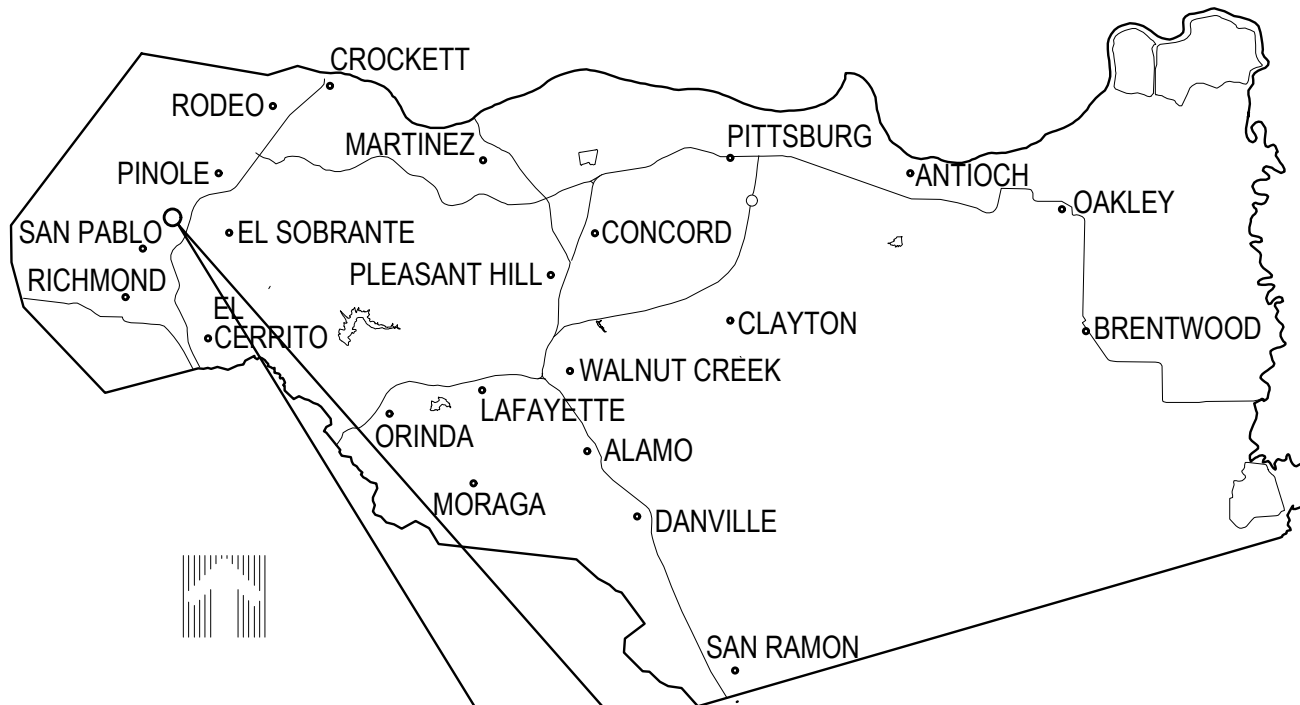
Public Works Department
255 Glacier Drive
Martinez, CA 94553
Attn: [Shravan Sundaram](#)*cg*
Environmental Services Division
Phone: [\(925\) 313-2366](#)

Department of Fish and Wildlife Fees Due

- ☐ De Minimis Finding - \$0
- ☒ County Clerk - \$50
- ☒ Conservation and Development - \$25

Total Due: \$75.00 Receipt #: _____

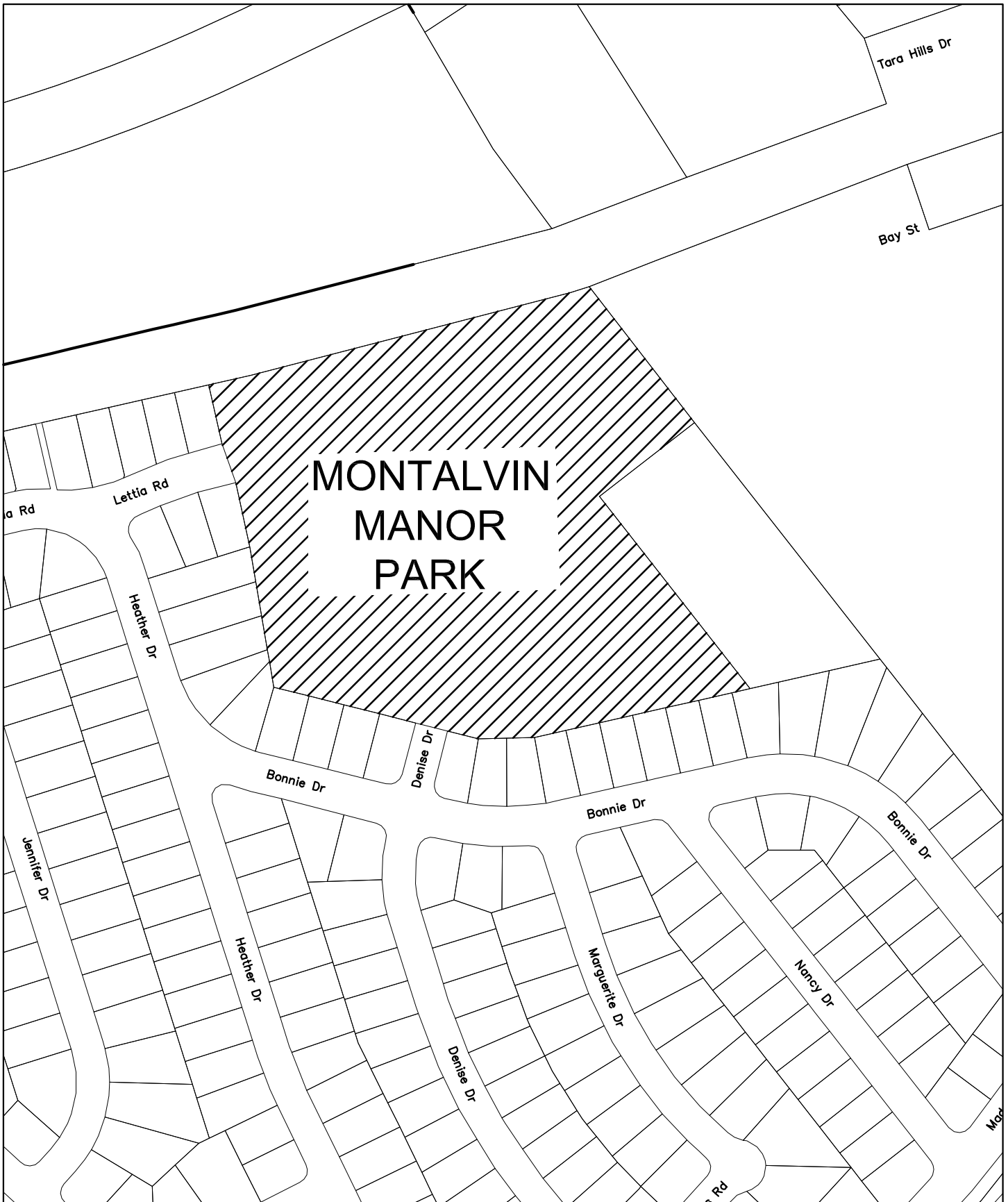
CONTRA COSTA COUNTY CALIFORNIA



PROJECT LOCATION

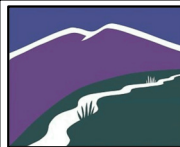
LOCATION MAP - MONTALVIN MANOR PARK

NO SCALE



MONTALVIN MANOR PARK VICINITY MAP

WO 7489-6X5039



Contra Costa County
Public Works Department
255 Glacier Drive
Martinez, CA 94553

SCALE:

1"=200'

DATE:

10/12/2021



**Contra
Costa
County**

To: Board of Supervisors
From: Brian M. Balbas, Public Works Director/Chief Engineer
Date: December 14, 2021

Subject: APPROVE the Regatta Park Playground Equipment Installation Project and take related actions under CEQA.

RECOMMENDATION(S):

APPROVE the Regatta Park Playground Equipment Installation Project (Project) and AUTHORIZE the Public Works Director, or designee, to advertise the Project, Discovery Bay area. [County Project No. WO#5484; DCD-CP#21-40] (District III).

DETERMINE the Project is a California Environmental Quality Act (CEQA), Class 3(e) Categorical Exemption, pursuant to Article 19, Section 15303 of the CEQA Guidelines, and

DIRECT the Director of Department of Conservation and Development to file a Notice of Exemption with the County Clerk, and

AUTHORIZE the Public Works Director, or designee, to arrange for payment of a \$25 fee to the Department of Conservation and Development for processing, and a \$50 fee to the County Clerk for filing the Notice of Exemption.

FISCAL IMPACT:

Estimated Project cost: \$100,000. California Prop 68 Per Capita Grant: 80%; Countywide Landscaping District (LL-2) Zone 57 Fund: 20%

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Shrav Sundaram
925-313-2366

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Shrav Sunderam, Ave' Brown

BACKGROUND:

The Discovery Bay community has requested that the Contra Costa County Public Works Department (County) provide additional playground equipment for Regatta Park. Currently, Regatta Park is landscaped, but only includes limited playground equipment for children. The proposed playground equipment will be for children ages 2 to 12 years old and will have a rubber safety surfacing around it. Playground equipment installation is anticipated to begin July 2022 and take approximately 4 months.

CONSEQUENCE OF NEGATIVE ACTION:

Delay in approving the project may result in a delay of design, construction, and may jeopardize funding.

ATTACHMENTS

NOE

Regatta Park Location Map

Regatta Park Vicinity Map



CALIFORNIA ENVIRONMENTAL QUALITY ACT
Notice of Exemption

To: ☒ Office of Planning and Research
P.O. Box 3044, Room 113
Sacramento, CA 95812-3044

From: Contra Costa County
Department of Conservation and
Development
30 Muir Road
Martinez, CA 94553

☒ County Clerk, County of Contra Costa

Project Title: Regatta Park Playground Equipment Installation, WO#5484, CP#21-40

Project Applicant: Contra Costa County Public Works Dept., 255 Glacier Drive, Martinez CA 94553
Contact: Shravan Sundaram (925) 313-2366

Project Location: APN 011-316-043, Regatta Park, Regatta Drive, Discovery Bay, CA 94505

Lead Agency: Department of Conservation and Development, 30 Muir Road, Martinez, CA 94553.
Contact: Telma B. Moreira (925) 655-2863

Project Description: The Discovery Bay community has requested that the Contra Costa County Public Works Department (County) provide additional playground equipment for Regatta Park. Currently, Regatta Park is landscaped, but only includes limited playground equipment for children. The proposed playground equipment will be for children ages 2 to 12 years old and will have a rubber safety surfacing around it. Ground disturbance and excavation will occur to an anticipated depth of approximately 3-4 feet. No utility relocations, traffic control, tree removal, or real property transactions are anticipated. Playground equipment installation is anticipated to begin July 2022 and take approximately 4 months. This project is partially funded by the California Proposition 68 Per Capita Program Grant.

Exempt Status:

- | | |
|--|--|
| <input type="checkbox"/> Ministerial Project (Sec. 21080[b][1]; 15268) | <input checked="" type="checkbox"/> Categorical Exemption (Sec. 15303 (e)) |
| <input type="checkbox"/> Declared Emergency (Sec. 21080[b][3]; 15269[a]) | <input type="checkbox"/> General Rule of Applicability (Sec. 15061[b][3]) |
| <input type="checkbox"/> Emergency Project (Sec. 21080[b][4]; 15269[b][c]) | <input type="checkbox"/> Other Statutory Exemption (Sec.) |

Reasons why project is exempt:

The project consists of the installation of accessory (appurtenant) playground structures to an existing public park pursuant to Article 19, Section 15303 (e) of the CEQA guidelines.

If filed by applicant:

1. Attach certified document of exemption finding.

2. Has a Notice of Exemption been filed by the public agency approving the ☐ Yes ☐ No project?

Signature: Telma B. Moreira Date: 11/24/2021 Title: Principal Planner

Contra Costa County Department of Conservation and Development

☒ Signed by Lead Agency

☐ Signed by Applicant

AFFIDAVIT OF FILING AND POSTING

I declare that on _____ I received and posted this notice as required by California Public Resources Code Section 21152(c). Said notice will remain posted for 30 days from the filing date.

Signature

Title

Applicant

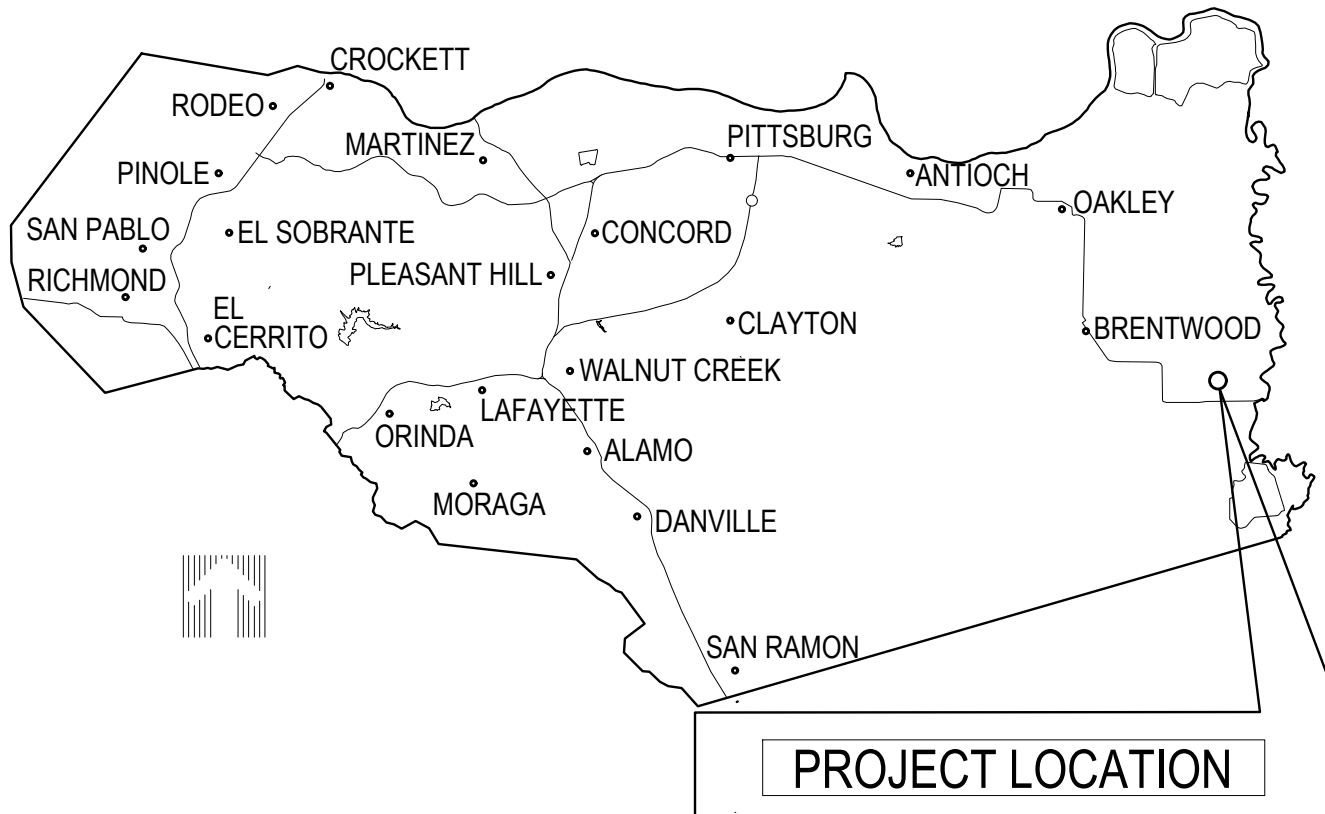
Public Works Department
255 Glacier Drive
Martinez, CA 94553
Attn: [Shravan Sundaram](#)
Environmental Services Division
Phone: [\(925\) 313-2366](#)

Department of Fish and Wildlife Fees Due

- ☐ De Minimis Finding - \$0
- ☒ County Clerk - \$50
- ☒ Conservation and Development - \$25

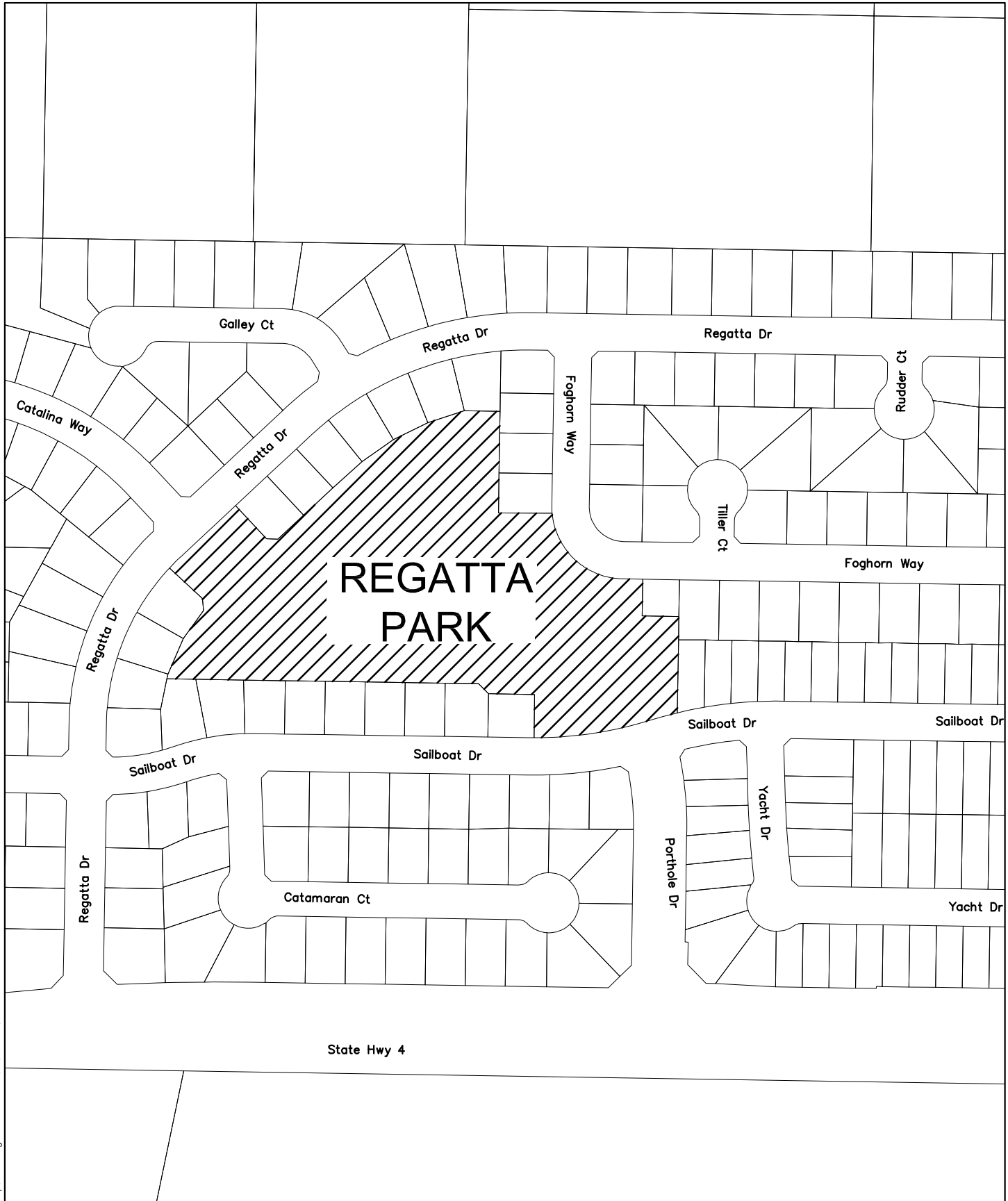
Total Due: \$75.00 Receipt #: _____

CONTRA COSTA COUNTY CALIFORNIA



LOCATION MAP - REGATTA PARK

NO SCALE



File Path C:\Users\phussey\Desktop\carl 1.dwg Plot Date:10/12/2021 2:30:05 PM

**REGATTA PARK PARK
DISCOVERY BAY
VICINITY MAP**
WO 7489-6X5453



Contra Costa County
Public Works Department
255 Glacier Drive
Martinez, CA 94553

SCALE:	1"=200'	DATE:	10/12/2021
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Contra Costa County

To: Board of Supervisors
 From: Monica Nino, County Administrator
 Date: December 14, 2021

Subject: Claims

RECOMMENDATION(S):

DENY claims filed by Jose Armino Interiano Amaya, Denise A. Barry, Sharla Calip, Maria Santos Cruz, Maria Guadalupe Figueroa, James H. Flournoy, Elois Block Fox, Nache Harris, Kristine Keala Meredith, Chung Ming, Maria Elena Rubalcava, Jared Lee Waldon and Edwin Michael Wohler. DENY late claim filed by Ramon Pruitt.

FISCAL IMPACT:

No fiscal impact.

BACKGROUND:

Jose Armino Interiano Amaya: Personal injury claim for car accident in an amount exceeding \$1,000,000.
 Denise A. Barry: Two (2) property damage claims for damage to vehicle in the amount of \$25,000.
 Sharla Calip: Property claim for damage to vehicle in an amount in excess of \$12,000.
 Maria Santos Cruz: Personal injury claim for car accident in an amount exceeding \$1,000,000.
 Maria Guadalupe Figueroa: Personal injury claim for trip and fall in an amount exceeding \$25,000.
 James H. Flournoy: Property claim for missing rug in the amount of \$90,000.
 Stephanie Flournoy:

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Monica Nino, County Administrator and Clerk of the Board of Supervisors

Contact: Risk
 Management

By: , Deputy

cc:

BACKGROUND: (CONT'D)

Personal injury claim for car accident in an amount exceeding \$10,000.

Eloise Block Fox: Personal injury claim for trip and fall in an amount to be determined.

Nache Harris: Property claim for damage to vehicle in the amount of \$517.41.

Kristine Keala Meredith: Property claim for damage to fence in the amount of \$425.

Chung Ming: Property claim for damage to building in the amount of \$100,000.

Maria Elena Rubalcava: Property claim for damage to vehicle in an amount to be determined.

Jared Lee Walden: Personal injury claim for car accident in the amount of \$1,000,000.

Edwin Michael Wohler: Property claim for damage to glasses in the amount of \$951.

Ramon Pruitt: Request that Board of Supervisors accept a late claim for alleged medical malpractice while in custody.

CONSEQUENCE OF NEGATIVE ACTION:

Not acting on the claims could extend the claimants' time limits to file actions against the County.



Contra
Costa
County

To: Board of Supervisors
From: Monica Nino, County Administrator
Date: December 14, 2021

Subject: ACCEPT Board members meeting reports for November 2021

RECOMMENDATION(S):

ACCEPT Board members meeting reports for November 2021.

FISCAL IMPACT:

No fiscal impact.

BACKGROUND:

Government Code section 53232.3(d) requires that members of legislative bodies report on meetings attended for which there has been expense reimbursement (mileage, meals, lodging ex cetera). The attached reports were submitted by the Board of Supervisors members in satisfaction of this requirement. Districts I and V have nothing to report. District III October 2021 report is also attached.

CONSEQUENCE OF NEGATIVE ACTION:

The Board of Supervisors will not be in compliance with Government Code 53232.3(d).

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☒ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Joellen Bergamini
925.655.2000

, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:

ATTACHMENTS

District II November 2021 Report

District III November 2021
Report

District III October 2021 Report

District IV November 2021
Report

Supervisor Candace Andersen – Monthly Meeting Report *November 2021*

Date	Meeting	Location
1	SWAT	Zoom Meeting
2	Board of Supervisors	Zoom meeting
3	CCCERA	Zoom meeting
3	Mental Health Comm	Zoom meeting
4	MP&L Co Connection	Zoom Meeting
8	TWIC	Zoom Meeting
8	Internal Operations	Zoom Meeting
9	Board of Supervisors	Zoom Meeting
10	LAFCO	Zoom meeting
11	WC Veterans/Dnville Purple Hearts	In-person events
15	Alamo Liaison	Zoom meeting
15	Measure X meeting	Zoom meeting
15	Family & Human Services	Zoom meeting
16	Board of Supervisors	Zoom meeting
17	CCCERA	Zoom meeting
18	CCCTA	Zoom meeting
18	Industrial Assoc Forum	Virtual
18	TRAFFIX	Zoom meeting
18	ABAG Exec Board	Zoom meeting
23	Board of Supervisors	Zoom meeting
29-30	CSAC Conference	Monterey
30	Staff meeting	Zoom meeting

Supervisor Diane Burgis - November 2021 AB1234

(Government Code Section 53232.3(d) requires that members legislative attended for which there has been expense reimbursement (mileage,

Date	Meeting Name	Location
2-Nov	Board of Supervisors Meeting	Web Meeting
5-Nov	Famiy Justice Center Board Meeting	Web Meeting
8-Nov	Transportation, Water & Infrastructure Committee Meeting	Web Meeting
8-Nov	Internal Operation Committee Meeting	Web Meeting
8-Nov	Legislation Committee Meeting	Web Meeting
9-Nov	Board of Supervisors Meeting	Web Meeting
9-Nov	Contra Costa County Fire Protection District Meeting	Web Meeting
9-Nov	Housing Authority Meeting	Web Meeting
15-Nov	Family and Human Services Committee	Web Meeting
16-Nov	Board of Supervisors Meeting	Web Meeting
17-Nov	Transplan Committee Meeting	Web Meeting
18-Nov	Industrial Association Forum	Web Meeting
18-Nov	Accessible Transportation Strategic Plan Task Force	Web Meeting
22-Nov	Family and Human Services Committee	Web Meeting
22-Nov	Representative Ellen O'Kane Tauscher Caldecott Tunnel Memorial Dedication Ceremony	Danville
23-Nov	Board of Supervisors Special Meeting	Web Meeting
27-Nov	Brentwood Chamber of Commerce 38th Annual Holiday Parade	Brentwood
28-Nov	CSAC 2021 Annual Meeting	Monterey
29-Nov	CSAC 2021 Annual Meeting	Monterey
30-Nov	CSAC 2021 Annual Meeting	Monterey

* Reimbursement may come from an agency other than Contra Costa County

Report
bodies report on meetings
meals, lodging, etc).

Purpose
Meeting
Meeting
Meeting
Meeting
Meeting
Meeting
Meeting
Meeting
Meeting
Meeting
Community Outreach
Meeting
Meeting
Community Outreach
Meeting
Community Outreach
Meeting
Meeting
Meeting

Supervisor Diane Burgis - October 2021 AB1234 F

(Government Code Section 53232.3(d) requires that members legislative attended for which there has been expense reimbursement (mileage,

Date	Meeting Name	Location
4-Oct	Renaming Clerk-Recorder Building Celebration	Martinez
4-Oct	Contra Costa Regional Medical Center Joint Conference Committee	Web Meeting
4-Oct	Contra Costa Regional Medical Center Professional Affairs Committee	Web Meeting
5-Oct	Board of Supervisors Meeting	Web Meeting
6-Oct	Martinez Office	Martinez
8-Oct	Delta Counties Coalition Meeting	Web Meeting
11-Oct	Transportation, Water & Infrastructure Committee Meeting	Web Meeting
11-Oct	Internal Operation Committee Meeting	Web Meeting
11-Oct	Legislation Committee Meeting	Web Meeting
12-Oct	Board of Supervisors Meeting	Web Meeting
12-Oct	Contra Costa County Fire Protection District Meeting	Web Meeting
13-Oct	Regional Water Board Meeting	Web Meeting
13-Oct	Martinez Office	Martinez
13-Oct	LAFCO Meeting	Martinez
14-Oct	Open Space/Parks & EBRPD Liaison Committee Meeting	Web Meeting
14-Oct	East Contra Costa Regional Fee & Finance Authority Meeting	Web Meeting
14-Oct	State Route 4 Bypass Authority Meeting	Web Meeting
14-Oct	Transplan Committee Meeting	Web Meeting
19-Oct	Board of Supervisors Special Meeting	Web Meeting
19-Oct	Redistricting Hearing	Web Meeting
24-Oct	Redistricting Workshop	Martinez
25-Oct	East Contra Costa County Habitat Conservancy Meeting	Web Meeting
27-Oct	Regional Impact Council Steering Committee Meeting	Web Meeting
27-Oct	Tri Delta Transit Meeting	Web Meeting

* Reimbursement may come from an agency other than Contra Costa County

Report
bodies report on meetings
meals, lodging, etc).

bodies report on meetings
meals, lodging, etc).

Purpose	<p>to provide a safe and secure environment for the child and to ensure that the child is protected from harm.</p> <p>to ensure that the child is protected from harm.</p>
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Community Outreach

Meeting

Meeting

Meeting

Board Letters for CAO

Meeting

Meeting

Meeting

Meeting

Meeting

Meeting

Meeting

Board Letters for CAO

Meeting

Meeting

Meeting

Meeting

Meeting

Meeting

Meeting

Meeting

Meeting

Meeting

Meeting

Supervisor Karen Mitchoff
November 2021

DATE	MEETING NAME	LOCATION	PURPOSE
11/29/21	CSAC Annual Conference	Monterey	Attend annual conference of the California State Association of Counties



Contra
Costa
County

To: Board of Supervisors
From: Candace Andersen, District II Supervisor
Date: December 14, 2021

Subject: Resolution recognizing Jill Eisenberg-Ray upon her 25th Anniversary with Contra Costa County

☒ APPROVE ☐ OTHER
☒ RECOMMENDATION OF CNTY ADMINISTRATOR ☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

**VOTE OF
SUPERVISORS**

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Monica Nino, County Administrator and Clerk of the Board of Supervisors

Contact: 9259578860

By: , Deputy

cc:

ATTACHMENTS

Resolution
2021/410

*The Board of Supervisors of
Contra Costa County, California*

In the matter of:

Resolution No. 2021/410

recognizing Jill Eisenberg-Ray upon her 25-year anniversary with Contra Costa County.

Jill Eisenberg-Ray was hired in January of 1978 by the District 2 Supervisor, Gayle B. Uilkema and worked closely with the “Chief”, Mike Eisenberg; and

Whereas, Jill quickly took on and learned a variety of duties, including code enforcement, appointments to County committees where Jill became an expert on the Maddy Book, maintaining a constituent concern file, filling out numerous “greenies” to add items to the Board of Supervisors’ agenda, and patiently and empathetically listening to and assisting concerned residents when they called the office; and

Whereas, In the early years, Jill worked closely with the communities of Rodeo and Crockett, before redistricting moved them out of District 2; Jill formed many relationships in those communities and was a hands-on, involved, resourceful and reliable contact for a number of residents, committees and groups; and

Whereas, Jill’s thorough research on issues and concerns brought to the attention of the Supervisor, is always accurate and helpful, her follow-up on each issue is thorough and consistent; and

Whereas, Jill took on many responsibilities both new and old, when she began working for Supervisor Candace Andersen, Jill tends to have a passion for acronyms, her calendar schedule reads much like this: CCRMC JCC, EMCC, EBRPD, CPAW SOC, JJCC, JJCC DJJ, RJOB CEF, ORJ EBP, BHCP, ORESJ, RJOB Diversion, MHC JC, and AOD, and that list only covers meetings in 2 weeks of her schedule; and

WHEREAS, Jill has spent countless hours advocating for homelessness, Mental Illness, those suffering from substance abuse, inmate re-entry, racial equity and youth justice, and her direct and thorough approach has aided many committees and organizations in an accurate and fair way to best achieve their goals; and

WHEREAS, Jill has worked above and beyond her required duties, not only at her job, but also in raising her children and grandson.

that the Board of Supervisors of Contra Costa County does hereby honor **Jill Eisenberg Ray** for her dedication to the Citizens of District 2 and all of Contra Costa County.

DIANE BURGIS

Chair, District III Supervisor

JOHN GIOIA

District I Supervisor

CANDACE ANDERSEN

District II Supervisor

KAREN MITCHOFF
District IV Supervisor

FEDERAL D. GLOVER
District V Supervisor

I hereby certify that this is a true and correct copy of an
action taken
and entered on the minutes of the Board of Supervisors on
the date
shown.

ATTESTED: December 14, 2021

Monica Nino, County Administrator

By: _____, Deputy



Contra
Costa
County

To: Board of Supervisors
From: John Gioia, District I Supervisor
Date: December 14, 2021

Subject: Honoring the life and service of local Journalist and Historian Chris Treadway

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Robert Rogers,
510.942.2224

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:

ATTACHMENTS

Resolution
2021/411

*The Board of Supervisors of
Contra Costa County, California*

In the matter of:

Resolution No. 2021/411

Honoring the life and service of local Journalist and Historian Chris Treadway

WHEREAS, the late Chris Treadway's enduring work as a journalist and historian has enriched the culture and positively impacted the people of Contra Costa County for more than three decades; and

WHEREAS, Chris began his journalistic career in the East Bay 35 years ago, as a reporter, editor and columnist for the El Cerrito Journal, The Montclarion, and the Berkeley Voice from 1986 to 2002; and

WHEREAS, as a reporter for the Contra Costa Times, West County Times, and East Bay Times from 2002 to 2018, and an editor for the West County Times from 2012 to 2015, the major focus of Chris' work was West Contra Costa County; and

WHEREAS, Chris wrote a popular column, "Our Neighbors", for the West County Times from 2005 to 2016 where many articles focused on local community groups and issues facing El Cerrito which did much to boost community knowledge and involvement; and

WHEREAS, Chris first began his journalistic career at an early age in the Bay Area attending public schools in Oakland, publishing his first newspaper while he was still in the fourth grade, graduating from Skyline High School in 1973, and earning a degree in journalism at San Francisco State University in 1989; and

WHEREAS, Chris has gathered and publicized much information pertaining to the history of El Cerrito and has been working on a much anticipated book on the city's history for more than a decade; and

WHEREAS, to the Richmond Museum of History and Culture, Chris has donated the archives he acquired of George Johnson, a remarkable Richmond man who was the state's oldest living resident and last World War I veteran when he died at age of 112; and

WHEREAS, Chris was the leading journalist documenting Richmond's Rosie the Riveters and Ranger Betty Reid Soskin at the Rosie the Riveter National Park in Richmond, keeping their stories alive and vivid for generations of readers while nurturing personal relationships with them and their families; and

WHEREAS, when consolidation resulted in the loss of the West County Times' local news section, Chris continued to faithfully publish his Our Neighbors column online for local readers, fostering understanding, appreciation, and community-building in Contra Costa County and beyond; and

WHEREAS, until his passing in 2021, Chris and his wife Diana lived in El Cerrito since

1985, and since 1991 with their son Henry who graduated with honors from El Cerrito High School, earned the rank of Eagle Scout through the Boy Scouts of America, and attended the University of California Berkeley before his passing in 2012,
that the Board of Supervisors of Contra Costa County does hereby recognize in gratitude Chris Treadway for his efforts and writings over the decades that have provided immeasurable, enduring enrichment to Contra Costa County and the Bay Area.

DIANE BURGIS
Chair, District III Supervisor

JOHN GIOIA
District I Supervisor

CANDACE ANDERSEN
District II Supervisor

KAREN MITCHOFF
District IV Supervisor

FEDERAL D. GLOVER
District V Supervisor

I hereby certify that this is a true and correct copy of an
action taken
and entered on the minutes of the Board of Supervisors on
the date
shown.

ATTESTED: December 14, 2021

Monica Nino, County Administrator

By: _____, Deputy



**Contra
Costa
County**

To: Board of Supervisors
From: Brian M. Balbas, Public Works Director/Chief Engineer
Date: December 14, 2021

Subject: INTRODUCE ordinance requiring property owners to keep sidewalks adjacent to their property free of obstructions, Countywide.

RECOMMENDATION(S):

INTRODUCE Ordinance No. 2022-01, requiring property owners to keep sidewalks adjacent to their property free of obstructions, WAIVE reading, and FIX January 11, 2022, for adoption.

FISCAL IMPACT:

The ordinance may create an incentive for property owners to keep the sidewalks abutting their property free of obstructions, thereby reducing the amount of staff time needed to clear obstructions from sidewalks.

BACKGROUND:

Chapter 1016-2 (the Sidewalk Maintenance and Repair Ordinance) of the County Ordinance Code and Chapter 22 of Part 3 of Division 7 of the California Streets and Highways Code require property owners to maintain and repair sidewalks along the frontage of their property. If a property owner's failure to maintain the sidewalk abutting the property results in a condition that is a danger to the public, and a person suffers injury or damage while on the sidewalk, the property owner is liable to the injured person for the injury or damage caused by the dangerous

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Chris Lau, (925)
313-7002

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:

BACKGROUND: (CONT'D)

condition.

Ordinance No. 2022-01, the Sidewalk Obstructions Ordinance, adds Section 1016-2.010 to the Sidewalk Maintenance and Repair Ordinance. The Sidewalk Obstructions Ordinance requires property owners to maintain sidewalks adjacent to their property by keeping the sidewalks free of weeds, rubbish, dirt, rocks, debris, or other obstructions, and authorizes the County to abate sidewalk obstructions pursuant to Ordinance Code Article 14-6.4 or any other remedy allowed by law, and to recover abatement costs by placing a lien on the property.

CONSEQUENCE OF NEGATIVE ACTION:

If the Sidewalks Obstructions Ordinance is not adopted, there will be no incentive for property owners to keep the sidewalks abutting their property free of obstructions.

ATTACHMENTS

Ordinance 2202-01

ORDINANCE NO. 2022-01

SIDEWALK OBSTRUCTIONS

The Contra Costa County Board of Supervisors ordain as follows (omitting the parenthetical footnotes from the official text of the enacted or amended provisions of the County Ordinance Code):

SECTION I. SUMMARY. This ordinance adds Section 1016-2.010 to the County Ordinance Code to require property owners to maintain sidewalks adjacent to their property by keeping the sidewalks free of obstructions.

SECTION II. Section 1016-2.010 is added to the County Ordinance Code, to read:

1016-2.010 Removal of obstructions.

- (a) An adjacent owner shall keep the sidewalk abutting the adjacent owner's property free and clear of all weeds, rubbish, dirt, rocks, debris, or any other obstruction that interferes with the free passage of pedestrians.
- (b) The director of public works may abate any sidewalk obstruction pursuant to Article 14-6.4 or any other remedy allowed by law. (Ord. 2022-01 § 2.)

SECTION IV. EFFECTIVE DATE. This ordinance becomes effective 30 days after passage, and within 15 days after passage shall be published once with the names of supervisors voting for or against it in the East Bay Times, a newspaper published in this County.

PASSED on _____, by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

ATTEST: MONICA NINO,
Clerk of the Board of Supervisors
and County Administrator

Board Chair

By:

Deputy

[SEAL]



**Contra
Costa
County**

To: Board of Supervisors
From: John Kopchik, Director, Conservation & Development Department
Date: December 14, 2021

Subject: Adoption of Ordinance No. 2021-38, Implementing State Regulations to Reduce Organic Waste Disposal and Recover Edible Food

RECOMMENDATION(S):

1. FIND that the adoption of Ordinance No. 2021-38 is categorically exempt from environmental review under the California Environmental Quality Act (CEQA) pursuant to Section 15308 of the CEQA Guidelines.
2. ADOPT Ordinance No. 2021-38, Organic Waste Disposal Reduction Ordinance, to implement state regulations to reduce the disposal of organic waste in landfills by regulating the collection and hauling of organic waste and to recover edible food.
3. DIRECT the Director of Conservation and Development, or designee, to file a Notice of Exemption with the County Clerk, and pay any required fee for the filing.

FISCAL IMPACT:

There will be no impact to the general fund from adopting the proposed ordinance. The Conservation and Development Director is authorized to collect fees approved by the Board by resolution and to use revenues from the fees to fund regulatory costs incurred in the enforcement of the ordinance. Some costs may also be paid for by an increase in solid waste collection rates for implementing new/modified services, however such action would be separately considered by the Board. In addition, the ordinance has provisions to impose fines ranging from \$100 to \$500 per violation on or after January 1, 2024.

☒ APPROVE

☐ OTHER

☐ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: David Brockbank,
925-655-2911

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:

BACKGROUND:

Senate Bill 1383, Short-lived Climate Pollutants Reduction, as enacted in 2017 (Lara, Chapter 395, Statutes of 2016), establishes targets to reduce the statewide disposal of organics by 50% by 2020 and 75% by 2025; and requires that not less than 20% of edible food that is currently disposed be recovered for human consumption by 2025. CalRecycle has adopted comprehensive regulations as a result of the passage of SB 1383 (SB 1383 Regulations), which imposes a wide range of requirements on local jurisdictions, including the County. Among other things, the SB 1383 Regulations require that each jurisdiction develop methods for recovering organics, procuring recycled organics, recovering edible food, regulating haulers, planning for adequate edible food and organics waste processing capacity, and conducting education/outreach, inspections and enforcement. The proposed ordinance, which was introduced by the Board on December 7, 2021, is intended to comply with this requirement.

REQUIREMENTS INCLUDED IN THE PROPOSED ORDINANCE

The SB 1383 Regulations require cities, counties, and special districts providing solid waste collection services to adopt an enforceable ordinance (or other enforceable mechanism) by January 1, 2022, applicable to organic waste generators (residents and businesses), large edible food generators, food recovery services/organizations and organic waste haulers. The State can impose significant penalties if a jurisdiction fails to adopt the required ordinance. The existing County Ordinance Code providing for the regulation of solid waste within the unincorporated area does not adequately address the requirements in the SB 1383 Regulations. In order to comply with the state mandates, staff is proposing to incorporate a new chapter into the Ordinance Code entitled, "Organic Waste Disposal Reduction" (Chapter 418-20).

CALIFORNIA ENVIRONMENTAL QUALITY ACT

For the purposes of compliance with CEQA, adoption of the ordinance is the project. Based on the record before the County, staff has determined that this project is categorically exempt from environmental review under CEQA Guidelines Section 15308 - Actions by Regulatory Agencies for Protection of the Environment. Section 15308 covers Class 8 categorical exemptions, which consist of actions taken by regulatory agencies, as authorized by state or local ordinance, to assure the maintenance, restoration, enhancement, or protection of the environment where the regulatory process involves procedures for protection of the environment. This proposed ordinance includes numerous procedures designed to protect the environment, including requirements for organic waste collection subscription and recovery of organic waste and edible food, the regulation of haulers and planning, and inspections and enforcement.

CONSEQUENCE OF NEGATIVE ACTION:

If the County does not adopt this ordinance, the County will be out of compliance with the SB 1383 Regulations and subject to penalties, including a fine of up to \$10,000 a day for every day the County is out of compliance.

CHILDREN'S IMPACT STATEMENT:

ATTACHMENTS

Ordinance No. 2021-38 "Organic Waste Disposal Reduction"

ORDINANCE NO. 2021-38

(Organic Waste Disposal Reduction)

The Contra Costa County Board of Supervisors ordains as follows:

SECTION I. SUMMARY. This ordinance adds Chapter 418-20 to the Contra Costa County Ordinance Code to establish a program to regulate the handling of organic waste in accordance with State of California regulations.

SECTION II. AUTHORITY. This ordinance is adopted pursuant to Chapter 12 of Division 7 of title 14 of the California Code of Regulations, section 42652.5, subdivision (b), of the California Public Resources Code and article XI, section 7 of the California Constitution.

SECTION III. FINDINGS AND PURPOSE.

(a) On September 19, 2016, Governor Gavin Newsom approved Senate Bill No. 1383 (“SB 1383”). SB 1383 contains legislative findings regarding public health and other impacts caused by short-lived climate pollutants such as black carbon, fluorinated gases, and methane.

(b) Among other things, SB 1383 added chapter 13.1 (commencing with section 42652) to part 3 of division 30 of the California Public Resources Code.

(c) Public Resources Code section 42652.5, subdivision (a), directed the California Department of Resources Recycling and Recovery (“CalRecycle”) to adopt regulations to achieve specified organic waste reduction goals; specifically, a 50-percent reduction in the level of the statewide disposal of organic waste from the 2014 level by 2020, and a 75-percent reduction from the same level by 2025.

(d) In October 2020, CalRecycle adopted regulations under the mandate of SB 1383 (“SB 1383 Regulations”). Along with revising certain existing provisions of title 14 of the California Code of Regulations, the SB 1383 Regulations include a new chapter within division 7 of title 14, entitled “Short-lived Climate Pollutants,” commencing with section 18981.1 (“Chapter 12”), effective January 1, 2022.

(e) Among the requirements in Chapter 12 are several regulatory mandates on local jurisdictions, including counties, cities, and specified special districts that provide solid waste collection services. These mandates include Section 18981.2, subdivision (a), which requires a local jurisdiction, by January 1, 2022, to “adopt enforceable ordinance(s), or similar enforceable mechanisms that are consistent with the requirements of this chapter, to mandate that organic waste generators, haulers, and other entities subject to the requirements of this chapter that are subject to the jurisdiction’s authority comply with the requirements of this chapter.”

(f) The purpose of this ordinance is to implement the regulatory mandates described in Chapter 12 and provide for the establishment and collection of fees to pay for associated regulatory costs.

SECTION IV. Chapter 418-20 is added to the County Ordinance Code, to read:

Chapter 418-20 Organic Waste Disposal Reduction

418-20.202 Limits of application. This ordinance to regulate the handling of organic waste does not apply within the jurisdictional boundaries of sanitary districts, community services districts, and public utility districts, to the extent that these districts provide solid waste handling services or implement source reduction and recycling programs.
(Ord. 2021-38 § 4).

418-20.204 Definitions. For purposes of this chapter, the following words and phrases have the following meanings:

(a) “Commercial business” means a firm, partnership, proprietorship, joint-stock company, corporation, or association, whether for-profit or nonprofit, that operates a business facility in the unincorporated area, including, by way of example and without limitation, strip malls, industrial facilities and multifamily residential dwellings consisting of five or more units.

(b) “Commercial edible food generator” means an entity, other than a food recovery organization or food recovery service, that:

(1) Disposes of edible food in the course of the entity’s operation of a commercial business;

(2) Disposes of edible food in the course of the entity’s operation of a large venue or large event, either directly or indirectly through a food facility; or

(3) Arranges for the recovery of edible food that would otherwise be disposed of in the course of the entity’s operation of a commercial business, large venue or large event.

(c) “Commercial hauler” means a hauler that collects organic waste from organic waste generators in the unincorporated area in the course of operation of a business.

(d) “Community composting site” means a location where green material, agricultural material, food material, or vegetative food material is composted, and the total amount of feedstock and compost on-site at any one time does not exceed 100 cubic yards and 750 square feet.

(e) “Director” means the Director of Conservation and Development or designee.

(f) “Edible food” means food that is intended for human consumption and meets the food safety requirements of the California Retail Food Code.

(g) “Food” means food as defined in section 113781 of the California Health and Safety Code.

(h) “Food distributor” means a commercial business that distributes food to entities including, but not limited to, supermarkets and grocery stores.

(i) “Food facility” means a food facility as defined in section 113789 of the California Health and Safety Code.

(j) “Food recovery” means the collection of food designated for disposal and the distribution of the collected food for human consumption.

(k) “Food recovery organization” means an entity that collects or receives edible food from commercial edible food generators or food recovery services and, either directly or indirectly, distributes that edible food to the public for consumption. Food recovery organizations include, but are not limited to, all of the following:

(1) Food banks as defined in section 113783 of the California Health and Safety Code;
(2) Nonprofit charitable organizations as defined in section 113841 of the California Health and Safety Code; and

(3) Nonprofit charitable temporary food facilities as defined in section 113842 of the California Health and Safety Code.

(l) “Food recovery service” means a person who collects and transports edible food from a commercial edible food generator to a food recovery organization or other entities for distribution to the public for consumption.

(m) “Food service provider” means a person primarily engaged in providing contracted food services to institutional, governmental, commercial, or industrial customers.

(n) “Garbage container” means a container that is utilized in an organic waste collection service and intended for the collection of only non-organic waste.

(o) “Grocery store” means a store located in the unincorporated area of the county that is primarily engaged in the retail sale of canned food, dry goods, fresh fruits and vegetables, fresh meats, fish and poultry; and any area that is not separately owned within the store where the food is prepared and served, including a bakery, deli, and meat and seafood departments.

(p) “Hauler” means a person who collects material from an organic waste generator and delivers it to a reporting entity as defined in section 18815.2, subdivision (a)(48), of title 14 of the California Code of Regulations, an end user, or a destination outside of the State of California.

(q) “High diversion organic waste processing facility” means a high diversion organic waste processing facility as defined in section 18982, subdivision (a)(33), of title 14 of the California Code of Regulations.

(r) “Large event” means an event in the unincorporated area of the county that is attended by an average of more than 2,000 individuals each day of the event and that (1) requires payment of an admission price; or (2) is operated by a local agency.

(s) “Large venue” means a permanent venue facility in the unincorporated area of the county where an average of more than 2,000 individuals are seated or served each day of operation. By way of example and without limitation, venue facilities include stadiums, amphitheaters, arenas, halls, amusement parks, conference or civic centers, zoos, aquariums, airports, racetracks, horse tracks, performing arts centers, fairgrounds, museums, theaters, and other public attraction facilities. A site under common ownership or control that includes two or more contiguous large venues is a single large venue.

(t) “Organic waste” means solid waste containing material originated from living organisms and their metabolic waste products including, but not limited to, food, green material, landscape and pruning waste, organic textiles and carpets, lumber, wood, paper products, printing and writing paper, manure, biosolids, digestate, and sludges.

(u) “Organic waste collection service” means a service provided to customers by a hauler under a franchise agreement to collect routinely generated organic waste from properties in the unincorporated area.

(v) “Organic waste container” means a container utilized in an organic waste collection service that is intended for the collection of only organic waste.

(w) “Organic waste generator” means a person who:

(1) Resides in, or operates a commercial business or other facility located in, the unincorporated area of the county; and

(2) Creates organic waste.

(x) “Person” means an individual, firm, limited liability company, association, partnership, political subdivision, government agency, municipality, industry, public or private corporation, or any other entity whatsoever.

(y) “Prohibited container contaminants” means any of the following:

(1) Non-organic waste placed in an organic waste container.

(2) Carpets, non-compostable paper, hazardous wood waste, or organic textiles placed in an organic waste container.

(3) Organic waste placed in a garbage container, if the organic waste is intended to be collected only in an organic waste container or recycling container in accordance with the requirements of the organic waste collection service provided to the generator.

(4) Organic waste placed in a recycling container, except for paper products, printing and writing paper, wood and dry lumber.

(z) “Property owner” means the owner of real property.

(aa) “Recycling container” means a container that is utilized in an organic waste collection service and intended for the collection of only non-organic recyclables.

(bb) “Restaurant” means an establishment primarily engaged in the retail sale of food and drinks for on-premises or immediate consumption.

(cc) “Self-hauler” means an organic waste generator who does one or more of the following:

(1) Hauls organic waste generated by the self-hauler in the unincorporated area to another person, or

(2) Hauls organic waste generated by the self-hauler in the unincorporated area to another destination owned and operated by the self-hauler, using the self-hauler’s own employees and equipment.

(dd) “Source separated organic waste” means organic waste that the generator has segregated from other types of waste at the location where the waste was generated.

(ee) “Supermarket” means a full-line, self-service retail store located in the unincorporated area of the county that has gross annual sales of \$2 million or more and sells a line of dry grocery, canned goods, or nonfood items and some perishable items.

(ff) “Tier one commercial edible food generator” means a commercial edible food generator that operates a grocery store with a total facility size equal to or greater than 10,000 square feet, or operates a supermarket, or is a food distributor, wholesale food vendor, or food service provider that serves customers in the unincorporated area of the county.

(gg) “Tier two commercial edible food generator” means a commercial edible food generator that:

(1) Operates a large venue or large event; or

(2) Operates one of the following in the unincorporated area of the county:

(A) A restaurant with 250 or more seats, or a total facility size equal to or greater than 5,000 square feet;

(B) A hotel that has an on-site food facility and 200 or more rooms; or

(C) A health facility that has an on-site food facility and 100 or more beds.

(hh) “Wholesale food vendor” means a commercial business where food is received, shipped, stored, and prepared for distribution to a retailer, warehouse, distributor, or other destination. (Ord. 2021-38 § 4).

418-20.206 Mandates on organic waste generators.

(a) Subject to section 418-20.210, organic waste generators shall do at least one of the following:

(1) Subscribe to and comply with the requirements of an organic waste collection service that is provided to the organic waste generator. An organic waste generator will be deemed to be in compliance with the subscription requirement if a property owner or commercial business subscribes to an organic waste collection service that is made available to the organic waste generator.

(2) Self-haul organic waste in a manner that complies with subsection 418-20.212(b).

Notwithstanding the requirement in this subsection, nothing in this chapter is intended to prohibit an organic waste generator from preventing or reducing organic waste generation, managing organic waste onsite, using a community composting site, or contracting with commercial haulers to collect organic waste not routinely generated.

(b) Prohibited contaminants. Organic waste generators shall not place any material into a collection container that is utilized in an organic waste collection system if the material would constitute a prohibited container contaminant upon placement in the container.

(c) Commercial businesses. Organic waste generators that are commercial businesses, other than multifamily residential dwellings, shall comply with the following additional requirements:

(1) Provide containers in accordance with the following:

(A) If the business generates organic waste, the business must provide an organic waste collection container in each area where a disposal container is provided for customers, except for restrooms.

(B) If the business generates non-organic recyclables, provide a non-organic recyclables container in each area described in subsection 418-20.206(d)(1)(A).

(C) A container described in subsections 418-20.206(d)(1)(A) or (d)(1)(B) must:

(i) Have a body or lid that conforms to the color of the container that is provided for the described waste in the organic waste collection system to which the business subscribes; or

(ii) Have a label that includes language or graphic images or both that indicates the primary materials accepted in the container and primary contaminants.

Notwithstanding the foregoing, a commercial business is not required to replace functional containers that do not conform to the requirements in this subsection prior to the end of the useful life of those containers, or prior to January 1, 2036, whichever comes first.

(2) Provide training to employees in accordance with the following:

(A) Inform employees that only organic waste may be placed in organic waste containers.

(B) Prohibit employees from placing organic waste in a container not designated to receive that waste.

(3) Periodically inspect organic waste containers for contaminants and inform employees if any are found, and that only organic waste may be placed in such containers.

(d) Exception. The requirements in subsections 418-20.206(a) and (c) do not apply to publicly operated treatment works that generate biosolids.

(Ord. 2021-38 § 4).

418-20.208 Mandates on commercial businesses.

(a) Organic waste collection. Subject to section 418-20.210, commercial businesses shall do both of the following:

(1) Provide or arrange for the collection of organic waste generated by the employees, contractors, tenants and customers of the business. A commercial business that is a tenant of another commercial business that provides or arranges for the collection of organic waste on behalf of the tenant and the tenant's employees, contractors, tenants and customers will be deemed to be in compliance with this requirement.

(2) Provide collection containers within the premises of the business that are of sufficient number and size for the business.

(b) Information. Commercial businesses shall, at least annually, provide information to employees, contractors, tenants and customers about organic waste recovery requirements and the proper sorting of organic waste. Commercial businesses shall provide this information to a new tenant before or within 14 days after the tenant's occupation of the premises.

(c) Access. Commercial businesses shall provide or arrange for access to their business premises by authorized county representatives for the purpose of conducting lawfully authorized inspections under this chapter.

(Ord. 2021-38 § 4).

418-20.210 Waivers.

(a) De minimis waivers. The director may waive the obligation of a commercial business to comply with any or all of the requirements in section 418-20.206 or section 418-20.208 if the business applies for a waiver in accordance with subsection 418-20.210(c) and finds that the business generates a de minimis amount of waste, which may constitute either of the following:

(1) The total volume of solid waste collected at the business is two cubic yards or more per week, and:

(A) Organic waste that must be collected in an organic waste container comprises less than 20 gallons per week of the business' total solid waste; or

(B) Organic waste that must be collected in a recycling container comprises less than 20 gallons per week of the business' total solid waste.

(2) The total volume of solid waste collected at the business is less than two cubic yards per week, and:

(A) Organic waste that must be collected in an organic waste container comprises less than 10 gallons per week of the business' total solid waste; and

(B) Organic waste that must be collected in a recycling container comprises less than 10 gallons per week of the business' total solid waste.

(b) Physical space waivers. The director may waive the obligation of a commercial business or property owner to comply with any or all of the requirements in section 418-20.206 or section 418-20.208 if the commercial business or property owner applies for a waiver in accordance with subsection 418-20.210(c) and the director finds that the business or property owner lacks sufficient space on the premises to accommodate the carts utilized in the organic waste collection service available to the applicant.

(c) Application. An applicant for a waiver or renewal of a waiver under this section must submit a written application to the director along with payment of a fee set by the Board of Supervisors by resolution. As part of the application, the applicant must identify the requirements sought to be waived, provide evidence that the business is qualified for a waiver

under one of the grounds set forth in this section, and authorize the director to conduct periodic inspections of the applicant's premises for the purpose of verifying that the applicant meets the qualifications for a waiver.

(d) Issuance; validity. If the director determines that the applicant for a waiver or renewal of a waiver meets the qualification for the waiver, the director shall issue the waiver or renewal of a waiver. A waiver or renewal of a waiver issued under subsection 418-20.210(a) will be valid for three years unless rescinded. A waiver or renewal of a waiver under subsection 418-20.210(b) will be valid for five years unless rescinded.

(e) Transferability. Except as follows, waivers granted under this section are not transferable. The owner or operator of a commercial business or property owner for which a waiver has been issued under the grounds set forth in subsection 418-20.210(b) may transfer the waiver to a purchaser of the business or property if the director determines in advance that the physical space available for cart collection at the time of the sale is the same or smaller than the physical space available at the time of issuance of the waiver.

(f) Rescission. If the director receives evidence that a person granted a waiver or renewal of a waiver under this section no longer meets the qualifications for the waiver, the director may rescind the waiver, provided that prior to rescission:

- (1) The person is provided written notice of intent to rescind the waiver;
- (2) The notice sets forth evidence that the person no longer qualifies for the waiver;
- (3) The notice provides a reasonable opportunity for the person to respond;
- (4) The director considers any and all evidence provided by the person in response to the notice; and

- (5) The director provides the person with written notice of the rescission.

(Ord. 2021-38 § 4).

418-20.212 Mandates on haulers.

(a) Commercial haulers.

- (1) All commercial haulers shall comply with all applicable permit and other requirements in Chapter 418-2, and the terms of any applicable solid waste collection franchise agreement approved by the county or solid waste joint powers authority.

- (2) A commercial hauler shall maintain a copy of its authorization by the county to collect organic waste from organic waste generators.

- (3) A commercial hauler shall take organic waste collected from an organic waste generator to a location identified in this section only with the consent of the owner or operator of the location.

- (4) A commercial hauler shall take organic waste collected from an organic waste generator only to a solid waste facility, solid waste operation or other location where organic waste is lawfully recovered, as more particularly described in, and in accordance with applicable provisions of, article 2 of chapter 12 of division 7 of title 14 of the California Code of Regulations, effective January 1, 2022.

- (5) Exceptions. The requirements in subsections 418-20.212(a)(2) and 418-20.212(a)(4) do not apply to:

- (A) The lawful transport of source separated organic waste to a community composting site; or

(B) The lawful transport of construction and demolition debris under the California Green Building Standards Code as adopted by subsection 74-2.002(d) and as amended by subsections 74-4.006(e) and (o), to the extent any of these provisions are applicable.

(b) Self-haulers.

(1) General. An organic waste generator may self-haul its own organic waste in accordance with this subsection.

(2) Handling requirements. A self-hauler shall do one of the following:

(A) Source-separate the organic waste from other waste types, and take the organic waste to a lawfully operated solid waste facility, lawfully operated solid waste operation or other location where source-separated organic waste is processed or recovered in accordance with applicable legal requirements. Notwithstanding the foregoing, a self-hauler is not required to source-separate construction and demolition debris that is transported in accordance with the legal requirements referenced in subsection 418-20.212(a)(5)(B).

(B) Take the organic waste to a high diversion organic waste processing facility.

(3) Records. Except for residential organic waste generators, a self-hauler of organic waste shall keep for a minimum of five years any and all delivery receipts and weight tickets issued by entities that received the self-hauler's waste, or a list of entities that received the waste if delivery receipts and weight tickets are not available.

(c) Nothing in this section is intended to or shall be interpreted to authorize a commercial hauler or self-hauler to provide services that another hauler has an exclusive right to provide under a valid franchise agreement with the county.

(Ord. 2021-38 § 4).

418-20.214 Mandates on commercial edible food generators.

(a) Compliance date. This section applies only to tier one commercial edible food generators and tier two commercial edible food generators. Tier one commercial edible food generators shall comply with the requirements of this section commencing no later than January 1, 2022. Tier two commercial edible food generators shall comply with the requirements of this section commencing no later than January 1, 2024.

(b) Recovery requirement. A commercial edible food generator described in subsection 418-20.214(a) shall have a contract or written agreement with at least one food recovery organization or food recovery service for the purpose of recovering the maximum amount of edible food that would otherwise be disposed of.

(c) Prohibition. Commercial edible food generators described in subsection 418-20.214(a) shall not intentionally spoil edible food that could otherwise be recovered.

(d) Records. Commercial edible food generators described in subsection 418-20.214(a) shall keep records as follows for a minimum of five years:

(1) A list of each food recovery service and food recovery organization that collects or receives edible food from the commercial edible food generator.

(2) Copies of contracts or written agreements with food recovery organizations or food recovery services.

(3) As to each food recovery service and food recovery organization with which the commercial edible food generator has a contract or written agreement under subsection 418-20.214(b), records of all the following:

(A) The name, address, and contact information of the food recovery service or food recovery organization;

(B) The types of food to be collected by or transported to the food recovery service or food recovery organization;

(C) The established frequency of collection by or transport of edible food to the food recovery service or food recovery organization; and

(D) The number of pounds of edible food collected by or transported to the food recovery service or food recovery organization each month.

(e) Large events and large venues. A commercial edible food generator that operates a large venue or large event but does not directly provide food service shall require food facilities operating at the large venue or large event to comply with the requirements of this section.

(f) Exception. A commercial edible food generator is not required to comply with this section if the commercial edible food generator demonstrates to the director the existence of extraordinary circumstances beyond the control of the commercial edible food generator that make such compliance impracticable. For purposes of this section, “extraordinary circumstances” are:

(1) A failure by the county to increase edible food recovery in accordance with requirements set forth in section 18991.1 of title 14 of the California Code of Regulations; or

(2) Earthquakes, wildfires, flooding, or other emergencies or natural disasters.
(Ord. 2021-38 § 4).

418-20.216 Mandates on food recovery services and food recovery organizations.

(a) Recordkeeping.

(1) Food recovery services. A food recovery service that is located in the unincorporated area of the county and collects or receives edible food from a tier one commercial edible food generator or tier two commercial edible food generator under a contract or written agreement entered into under subsection 418-20.214(b) shall keep and maintain records as follows for a minimum of five years:

(A) The name and address of, and contact information for, each tier one commercial edible food generator and tier two commercial edible food generator from which the food recovery service collects edible food.

(B) The number of pounds of edible food that the food recovery service collects each month from each tier one commercial edible food generator and tier two commercial edible food generator.

(C) The number of pounds of edible food transported each month to each food recovery organization.

(D) The name and address of, and contact information for, each food recovery organization to which the food recovery service transports edible food for food recovery.

(2) Food recovery organizations. A food recovery organization that is located in the unincorporated area of the county and collects or receives edible food from a tier one commercial edible food generator or tier two commercial edible food generator under a contract or written agreement entered into under subsection 418-20.214(b) shall maintain records as follows for a minimum of five years:

(A) The name and address of, and contact information for, each tier one commercial edible food generator and tier two commercial edible food generator from which the food recovery organization collects edible food.

(B) The number of pounds of edible food that the food recovery organization receives each month from each tier one commercial edible food generator and tier two commercial edible food generator.

(C) The name and address of, and contact information for, each food recovery service from which the food recovery organization receives edible food for food recovery.

(b) Reporting. Food recovery organizations and food recovery services that have contracts or written agreements with tier one commercial edible food generators or tier two commercial edible food generators under subsection 418-20.216(a)(1) or subsection 418-20.216(a)(2) must annually report to the director the number of pounds of edible food recovered in the previous calendar year.

(Ord. 2021-38 § 4).

418-20.218 Edible food recovery capacity planning; requests for information.

(a) Food recovery services and food recovery organizations shall respond to requests by the director for information regarding existing and available, or proposed new or expanded, capacity for storage of recovered edible food, within 60 days after receipt of the request.

(b) Public agencies shall respond to requests by the director for information pertaining to edible food recovery capacity within 120 days after receipt of the request.

(Ord. 2021-38 § 4).

418-20.220 Inspections and investigations. Whenever it is necessary to inspect property to enforce the provisions of this chapter under State law or regulations or otherwise, or whenever the director has cause to believe that there exists on any property any violation of this chapter, the director may enter the property to inspect and gather evidence or perform the duties imposed on the director by this chapter. Entry may be made at any reasonable time upon advance notice to the owner or occupant of the property. If entry is refused, the director is authorized to proceed by pursuing any and all remedies provided by law to secure entry. Notwithstanding the foregoing, nothing in this section authorizes the director to enter private areas of residential properties.

(Ord. 2021-38 § 4).

418-20.222 Administrative fines.

(a) The director is authorized to determine that a requirement of this chapter has been violated.

(b) Definitions. For purposes of this section, the following words and phrases have the following meanings:

(1) “Compliance period” means a 60-day period of time in which a violation must be corrected, commencing with the date of issuance of a notice of violation. For purposes of this section, the date of issuance of a notice of violation will be the service date.

(2) “Service date” means the date a notice or decision is served in accordance with subsection 418-20.222(j).

(3) “Responsible person” means a person who is determined by the director to have violated a provision of this chapter.

(c) Prohibited contaminant violations. If the director determines that a requirement under subsection 418-20.206(b), has been violated, the director will serve written notice on the

responsible person before taking any other enforcement action under this chapter against the responsible person with regard to the violation. The notice will contain all of the following:

- (1) A description of the violation; and
- (2) Information about the requirement to properly separate materials into the appropriate containers.

(d) Notice of violation.

(1) If the director determines that a requirement of this chapter has been violated on or after January 1, 2024, the director may issue a notice of violation to the responsible person. A notice of violation will require the responsible person to correct the violation and contain all of the following information:

- (A) The date of the violation;
- (B) The address or location where the violation occurred;
- (C) The code section violated and description of the violation;
- (D) A description of how the violation can be corrected;
- (E) The compliance period; and
- (F) An advisement that the violator may be subject to an administrative fine under this article if the violation is not corrected within the compliance period, and the maximum amount of that fine.

(2) The director may extend the compliance period set forth in a notice of violation if the director finds that extenuating circumstances beyond the control of the responsible person make compliance by the compliance date impracticable. For the purpose of this section, “extenuating circumstances” are:

- (A) Earthquakes, wildfires, flooding, and other emergencies or natural disasters;
- (B) Delays in obtaining a discretionary permits or other government agency approvals; or
- (C) Deficiencies in organic waste recycling capacity infrastructure or edible food recovery capacity, if the county is under a corrective action plan under section 18996.2 of title 14 of the California Code of Regulations due to those deficiencies.

(e) Administrative fines.

(1) If a violation has not been corrected by the end of the compliance period in a notice of violation, the director may impose an administrative fine on the responsible person.

(2) Fine amounts. The amount of the fine will be \$100 for a first violation, \$200 for a second violation of the same requirement within one year of the first violation, and \$500 for a third or subsequent violation of the same requirement within one year of the first violation.

(3) Continuing violations. Acts, omissions, or conditions in violation of any section of this chapter that continue, exist or occur on more than one day constitute separate violations and offenses on each day. Violations continuing, existing, or occurring on the service date, the compliance date, and each day between the service date and the compliance date are separate violations.

(4) An administrative fine will be imposed by means of a notice of fine. The responsible person will be served with the notice of fine as specified in subsection 418-20.222(j). The notice of fine will include all of the following information:

- (A) The date of the violation;
- (B) The address or other description of the location where the violation occurred;
- (C) The code section(s) violated and a description of the violation;
- (D) The amount of the fine; and

(E) An advisement of the right to request a hearing to contest the imposition of the fine.

(f) Appeals.

(1) Any person upon whom an administrative fine is imposed by the director may request a hearing pursuant to the procedures set forth in this subsection. The appellant must file a written appeal with the director within fifteen calendar days after the service date of the notice of fine. The written appeal must contain:

(A) A brief statement explaining who the appealing party is and what interest the appealing party has in challenging the imposition of the fine; and

(B) A brief statement of the material facts that the appellant claims supports the contention that no administrative fine should be imposed or that an administrative fine of a different amount is warranted.

(2) Notice of the hearing will be served on the appellant as specified in subsection 420-20.220(j). The director will set the hearing no sooner than twenty days and no later than forty-five days following the service date of the notice of hearing.

(3) An appeal of an administrative fine imposed for violations of this chapter will be heard by a hearing examiner appointed by the director.

(4) At the hearing, the appellant will be given the opportunity to testify, and present written and oral evidence.

(5) An appellant's failure to appear at the hearing shall constitute an abandonment of any defense the appellant may have to the administrative fine.

(6) After considering the testimony and evidence submitted at the hearing, or after the appellant has failed to appear at the hearing, the hearing examiner will issue a written decision to uphold, modify, or cancel the administrative fine and will list in the decision the reason or reasons for that decision. The decision will be served as specified in subsection 420-20.222(j).

(g) Final administrative order. The imposition of the administrative fine becomes a final administrative order at one of the following times:

(1) On the date the notice of fine is served, if the responsible person fails to file a written appeal within the time specified; or

(2) On the date the written decision by the hearing examiner is served, if the responsible person files a written appeal within the time specified.

(h) Payment of the fine. The fine must be paid to the county within thirty days after the imposition of the administrative fine becomes a final administrative order. Payment of a fine under this article does not excuse or discharge any continuation or repeated occurrence of the violation that is the subject of the notice of fine. The payment of a fine does not bar the county from taking any other enforcement action regarding a violation that is not corrected.

(i) Collection. If the fine is not paid within thirty days after the imposition of the fine becomes a final administrative order, the county may collect the fine, the county's collection costs, and interest. An administrative fine accrues interest at the same annual rate as any civil judgment, beginning on the twentieth day after the fine becomes a final administrative order. The county may collect by using any available legal means, including but not limited to the following:

(1) The county may file a civil action. If a civil action is commenced, the county is entitled to recover all costs associated with the collection of the fine, including those costs set forth in Code of Civil Procedure section 1033.5.

(2) The county may take such other actions as are allowed for enforcement of a civil judgment as provided for pursuant to the Enforcement of Judgments Law, California Code of Civil Procedure section 680.010 et seq.

(j) Service. All notices or decisions required to be served by this section will be served by any of the methods specified below:

(1) First class mail. First class mail will be addressed to the responsible person at the address for service of process for the responsible person or to the last address provided by the responsible party to the director. Service is deemed complete upon the deposit of the notice or decision, postage pre-paid, in the United States mail.

(2) Personal service. Personal service is deemed complete on the date the notice or decision is personally served on the responsible person.

(k) Judicial Review. A final administrative order may be appealed to the superior court of the county in accordance with the provisions set forth in Government Code section 53069.4. (Ord. 2021-38 § 4).

418-20.224 Fees and costs.

(a) The director is authorized to collect fees approved by the Board of Supervisors by resolution and to use revenues from the fees to fund regulatory costs incurred in the enforcement of this chapter, in accordance with applicable laws.

(b) A person subject to a fee approved under this section shall promptly pay the fee when due.

(Ord. 2021-38 § 4).

SECTION V. EFFECTIVE DATE. This ordinance becomes effective 30 days after passage, and within 15 days after passage shall be published in the East Bay Times, a newspaper published in this County. This ordinance shall be published in a manner satisfying the requirements of Government Code section 25124, with the names of the supervisors voting for and against it.

PASSED on _____, by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

ATTEST: Monica Nino, Clerk of the Board
of Supervisors and County Administrator

By: _____
Deputy

Board Chair

[seal]

LW/

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Contra
Costa
County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: County Organized Health System - CCHP Single Plan Model

RECOMMENDATION(S):

ADOPT Ordinance No. 2021-42, authorizing the Contra Costa Health Plan to serve as the single local plan for Medi-Cal managed care enrollees in the County upon approval of the California Department of Health Care Services.

FISCAL IMPACT:

Conversion to a single plan model will increase CCHP's Medi-Cal membership from 200,000 to approximately 238,000. The net income impact is expected to be positive and in the 2% to 4% of gross revenue.

BACKGROUND:

The State Department of Health Care Services (DHCS) has begun the procurement process for Commercial Medi-Cal Managed Care plans. As part of the procurement process counties now have the option to request a change in the local plan model.

The Contra Costa Health Plan (CCHP) currently operates in a "Two-Plan Model" county. The two plans are CCHP and Anthem Blue Cross. Currently CCHP has approximately 84% of the Medi-Cal membership and Anthem Blue Cross has approximately 16%.

An option for CCHP is to convert to a single

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Patrick Godley,
925-957-5405

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Jackie Peterson, Marcy Wilhelm

BACKGROUND: (CONT'D)

plan model known as a County Organized Health System (COHS). The COHS model provides a number of benefits for the County's Medi-Cal population: (a) enhances the probability of success in the State's CalAIM initiatives (b) provides the pathway for full Medi-Cal population health initiatives (c) opens possibilities for better management for those transitioning out of incarceration (d) allows for consideration of a fully integrated model inclusive of behavioral health and long-term care and (e) the single plan structure is a cost effective alternative.

The Contra Costa County Board of Supervisors is currently the governing body of CCHP. Conversion to a COHS is expected to have no impact on the current governance or organizational structure.

Conversion from a two plan to a single plan model requires the State Department of Health Care Services (DHCS) approval, a new County Ordinance, Federal approval of a section 1115 Waiver or other waiver for the creation of a new COHS, and execution of the implementing single plan model managed care plan (MCP) contract with DHCS.

The State timeline for model conversion consideration is as follows:

- a. Letter of intent approved by the Board by April 30, 2021 (approved by the Board on April 27, 2021 and submitted to the State).
- b. CCHP to submit documentation for preliminary planning for a network contracting strategy and ongoing negotiations to support the increased capacity necessary for the local plan responsibility for January 2024 by September 1, 2021 (completed and submitted on August 16, 2021).
- c. County Ordinance adoption by October 1, 2021 (Adopted by the Board on September 14, 2021).
- d. State legislative action, if needed, by September 10, 2021 (this step is not required for CCHP).
- e. After October 19, 2021 Final Commercial Plan RFP release.
- f. 2021-2022 DHCS will work with federal Centers for Medicare and Medicaid Services (CMS) for necessary waiver amendments and other approvals.
- g. January 2024 new contracts and plans begin.

On March 12, 2021 the Contra Costa Health Plan Joint Conference Committee received and reviewed the option for a CCHP conversion to a single plan model. Supervisors Andersen and Glover are voting members on the Committee, which approved the concept and recommended forwarding the submission to the full County Board of Supervisors for approval.

On April 27, 2021 the County Board of Supervisors accepted the concept introduced by the Contra Costa Health Plan at the March 12, 2021 Joint Conference Committee Meeting to convert CCHP from a Medi-Cal two plan model to a single plan model known as a County Organized Health System (COHS), and authorized the Chair of the Board and the Contra Costa Health Plan (CCHP) CEO to sign a non-binding letter of intent to the State of California. As a condition of moving forward to a single plan model the State is requiring an ordinance for any County that is seeking a model change. The State considers the public review process and other aspects of an ordinance important for the interests of Medi-Cal beneficiaries regarding a potential change of this type. Accordingly, an ordinance has been drafted to comply with the State's requirement. The ordinance stipulates that the "Contra Costa Health Plan is authorized to serve as the single local plan for Medi-Cal managed care enrollees in the County upon approval of the California Department of Health Care Services".

On September 7, 2021, the Board introduced Ordinance No. 2021-31, authorizing the Contra Costa Health Plan to serve as the single local plan for Medi-Cal managed care enrollees in the County commencing on January 1, 2024, waiving the reading, and fixing September 14, 2021, for adoption. Ordinance No. 2021-31 was adopted on September 14, 2021.

Ordinance No. 2021- 42 repeals Ordinance No. 2021-31, which was adopted by the Board on September 14, 2021. The State requested that the following be added to the ordinance: “The effective date of this authorization is January 1, 2024, unless the California Department of Health Services approves and authorizes a different date.” On December 7, 2021, the Board introduced Ordinance No. 2021-42, authorizing the Contra Costa Health Plan to serve as the single local plan for Medi-Cal managed care enrollees in the County commencing on January 1, 2024, waiving the reading, and fixing December 14, 2021, for adoption.

The County’s obligation to implement the single plan model ultimately is dependent upon DHCS’ acceptance of CCHP’s submitted documentation and network contracting strategy, the receipt of all necessary federal approvals, and execution of the Medi-Cal MCP contract with DHCS for a single plan model.

CONSEQUENCE OF NEGATIVE ACTION:

Failure to adopt this ordinance will eliminate CCHP from the State's model conversion consideration.

ATTACHMENTS

Ordinance

ORDINANCE NO. 2021-42

AN ORDINANCE AUTHORIZING CONTRA COSTA HEALTH PLAN TO SERVE AS THE
SINGLE LOCAL PLAN FOR MEDI-CAL MANAGED CARE ENROLLEES
IN CONTRA COSTA COUNTY

The Contra Costa County Board of Supervisors ordains as follows:

Section 1. Purpose.

To protect the health, welfare and safety of the people of Contra Costa County, it is necessary to ensure that the County Health Services Department maintains its flexibility to serve Medi-Cal managed care enrollees in the most effective manner, including but not limited to serving enrollees through a single local plan model.

Section 2. Findings and Declaration.

The Board of Supervisors finds and declares as follows:

- (a) Residents of Contra Costa County who are Medi-Cal beneficiaries are currently served under the two-plan model of Medi-Cal managed care that was established by the California Department of Health Care Services.
- (b) Contra Costa Health Plan, which is directly owned and operated by the County, currently serves as the local initiative plan under the existing two-plan model.
- (c) The California Department of Health Care Services has offered counties the opportunity to transition to a single local plan model of Medi-Cal managed care.
- (d) The County operates Contra Costa Health Plan within the County Health Services Department, as authorized by Government Code Section 25209.6, which imposes no limitations on the contracting models available to the County-operated health plan.
- (e) A single local plan allows for enrollment in one local public health plan, making entry into the health care system and managing care for members more effective and efficient.
- (f) Contra Costa Health Plan is well-positioned to become the single local Medi-Cal managed care plan because it serves more than 80% of the local Medi-Cal population, contracts with most health care providers who furnish services to Medi-Cal enrollees in the County, and has a demonstrated record of success in arranging and providing Medi-Cal services through managed care.
- (g) It is in the best interests of the County to maintain its flexibility to operate in a manner that best serves the County's Medi-Cal managed care population.

Section 3. Single Local Plan Model.

Contra Costa Health Plan is authorized to serve as the single local plan for Medi-Cal managed care enrollees in the County, upon approval of the California Department of Health Care Services. The effective date of this authorization is January 1, 2024, unless the California Department of Health Care Services approves and authorizes a different date.

Section 4. Other Contracting Models.

Nothing in this ordinance precludes the County from continuing to operate under the two-plan model or from opting into any other Medi-Cal managed care contracting model the State makes available.

Section 5. Repeal of Ordinance No. 2021-31.

Ordinance No. 2021-31 is hereby repealed.

Section 6. Effective Date.

This ordinance becomes effective 30 days after passage, and within 15 days after passage shall be published once with the names of supervisors voting for or against it in the East Bay Times, a newspaper published in this County.

PASSED ON December 14, 2021, by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

ATTEST: MONICA NINO,
Clerk of the Board of Supervisors
and County Administrator

Board Chair

By:

Deputy

[SEAL]



**Contra
Costa
County**

To: Board of Supervisors
From: Kathy Gallagher, Employment & Human Services Director
Date: December 14, 2021

Subject: Advisory Council on Aging Appointment

RECOMMENDATION(S):

APPOINT Michael Rigsby to the Oakley Local Committee seat on the Advisory Council on Aging for a term ending on September 30, 2023, as recommended by the Employment and Human Services Director.

FISCAL IMPACT:

There is no fiscal impact.

BACKGROUND:

Appoint Michael Rigsby as the Oakley Local Committee representative on the Advisory Council on Aging (Council) for a term ending September 30, 2023. The seat is currently vacant. Mr. Rigsby is a resident of Oakley and approved by the City Council of the City of Oakley on October 12, 2021.

The Council provides for countywide planning, cooperation, and coordination for individuals and groups interested in improving and developing services and opportunities for residents of the County. The Council provides leadership and advocacy on behalf of older persons as a channel of communication and information on aging.

CONSEQUENCE OF NEGATIVE ACTION:

The Advisory Council on Aging may not be able to conduct routine business.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Elaine Burres
925-608-4960

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:



**Contra
Costa
County**

To: Board of Supervisors
From: Kathy Gallagher, Employment & Human Services Director
Date: December 14, 2021

Subject: Economic Opportunity Council Appointment

RECOMMENDATION(S):

APPOINT Alison McKee to Private/Non-Profit Seat No. 3 on the Economic Opportunity Council (EOC) as recommended by the Employment and Human Services Department Director.

FISCAL IMPACT:

There is no fiscal impact.

BACKGROUND:

This board order is to appoint Alison McKee to Private/Non-Profit Seat No. 3 on the EOC with a term ending June 30, 2023. Ms. McKee was recommended and approved by the EOC Board on November 10, 2021. The seat is currently vacant.

The EOC is a tripartite advisory board to the Contra Costa County Board of Supervisors and Employment and Human Services Department, Community Services Bureau for County administration of the Community Services Block Grant.

CONSEQUENCE OF NEGATIVE ACTION:

The EOC may not be able to conduct routine business.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Elaine Burres
925-608-4960

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:



**Contra
Costa
County**

To: Board of Supervisors
From: Kathy Gallagher, Employment & Human Services Director
Date: December 14, 2021

Subject: Family and Children's Trust (FACT) Committee Resignation

RECOMMENDATION(S):

ACCEPT the resignation of Micaela Mota, DECLARE a vacancy in the Sector Specific Child Development Early Childhood Education Seat on the Family and Children's Trust Committee for a term ending September 30, 2022, and DIRECT the Clerk of the Board to post the vacancy, as recommended by the Employment and Human Services Director.

FISCAL IMPACT:

There is no fiscal impact.

BACKGROUND:

The Family and Children's Trust Committee (FACT) was established in 1985 by the Contra Costa County Board of Supervisors to make funding recommendations on the allocation of a variety of funds for prevention and intervention services to reduce child abuse and neglect, provide supportive services to families and children, and promote a more coordinated, seamless system of services for families. Funding for FACT supported projects derive from Federal and State program legislation and donations to the County FACT fund. Micaela Mota was appointed to the Child Development/Early Childhood Education/Local Planning Council Seat 3 September 15, 2020 with a term expiration date of September 30, 2022.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Elaine Burres
608-4960

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:

CONSEQUENCE OF NEGATIVE ACTION:

The FACT Committee may not be able to establish a quoran and conduct routine business.



**Contra
Costa
County**

To: Board of Supervisors
From: Candace Andersen, District II Supervisor
Date: December 14, 2021

Subject: RESIGNATION FROM THE ALAMO MUNICIPAL ADVISORY COUNCIL

RECOMMENDATION(S):

ACCEPT the resignation of David Barclay, effective December 31, 2021; DECLARE a vacancy to the Appointee 1 Seat on the Alamo Municipal Advisory Council, and DIRECT the Clerk of the Board to post the vacancy, for a term with an expiration date of December 31, 2024, as recommended by Supervisor Andersen.

FISCAL IMPACT:

NONE

BACKGROUND:

The Alamo MAC may advise the Board of Supervisors on services that are or may be provided to the Alamo community by Contra Costa County or other local government agencies. Such services include, but are not limited to, parks and recreation, lighting and landscaping, public health, safety, welfare, public works, code enforcement, land use and planning, transportation and other infrastructure. The Council may also provide

☒ APPROVE

☐ OTHER

☐ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Jill Ray,
925-957-8860

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: District 2 Supervisor, Maddy Book, Alamo MAC, Appointee

BACKGROUND: (CONT'D)

input and reports to the District Supervisor, Board of Supervisors, County staff or any County hearing body on issues of concern to the community. The Council may represent the Alamo community before the Board of Supervisors, County Planning Commission and the Zoning Administrator. The Council may also represent the Alamo community before the Local Agency Formation Commission on proposed boundary changes effecting the community. The Council may advocate on parks and recreation issues to the Town of Danville and the San Ramon Valley Unified School District.

CONSEQUENCE OF NEGATIVE ACTION:

The seat will remain filled without the benefit of a member present.

CHILDREN'S IMPACT STATEMENT:

NONE



Contra
Costa
County

To: Board of Supervisors
From: Monica Nino, County Administrator
Date: December 14, 2021

Subject: 2022 Committee Assignments

RECOMMENDATION(S):

ACKNOWLEDGE receipt of the preference forms for Board of Supervisors appointments to 2022 committees, boards and commissions, to the incoming Chair of the Board.

FISCAL IMPACT:

None

BACKGROUND:

Rules of Procedures for Board of Supervisor meetings, Resolution 2019/500, Section 6.1 states that on or before December 1 of each year, on a form provided by the Clerk of the Board, each Board member will submit their individual preferences for appointment to committees, boards and commissions to the Clerk of the Board. During the month of December, the Clerk of the Board will ask the Board to acknowledge receipt of the preference forms as a Board action item on a public agenda. This ensures transparency for the public and the Board Chair. Attached to this board order are the preference forms that were submitted.

CONSEQUENCE OF NEGATIVE ACTION:

Receipt of preference forms will not be acknowledged on a public meeting agenda.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Jami Morritt
925-655-2005

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:

ATTACHMENTS

Supervisor Committee Preferences
2022

District I Supervisor Gioia

Type*	Committee Name	Appointee	Term Expiration	New Term Expiration	Preference 1	Preference 2	Stipend Information
I	Airport Committee, Chair	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
I	Airport Committee, Vice Chair	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND
I	Family & Human Services Committee, Chair	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
I	Family & Human Services Committee, Vice Chair	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
I	Finance Committee, Chair	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND
I	Finance Committee, Vice Chair	John Gioia	12/31/2021	12/31/2022	XXXXX		NO STIPEND
I	Hiring Outreach & Oversight Committee, Chair	Federal Glover	12/31/2021	12/31/2022			NO STIPEND
I	Hiring Outreach & Oversight Committee, Vice-Chair	John Gioia	12/31/2021	12/31/2022			NO STIPEND
I	Internal Operations Committee, Chair	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
I	Internal Operations Committee, Vice Chair	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
I	Legislation Committee, Chair	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
I	Legislation Committee, Vice Chair	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND
I	Public Protection, Chair	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
I	Public Protection, Vice Chair	Federal Glover	12/31/2021	12/31/2022	XXXXX		NO STIPEND
I	Sustainability Committee, Chair	John Gioia	12/31/2021	12/31/2022	XXXXX		NO STIPEND
I	Sustainability Committee, Vice Chair	Federal Glover	12/31/2021	12/31/2022			NO STIPEND
I	Transportation, Water & Infrastructure Committee, Chair	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
I	Transportation, Water & Infrastructure Committee, Vice Chair	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	Bay Area Counties Caucus	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND
II	Bay Area Counties Caucus, Alternate	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	Bay Area Regional Interoperable Communications System (BayRICS) Authority	Mike Casten	12/31/2021	12/31/2022			NO STIPEND
II	BayRICS Authority, Alternate	Elise Warren	12/31/2021	12/31/2022			NO STIPEND
II	California Identification System Remote Access Network Board (Ca-ID RAN Board)	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	Central Contra Costa Solid Waste Authority	Candace Andersen	Unspecified	Unspecified			STIPEND of \$50/meeting; max of 2 paid/month
II	Central Contra Costa Solid Waste Authority	Karen Mitchoff	Unspecified	Unspecified			STIPEND of \$50/meeting; max of 2 paid/month
II	Contra Costa Health Plan Joint Conference Committee	John Gioia	12/31/2021	12/31/2022			NO STIPEND
II	Contra Costa Health Plan Joint Conference Committee	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	Dougherty Valley Oversight Committee	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	Dougherty Valley Oversight Committee	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
II	East Bay Regional Communication System (EBRCS) Authority Governing Board	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
II	East Bay Regional Communication System (EBRCS) Authority Governing Board, Alternate	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND
II	East Contra Costa County Habitat Conservancy, Governing Board	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	East Contra Costa County Habitat Conservancy, Governing Board, Alternate	Federal Glover	12/31/2021	12/31/2022			NO STIPEND
II	East Contra Costa Regional Fee & Finance Authority	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	East Contra Costa Regional Fee & Finance Authority, Alternate	Federal Glover	12/31/2021	12/31/2022			NO STIPEND
II	eBART (Bay Area Rapid Transit) Partnership Policy Advisory Committee	Federal Glover	12/31/2021	12/31/2022			NO STIPEND
II	eBART (Bay Area Rapid Transit) Partnership Policy Advisory Committee	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	First 5 Children and Families Commission Member	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
II	First 5 Children and Families Commission Alternate Member	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	Hazardous Waste Management Facility Allocation Committee	Candace Andersen	Unspecified	Unspecified			STIPEND of \$150 per meeting.
II	Hazardous Waste Management Facility Allocation Committee, Alternate	Karen Mitchoff	Unspecified	Unspecified			STIPEND of \$150 per meeting.
II	Kensington Solid Waste Committee Alternate	Kate Rauch	12/31/2021	12/31/2022	Robert Rogers		NO STIPEND
II	Kensington Solid Waste Committee Member	John Gioia	12/31/2021	12/31/2022	XXXXX		NO STIPEND
II	Medical Services Joint Conference Committee, Chair	John Gioia	12/31/2021	12/31/2022	XXXXX		NO STIPEND
II	Medical Services Joint Conference Committee, Vice Chair	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	North Richmond Waste and Recovery Mitigation Fee Committee	John Gioia	12/31/2021	12/31/2022	XXXXXX		NO STIPEND
II	North Richmond Waste and Recovery Mitigation Fee Committee, Alternate	Robert Rogers	12/31/2021	12/31/2022	Robert Rogers		NO STIPEND
II	Open Space/Parks & East Bay Regional Parks District Liaison Committee, Chair	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	Open Space/Parks & East Bay Regional Parks District Liaison Committee, Vice Chair	Federal Glover	12/31/2021	12/31/2022			NO STIPEND
II	Pleasant Hill BART/Contra Costa Centre Joint Powers Authority Board of Trustees	Karen Mitchoff	Unspecified	Unspecified			NO STIPEND
II	Pleasant Hill BART/Contra Costa Centre Joint Powers Authority Board of Trustees	Candace Andersen	Unspecified	Unspecified			NO STIPEND
II	State Route 4 Bypass Authority	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	State Route 4 Bypass Authority, Alternate	Federal Glover	12/31/2021	12/31/2022			NO STIPEND
II	SWAT (Southwest Area Transportation Committee)	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
II	SWAT, Alternate	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND

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II	TRAFFIX (Measure J Traffic Congestion Relief Agency)	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
II	TRAFFIX (Measure J Traffic Congestion Relief Agency), Alternate	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND
II	TRANSPAC (Central County Transportation Partnership and Cooperation)	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND
II	TRANSPAC, Alternate	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
II	TRANSPAC (East County Transportation Planning)	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	TRANSPAC, Alternate	Federal Glover	12/31/2021	12/31/2022			NO STIPEND
II	Tri-Valley Transportation Council	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
II	Urban Counties of California	Federal D. Glover	12/31/2021	12/31/2022			NO STIPEND
II	Urban Counties of California, Alternate	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
II	WCCTAC (West County Transportation Advisory Committee)	John Gioia	12/31/2021	12/31/2022	XXXXX		NO STIPEND
II	WCCTAC, Alternate	Federal Glover	12/31/2021	12/31/2022			NO STIPEND
II	West Contra Costa Integrated Waste Management Authority	John Gioia	Unspecified	Unspecified	XXXXX		STIPEND of \$50 per meeting.
II	West Contra Costa Integrated Waste Management Authority, Alternate	Federal Glover	Unspecified	Unspecified			STIPEND of \$50 per meeting.
III	Contra Costa Transportation Authority Board of Commissioners (Seat 2)	Karen Mitchoff	1/31/2022	1/31/2024			STIPEND of \$100 per meeting; up to \$400 month
III	Contra Costa Transportation Authority Board of Commissioners, Alternate (Seat 2)	John Gioia	1/31/2022	1/31/2024			STIPEND of \$100 per meeting; up to \$400 month
III	Local Agency Formation Commission	Candace Andersen	5/2/2022	5/2/2026			STIPEND of \$150 per meeting.
III	Local Agency Formation Commission	Federal D. Glover	5/2/2022	5/2/2026			STIPEND of \$150 per meeting.
III	Tri Delta Transit Authority, Board of Directors (Seat 2)	Diane Burgis	12/31/2021	12/31/2023			STIPEND of \$100/month
III	WCC Healthcare District Finance Committee	Federal Glover	Unspecified	Unspecified			NO STIPEND
III	WCC Healthcare District Finance Committee	John Gioia	Unspecified	Unspecified	XXXXX		NO STIPEND
III	CCTA, Community Based Transportation Steering Committee	Federal Glover	Unspecified	Unspecified			NO STIPEND
IV	ABAG Executive Board (Seat 1)	Karen Mitchoff	6/30/2022	6/30/2024			STIPEND of \$150 per meeting.
IV	ABAG Executive Board (Seat 2)	Candace Andersen	6/30/2022	6/30/2024			STIPEND of \$150 per meeting.
IV	ABAG Executive Board, Alternate 1	John Gioia	6/30/2022	6/30/2024			STIPEND of \$150 per meeting.
IV	ABAG Executive Board, Alternate 2	Diane Burgis	6/30/2022	6/30/2024			STIPEND of \$150 per meeting.
IV	ABAG Finance Authority for Nonprofit Corporations Board of Directors and its Executive Committee	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND
IV	ABAG Finance Authority for Nonprofit Corporations Board of Directors and its Executive Committee, First Alternate	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
IV	ABAG Finance Authority for Nonprofit Corporations Board of Directors and its Executive Committee, Second Alternate	Russell Watts	12/31/2021	12/31/2022			NO STIPEND
IV	ABAG General Assembly	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND
IV	ABAG General Assembly, Alternate	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
IV	ABAG Regional Planning Committee	Karen Mitchoff	Unspecified	Unspecified			STIPEND of \$150 per meeting.
IV	Bay Conservation & Development Commission	John Gioia	Unspecified	Unspecified	XXXXX		STIPEND of \$100 per meeting; max of 4 meetings.
IV	Bay Conservation & Development Commission, Alternate	Federal Glover	Unspecified	Unspecified			STIPEND of \$100 per meeting; max of 4 meetings.
IV	Contra Costa Countywide Redevelopment Successor Agency Oversight Board	Federal Glover	Unspecified	Unspecified			NO STIPEND
IV	Contra Costa Countywide Redevelopment Successor Agency Oversight Board	Karen Mitchoff	Unspecified	Unspecified			NO STIPEND
IV	Delta Diablo Sanitation District Governing Board	Federal Glover	12/31/2021	12/31/2022			STIPEND of \$170 per meeting; max of 6 meetings.
IV	Delta Diablo Sanitation District Governing Board, Alternate	Karen Mitchoff	12/31/2021	12/31/2022			STIPEND of \$170 per meeting; max of 6 meetings.
IV	Delta Protection Commission	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
IV	Delta Protection Commission, Alternate	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND
IV	Law Library Board of Trustees	Nolan Armstrong	12/31/2021	12/31/2022			NO STIPEND
IV	Mental Health Commission	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
IV	Mental Health Commission, Alternate	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
IV	Sacramento-San Joaquin Delta Conservancy Board	Karen Mitchoff	Unspecified	Unspecified			NO STIPEND
IV	Sacramento-San Joaquin Delta Conservancy Board, Alternate	Diane Burgis	Unspecified	Unspecified			NO STIPEND
V	Ad Hoc Committee on COVID-19 Economic Impact and Recovery, Chair	Candace Andersen	Unspecified	Unspecified			NO STIPEND
V	Ad Hoc Committee on COVID-19 Economic Impact and Recovery, Vice Chair	Karen Mitchoff	Unspecified	Unspecified			NO STIPEND
V	Childhood Asthma Ad Hoc Committee, Chair	John Gioia	Unspecified	Unspecified	XXXXX		NO STIPEND
V	Childhood Asthma Ad Hoc Committee, Vice Chair	Federal Glover	Unspecified	Unspecified			NO STIPEND
V	Industrial Safety Ordinance/Community Warning System Ad Hoc Committee	John Gioia	Unspecified	Unspecified	XXXXX		NO STIPEND
V	Industrial Safety Ordinance/Community Warning System Ad Hoc Committee	Federal Glover	Unspecified	Unspecified			NO STIPEND
V	Northern Waterfront Economic Development Ad Hoc Committee	Federal Glover	Unspecified	Unspecified			NO STIPEND
V	Northern Waterfront Economic Development Ad Hoc Committee	Diane Burgis	Unspecified	Unspecified			NO STIPEND
The Following Committees Should NOT be Reassigned.		Term Expiration					
II	Contra Costa Family Justice Alliance	Diane Burgis	12/31/2022				NO STIPEND
II	East County Water Management Association	Diane Burgis	12/31/2022				STIPEND of \$170/meeting; max 6 per month
II	East County Water Management Association, Alternate	Federal Glover	12/31/2022				STIPEND of \$170/meeting; max 6 per month
III	Bay Area Air Quality Management District Board of Directors	Karen Mitchoff	1/20/2024				Per diem of \$100/meeting + travel exp; max \$6,000

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III	Local Agency Formation Commission, Alternate	Diane Burgis	5/6/2024			STIPEND of \$150 per meeting.
III	Metropolitan Transportation Commission	Federal Glover	2/1/2023			STIPEND of \$100/meeting; up to \$500/month per agency.
III	Bay Area Air Quality Management District Board of Directors	John Gioia	6/17/2025	XXXXX		Per diem of \$100/meeting + travel exp; max \$6,000
III	Bay Area Air Quality Management District Board of Directors	Karen Mitchoff	1/20/2024			Per diem of \$100/meeting + travel exp; max \$6,000
III	Central Contra Costa Transit Authority (CCCTA) Board of Directors	Candace Andersen	5/1/2023			STIPEND of \$100 per meeting; up to \$200 month
III	Central Contra Costa Transit Authority (CCCTA) Board of Directors, Alternate	Karen Mitchoff	5/1/2023			STIPEND of \$100 per meeting; up to \$200 month
III	Contra Costa Transportation Authority Board of Commissioners (Seat 1)	Federal Glover	1/31/2023			STIPEND of \$100 per meeting; up to \$400 month
III	Contra Costa Transportation Authority Board of Commissioners, Alternate (Seat 1)	Candace Andersen	1/31/2023			STIPEND of \$100 per meeting; up to \$400 month
III	Contra Costa Transportation Authority Board of Commissioners, Second Alternate (Seat 1)	Diane Burgis	1/31/2023			STIPEND of \$100 per meeting; up to \$400 month
III	Contra Costa Transportation Authority Board of Commissioners, Third Alternate (Seat 1)	John Gioia	1/31/2023			STIPEND of \$100 per meeting; up to \$400 month
III	Marin Energy Authority (MCE) Board of Directors	John Gioia	12/31/2022	XXXXX		NO STIPEND
III	Marin Energy Authority (MCE) Board of Directors, Alternate	Federal Glover	12/31/2022			NO STIPEND
III	Tri Delta Transit Authority, Board of Directors (Seat 1)	Federal Glover	12/31/2022			STIPEND of \$100/month
IV	CCCERA (Contra Costa County Employees Retirement Association) Board of Trustees	Candace Andersen	6/30/2023			STIPEND of \$100 per meeting.
IV	CSAC (California State Association of Counties) Board of Directors	John Gioia	11/30/2022	XXXXXX		NO STIPEND
IV	CSAC Board of Directors, Alternate	Diane Burgis	11/30/2022			NO STIPEND

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Type*	Committee Name	Appointee	Term Expiration	New Term Expiration	Preference 1	Preference 2	Stipend Information
I	Airport Committee, Chair	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
I	Airport Committee, Vice Chair	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND
I	Family & Human Services Committee, Chair	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
I	Family & Human Services Committee, Vice Chair	Diane Burgis	12/31/2021	12/31/2022	x		NO STIPEND
I	Finance Committee, Chair	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND
I	Finance Committee, Vice Chair	John Gioia	12/31/2021	12/31/2022			NO STIPEND
I	Hiring Outreach & Oversight Committee, Chair	Federal Glover	12/31/2021	12/31/2022			NO STIPEND
I	Hiring Outreach & Oversight Committee, Vice-Chair	John Gioia	12/31/2021	12/31/2022			NO STIPEND
I	Internal Operations Committee, Chair	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
I	Internal Operations Committee, Vice Chair	Diane Burgis	12/31/2021	12/31/2022	x		NO STIPEND
I	Legislation Committee, Chair	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
I	Legislation Committee, Vice Chair	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND
I	Public Protection, Chair	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
I	Public Protection, Vice Chair	Federal Glover	12/31/2021	12/31/2022	x		NO STIPEND
I	Sustainability Committee, Chair	John Gioia	12/31/2021	12/31/2022			NO STIPEND
I	Sustainability Committee, Vice Chair	Federal Glover	12/31/2021	12/31/2022			NO STIPEND
I	Transportation, Water & Infrastructure Committee, Chair	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
I	Transportation, Water & Infrastructure Committee, Vice Chair	Diane Burgis	12/31/2021	12/31/2022	x		NO STIPEND
II	Bay Area Counties Caucus	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND
II	Bay Area Counties Caucus, Alternate	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	Bay Area Regional Interoperable Communications System (BayRICS) Authority	Mike Casten	12/31/2021	12/31/2022			NO STIPEND
II	BayRICS Authority, Alternate	Elise Warren	12/31/2021	12/31/2022			NO STIPEND
II	California Identification System Remote Access Network Board (Cal-ID RAN Board)	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	Central Contra Costa Solid Waste Authority	Candace Andersen	Unspecified	Unspecified	x		STIPEND of \$50/meeting; max of 2 paid/month
II	Central Contra Costa Solid Waste Authority	Karen Mitchoff	Unspecified	Unspecified			STIPEND of \$50/meeting; max of 2 paid/month
II	Contra Costa Health Plan Joint Conference Committee	John Gioia	12/31/2021	12/31/2022	x		NO STIPEND
II	Contra Costa Health Plan Joint Conference Committee	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	Dougherty Valley Oversight Committee	Diane Burgis	12/31/2021	12/31/2022	x		NO STIPEND
II	Dougherty Valley Oversight Committee	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
II	East Bay Regional Communication System (EBRCS) Authority Governing Board	Candace Andersen	12/31/2021	12/31/2022	x		NO STIPEND
II	East Bay Regional Communication System (EBRCS) Authority Governing Board, Alternate	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND
II	East Contra Costa County Habitat Conservancy, Governing Board	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	East Contra Costa County Habitat Conservancy, Governing Board, Alternate	Federal Glover	12/31/2021	12/31/2022			NO STIPEND
II	East Contra Costa Regional Fee & Finance Authority	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	East Contra Costa Regional Fee & Finance Authority, Alternate	Federal Glover	12/31/2021	12/31/2022			NO STIPEND
II	eBART (Bay Area Rapid Transit) Partnership Policy Advisory Committee	Federal Glover	12/31/2021	12/31/2022			NO STIPEND
II	eBART (Bay Area Rapid Transit) Partnership Policy Advisory Committee	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	First 5 Children and Families Commission Member	Candace Andersen	12/31/2021	12/31/2022		x	NO STIPEND
II	First 5 Children and Families Commission Alternate Member	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	Hazardous Waste Management Facility Allocation Committee	Candace Andersen	Unspecified	Unspecified			STIPEND of \$150 per meeting.
II	Hazardous Waste Management Facility Allocation Committee, Alternate	Karen Mitchoff	Unspecified	Unspecified			STIPEND of \$150 per meeting.
II	Kensington Solid Waste Committee Alternate	Kate Rauch	12/31/2021	12/31/2022			NO STIPEND
II	Kensington Solid Waste Committee Member	John Gioia	12/31/2021	12/31/2022			NO STIPEND
II	Medical Services Joint Conference Committee, Chair	John Gioia	12/31/2021	12/31/2022		x	NO STIPEND
II	Medical Services Joint Conference Committee, Vice Chair	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	North Richmond Waste and Recovery Mitigation Fee Committee	John Gioia	12/31/2021	12/31/2022			NO STIPEND
II	North Richmond Waste and Recovery Mitigation Fee Committee, Alternate	Robert Rogers	12/31/2021	12/31/2022			NO STIPEND
II	Open Space/Parks & East Bay Regional Parks District Liaison Committee, Chair	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	Open Space/Parks & East Bay Regional Parks District Liaison Committee, Vice Chair	Federal Glover	12/31/2021	12/31/2022			NO STIPEND
II	Pleasant Hill BART/Contra Costa Centre Joint Powers Authority Board of Trustees	Karen Mitchoff	Unspecified	Unspecified			NO STIPEND
II	Pleasant Hill BART/Contra Costa Centre Joint Powers Authority Board of Trustees	Candace Andersen	Unspecified	Unspecified	x		NO STIPEND
II	State Route 4 Bypass Authority	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	State Route 4 Bypass Authority, Alternate	Federal Glover	12/31/2021	12/31/2022			NO STIPEND
II	SWAT (Southwest Area Transportation Committee)	Candace Andersen	12/31/2021	12/31/2022	x		NO STIPEND
II	SWAT, Alternate	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND
II	TRAFFIX (Measure J Traffic Congestion Relief Agency)	Candace Andersen	12/31/2021	12/31/2022	x		NO STIPEND
II	TRAFFIX (Measure J Traffic Congestion Relief Agency), Alternate	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND
II	TRANSPAC (Central County Transportation Partnership and Cooperation)	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND
II	TRANSPAC, Alternate	Candace Andersen	12/31/2021	12/31/2022		x	NO STIPEND
II	TRANSPAN (East County Transportation Planning)	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	TRANSPAN, Alternate	Federal Glover	12/31/2021	12/31/2022			NO STIPEND

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II	Tri-Valley Transportation Council	Candace Andersen	12/31/2021	12/31/2022	x		NO STIPEND
II	Urban Counties of California	Federal D. Glover	12/31/2021	12/31/2022			NO STIPEND
II	Urban Counties of California, Alternate	Candace Andersen	12/31/2021	12/31/2022		x	NO STIPEND
II	WCCTAC (West County Transportation Advisory Committee)	John Gioia	12/31/2021	12/31/2022			NO STIPEND
II	WCCTAC, Alternate	Federal Glover	12/31/2021	12/31/2022			NO STIPEND
II	West Contra Costa Integrated Waste Management Authority	John Gioia	Unspecified	Unspecified			STIPEND of \$50 per meeting.
II	West Contra Costa Integrated Waste Management Authority, Alternate	Federal Glover	Unspecified	Unspecified			STIPEND of \$50 per meeting.
III	Contra Costa Transportation Authority Board of Commissioners (Seat 2)	Karen Mitchoff	1/31/2022	1/31/2024			STIPEND of \$100 per meeting; up to \$400 month
III	Contra Costa Transportation Authority Board of Commissioners, Alternate (Seat 2)	John Gioia	1/31/2022	1/31/2024			STIPEND of \$100 per meeting; up to \$400 month
III	Local Agency Formation Commission	Candace Andersen	5/2/2022	5/2/2026	x		STIPEND of \$150 per meeting.
III	Local Agency Formation Commission	Federal D. Glover	5/2/2022	5/2/2026			STIPEND of \$150 per meeting.
III	Tri Delta Transit Authority, Board of Directors (Seat 2)	Diane Burgis	12/31/2021	12/31/2023			STIPEND of \$100/month
III	WCC Healthcare District Finance Committee	Federal Glover	Unspecified	Unspecified			NO STIPEND
III	WCC Healthcare District Finance Committee	John Gioia	Unspecified	Unspecified			NO STIPEND
III	CCTA, Community Based Transportation Steering Committee	Federal Glover	Unspecified	Unspecified			NO STIPEND
IV	ABAG Executive Board (Seat 1)	Karen Mitchoff	6/30/2022	6/30/2024			STIPEND of \$150 per meeting.
IV	ABAG Executive Board (Seat 2)	Candace Andersen	6/30/2022	6/30/2024	x		STIPEND of \$150 per meeting.
IV	ABAG Executive Board, Alternate 1	John Gioia	6/30/2022	6/30/2024			STIPEND of \$150 per meeting.
IV	ABAG Executive Board, Alternate 2	Diane Burgis	6/30/2022	6/30/2024			STIPEND of \$150 per meeting.
IV	ABAG Finance Authority for Nonprofit Corporations Board of Directors and its Executive Committee	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND
IV	ABAG Finance Authority for Nonprofit Corporations Board of Directors and its Executive Committee, First Alternate	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
IV	ABAG Finance Authority for Nonprofit Corporations Board of Directors and its Executive Committee, Second Alternate	Russell Watts	12/31/2021	12/31/2022			NO STIPEND
IV	ABAG General Assembly	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND
IV	ABAG General Assembly, Alternate	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
IV	ABAG Regional Planning Committee	Karen Mitchoff	Unspecified	Unspecified			STIPEND of \$150 per meeting.
IV	Bay Conservation & Development Commission	John Gioia	Unspecified	Unspecified			STIPEND of \$100 per meeting; max of 4 meetings.
IV	Bay Conservation & Development Commission, Alternate	Federal Glover	Unspecified	Unspecified			STIPEND of \$100 per meeting; max of 4 meetings.
IV	Contra Costa Countywide Redevelopment Successor Agency Oversight Board	Federal Glover	Unspecified	Unspecified			NO STIPEND
IV	Contra Costa Countywide Redevelopment Successor Agency Oversight Board	Karen Mitchoff	Unspecified	Unspecified			NO STIPEND
IV	Delta Diablo Sanitation District Governing Board	Federal Glover	12/31/2021	12/31/2022			STIPEND of \$170 per meeting; max of 6 meetings.
IV	Delta Diablo Sanitation District Governing Board, Alternate	Karen Mitchoff	12/31/2021	12/31/2022			STIPEND of \$170 per meeting; max of 6 meetings.
IV	Delta Protection Commission	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
IV	Delta Protection Commission, Alternate	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND
IV	Law Library Board of Trustees	Nolan Armstrong	12/31/2021	12/31/2022			NO STIPEND
IV	Mental Health Commission	Candace Andersen	12/31/2021	12/31/2022		x	NO STIPEND
IV	Mental Health Commission, Alternate	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
IV	Sacramento-San Joaquin Delta Conservancy Board	Karen Mitchoff	Unspecified	Unspecified			NO STIPEND
IV	Sacramento-San Joaquin Delta Conservancy Board, Alternate	Diane Burgis	Unspecified	Unspecified			NO STIPEND
V	Ad Hoc Committee on COVID-19 Economic Impact and Recovery, Chair	Candace Andersen	Unspecified	Unspecified			NO STIPEND
V	Ad Hoc Committee on COVID-19 Economic Impact and Recovery, Vice Chair	Karen Mitchoff	Unspecified	Unspecified			NO STIPEND
V	Childhood Asthma Ad Hoc Committee, Chair	John Gioia	Unspecified	Unspecified			NO STIPEND
V	Childhood Asthma Ad Hoc Committee, Vice Chair	Federal Glover	Unspecified	Unspecified			NO STIPEND
V	Industrial Safety Ordinance/Community Warning System Ad Hoc Committee	John Gioia	Unspecified	Unspecified			NO STIPEND
V	Industrial Safety Ordinance/Community Warning System Ad Hoc Committee	Federal Glover	Unspecified	Unspecified			NO STIPEND
V	Northern Waterfront Economic Development Ad Hoc Committee	Federal Glover	Unspecified	Unspecified			NO STIPEND
V	Northern Waterfront Economic Development Ad Hoc Committee	Diane Burgis	Unspecified	Unspecified			NO STIPEND
The Following Committees Should NOT be Reassigned		Term Expiration					
II	Contra Costa Family Justice Alliance	Diane Burgis	12/31/2022				NO STIPEND
II	East County Water Management Association	Diane Burgis	12/31/2022				STIPEND of \$170/meeting; max 6 per month
II	East County Water Management Association, Alternate	Federal Glover	12/31/2022				STIPEND of \$170/meeting; max 6 per month
III	Bay Area Air Quality Management District Board of Directors	Karen Mitchoff	1/20/2024				Per diem of \$100/meeting + travel exp; max \$6,000
III	Local Agency Formation Commission, Alternate	Diane Burgis	5/6/2024				STIPEND of \$150 per meeting.
III	Metropolitan Transportation Commission	Federal Glover	2/1/2023				STIPEND of \$100/meeting; up to \$500/month per agency.
III	Bay Area Air Quality Management District Board of Directors	John Gioia	6/17/2025				Per diem of \$100/meeting + travel exp; max \$6,000
III	Bay Area Air Quality Management District Board of Directors	Karen Mitchoff	1/20/2024				Per diem of \$100/meeting + travel exp; max \$6,000
III	Central Contra Costa Transit Authority (CCCTA) Board of Directors	Candace Andersen	5/1/2023				STIPEND of \$100 per meeting; up to \$200 month

District II Supervisor Andersen

III	Central Contra Costa Transit Authority (CCCTA) Board of Directors, Alternate	Karen Mitchoff	5/1/2023				STIPEND of \$100 per meeting; up to \$200 month
III	Contra Costa Transportation Authority Board of Commissioners (Seat 1)	Federal Glover	1/31/2023				STIPEND of \$100 per meeting; up to \$400 month
III	Contra Costa Transportation Authority Board of Commissioners, Alternate (Seat 1)	Candace Andersen	1/31/2023				STIPEND of \$100 per meeting; up to \$400 month
III	Contra Costa Transportation Authority Board of Commissioners, Second Alternate (Seat 1)	Diane Burgis	1/31/2023				STIPEND of \$100 per meeting; up to \$400 month
III	Contra Costa Transportation Authority Board of Commissioners, Third Alternate (Seat 1)	John Gioia	1/31/2023				STIPEND of \$100 per meeting; up to \$400 month
III	Marin Energy Authority (MCE) Board of Directors	John Gioia	12/31/2022				NO STIPEND
III	Marin Energy Authority (MCE) Board of Directors, Alternate	Federal Glover	12/31/2022				NO STIPEND
III	Tri Delta Transit Authority, Board of Directors (Seat 1)	Federal Glover	12/31/2022				STIPEND of \$100/month
IV	CCCERA (Contra Costa County Employees Retirement Association) Board of Trustees	Candace Andersen	6/30/2023				STIPEND of \$100 per meeting.
IV	CSAC (California State Association of Counties) Board of Directors	John Gioia	11/30/2022				NO STIPEND
IV	CSAC Board of Directors, Alternate	Diane Burgis	11/30/2022				NO STIPEND

District III Supervisor Burgis

Type*	Committee Name	Appointee	Term Expiration	New Term Expiration	Preference 1	Preference 2	Stipend Information
I	Airport Committee, Chair	Diane Burgis	12/31/2021	12/31/2022		x	NO STIPEND
I	Airport Committee, Vice Chair	Karen Mitchoff	12/31/2021	12/31/2022	x		NO STIPEND
I	Family & Human Services Committee, Chair	Candace Andersen	12/31/2021	12/31/2022	x		NO STIPEND
I	Family & Human Services Committee, Vice Chair	Diane Burgis	12/31/2021	12/31/2022		x	NO STIPEND
I	Finance Committee, Chair	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND
I	Finance Committee, Vice Chair	John Gioia	12/31/2021	12/31/2022			NO STIPEND
I	Hiring Outreach & Oversight Committee, Chair	Federal Glover	12/31/2021	12/31/2022			NO STIPEND
I	Hiring Outreach & Oversight Committee, Vice-Chair	John Gioia	12/31/2021	12/31/2022			NO STIPEND
I	Internal Operations Committee, Chair	Candace Andersen	12/31/2021	12/31/2022	x		NO STIPEND
I	Internal Operations Committee, Vice Chair	Diane Burgis	12/31/2021	12/31/2022		x	NO STIPEND
I	Legislation Committee, Chair	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
I	Legislation Committee, Vice Chair	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND
I	Public Protection, Chair	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
I	Public Protection, Vice Chair	Federal Glover	12/31/2021	12/31/2022			NO STIPEND
I	Sustainability Committee, Chair	John Gioia	12/31/2021	12/31/2022			NO STIPEND
I	Sustainability Committee, Vice Chair	Federal Glover	12/31/2021	12/31/2022			NO STIPEND
I	Transportation, Water & Infrastructure Committee, Chair	Candace Andersen	12/31/2021	12/31/2022	x		NO STIPEND
I	Transportation, Water & Infrastructure Committee, Vice Chair	Diane Burgis	12/31/2021	12/31/2022		x	NO STIPEND
II	Bay Area Counties Caucus	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND
II	Bay Area Counties Caucus, Alternate	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	Bay Area Regional Interoperable Communications System (BayRICS) Authority	Mike Casten	12/31/2021	12/31/2022			NO STIPEND
II	BayRICS Authority, Alternate	Elise Warren	12/31/2021	12/31/2022			NO STIPEND
II	California Identification System Remote Access Network Board (Cal-ID RAN Board)	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	Central Contra Costa Solid Waste Authority	Candace Andersen	Unspecified	Unspecified			STIPEND of \$50/meeting; max of 2 paid/month
II	Central Contra Costa Solid Waste Authority	Karen Mitchoff	Unspecified	Unspecified			STIPEND of \$50/meeting; max of 2 paid/month
II	Contra Costa Health Plan Joint Conference Committee	John Gioia	12/31/2021	12/31/2022			NO STIPEND
II	Contra Costa Health Plan Joint Conference Committee	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	Dougherty Valley Oversight Committee	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	Dougherty Valley Oversight Committee	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
II	East Bay Regional Communication System (EBRCS) Authority Governing Board	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
II	East Bay Regional Communication System (EBRCS) Authority Governing Board, Alternate	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND
II	East Contra Costa County Habitat Conservancy, Governing Board	Diane Burgis	12/31/2021	12/31/2022	x		NO STIPEND
II	East Contra Costa County Habitat Conservancy, Governing Board, Alternate	Federal Glover	12/31/2021	12/31/2022			NO STIPEND
II	East Contra Costa Regional Fee & Finance Authority	Diane Burgis	12/31/2021	12/31/2022	x		NO STIPEND
II	East Contra Costa Regional Fee & Finance Authority, Alternate	Federal Glover	12/31/2021	12/31/2022			NO STIPEND
II	eBART (Bay Area Rapid Transit) Partnership Policy Advisory Committee	Federal Glover	12/31/2021	12/31/2022			NO STIPEND
II	eBART (Bay Area Rapid Transit) Partnership Policy Advisory Committee	Diane Burgis	12/31/2021	12/31/2022	x		NO STIPEND
II	First 5 Children and Families Commission Member	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
II	First 5 Children and Families Commission Alternate Member	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	Hazardous Waste Management Facility Allocation Committee	Candace Andersen	Unspecified	Unspecified			STIPEND of \$150 per meeting.
II	Hazardous Waste Management Facility Allocation Committee, Alternate	Karen Mitchoff	Unspecified	Unspecified			STIPEND of \$150 per meeting.
II	Kensington Solid Waste Committee Alternate	Kate Rauch	12/31/2021	12/31/2022			NO STIPEND
II	Kensington Solid Waste Committee Member	John Gioia	12/31/2021	12/31/2022			NO STIPEND
II	Medical Services Joint Conference Committee, Chair	John Gioia	12/31/2021	12/31/2022			NO STIPEND
II	Medical Services Joint Conference Committee, Vice Chair	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	North Richmond Waste and Recovery Mitigation Fee Committee	John Gioia	12/31/2021	12/31/2022			NO STIPEND
II	North Richmond Waste and Recovery Mitigation Fee Committee, Alternate	Robert Rogers	12/31/2021	12/31/2022			NO STIPEND
II	Open Space/Parks & East Bay Regional Parks District Liaison Committee, Chair	Diane Burgis	12/31/2021	12/31/2022	x		NO STIPEND
II	Open Space/Parks & East Bay Regional Parks District Liaison Committee, Vice Chair	Federal Glover	12/31/2021	12/31/2022			NO STIPEND
II	Pleasant Hill BART/Contra Costa Centre Joint Powers Authority Board of Trustees	Karen Mitchoff	Unspecified	Unspecified			NO STIPEND
II	Pleasant Hill BART/Contra Costa Centre Joint Powers Authority Board of Trustees	Candace Andersen	Unspecified	Unspecified			NO STIPEND
II	State Route 4 Bypass Authority	Diane Burgis	12/31/2021	12/31/2022	x		NO STIPEND
II	State Route 4 Bypass Authority, Alternate	Federal Glover	12/31/2021	12/31/2022			NO STIPEND
II	SWAT (Southwest Area Transportation Committee)	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
II	SWAT, Alternate	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND
II	TRAFFIX (Measure J Traffic Congestion Relief Agency)	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
II	TRAFFIX (Measure J Traffic Congestion Relief Agency), Alternate	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND
II	TRANSPAC (Central County Transportation Partnership and Cooperation)	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND
II	TRANSPAC, Alternate	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
II	TRANSPAC (East County Transportation Planning)	Diane Burgis	12/31/2021	12/31/2022	x		NO STIPEND

District III Supervisor Burgis

II	TRANSPAN, Alternate	Federal Glover	12/31/2021	12/31/2022			NO STIPEND
II	Tri-Valley Transportation Council	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
II	Urban Counties of California	Federal D. Glover	12/31/2021	12/31/2022			NO STIPEND
II	Urban Counties of California, Alternate	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
II	WCCTAC (West County Transportation Advisory Committee)	John Gioia	12/31/2021	12/31/2022			NO STIPEND
II	WCCTAC, Alternate	Federal Glover	12/31/2021	12/31/2022			NO STIPEND
II	West Contra Costa Integrated Waste Management Authority	John Gioia	Unspecified	Unspecified			STIPEND of \$50 per meeting.
II	West Contra Costa Integrated Waste Management Authority, Alternate	Federal Glover	Unspecified	Unspecified			STIPEND of \$50 per meeting.
III	Contra Costa Transportation Authority Board of Commissioners (Seat 2)	Karen Mitchoff	1/31/2022	1/31/2024			STIPEND of \$100 per meeting; up to \$400 month
III	Contra Costa Transportation Authority Board of Commissioners, Alternate (Seat 2)	John Gioia	1/31/2022	1/31/2024			STIPEND of \$100 per meeting; up to \$400 month
III	Local Agency Formation Commission	Candace Andersen	5/2/2022	5/2/2026			STIPEND of \$150 per meeting.
III	Local Agency Formation Commission	Federal D. Glover	5/2/2022	5/2/2026			STIPEND of \$150 per meeting.
III	Tri Delta Transit Authority, Board of Directors (Seat 2)	Diane Burgis	12/31/2021	12/31/2023	x		STIPEND of \$100/month
III	WCC Healthcare District Finance Committee	Federal Glover	Unspecified	Unspecified			NO STIPEND
III	WCC Healthcare District Finance Committee	John Gioia	Unspecified	Unspecified			NO STIPEND
III	CCTA, Community Based Transportation Steering Committee	Federal Glover	Unspecified	Unspecified			NO STIPEND
IV	ABAG Executive Board (Seat 1)	Karen Mitchoff	6/30/2022	6/30/2024			STIPEND of \$150 per meeting.
IV	ABAG Executive Board (Seat 2)	Candace Andersen	6/30/2022	6/30/2024			STIPEND of \$150 per meeting.
IV	ABAG Executive Board, Alternate 1	John Gioia	6/30/2022	6/30/2024			STIPEND of \$150 per meeting.
IV	ABAG Executive Board, Alternate 2	Diane Burgis	6/30/2022	6/30/2024	x		STIPEND of \$150 per meeting.
IV	ABAG Finance Authority for Nonprofit Corporations Board of Directors and its Executive Committee	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND
IV	ABAG Finance Authority for Nonprofit Corporations Board of Directors and its Executive Committee, First Alternate	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
IV	ABAG Finance Authority for Nonprofit Corporations Board of Directors and its Executive Committee, Second Alternate	Russell Watts	12/31/2021	12/31/2022			NO STIPEND
IV	ABAG General Assembly	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND
IV	ABAG General Assembly, Alternate	Diane Burgis	12/31/2021	12/31/2022	x		NO STIPEND
IV	ABAG Regional Planning Committee	Karen Mitchoff	Unspecified	Unspecified			STIPEND of \$150 per meeting.
IV	Bay Conservation & Development Commission	John Gioia	Unspecified	Unspecified			STIPEND of \$100 per meeting; max of 4 meetings.
IV	Bay Conservation & Development Commission, Alternate	Federal Glover	Unspecified	Unspecified			STIPEND of \$100 per meeting; max of 4 meetings.
IV	Contra Costa Countywide Redevelopment Successor Agency Oversight Board	Federal Glover	Unspecified	Unspecified			NO STIPEND
IV	Contra Costa Countywide Redevelopment Successor Agency Oversight Board	Karen Mitchoff	Unspecified	Unspecified			NO STIPEND
IV	Delta Diablo Sanitation District Governing Board	Federal Glover	12/31/2021	12/31/2022			STIPEND of \$170 per meeting; max of 6 meetings.
IV	Delta Diablo Sanitation District Governing Board, Alternate	Karen Mitchoff	12/31/2021	12/31/2022			STIPEND of \$170 per meeting; max of 6 meetings.
IV	Delta Protection Commission	Diane Burgis	12/31/2021	12/31/2022	x		NO STIPEND
IV	Delta Protection Commission, Alternate	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND
IV	Law Library Board of Trustees	Nolan Armstrong	12/31/2021	12/31/2022			NO STIPEND
IV	Mental Health Commission	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
IV	Mental Health Commission, Alternate	Diane Burgis	12/31/2021	12/31/2022	x		NO STIPEND
IV	Sacramento-San Joaquin Delta Conservancy Board	Karen Mitchoff	Unspecified	Unspecified			NO STIPEND
IV	Sacramento-San Joaquin Delta Conservancy Board, Alternate	Diane Burgis	Unspecified	Unspecified	x		NO STIPEND
V	Ad Hoc Committee on COVID-19 Economic Impact and Recovery, Chair	Candace Andersen	Unspecified	Unspecified			NO STIPEND
V	Ad Hoc Committee on COVID-19 Economic Impact and Recovery, Vice Chair	Karen Mitchoff	Unspecified	Unspecified			NO STIPEND
V	Childhood Asthma Ad Hoc Committee, Chair	John Gioia	Unspecified	Unspecified			NO STIPEND
V	Childhood Asthma Ad Hoc Committee, Vice Chair	Federal Glover	Unspecified	Unspecified			NO STIPEND
V	Industrial Safety Ordinance/Community Warning System Ad Hoc Committee	John Gioia	Unspecified	Unspecified			NO STIPEND
V	Industrial Safety Ordinance/Community Warning System Ad Hoc Committee	Federal Glover	Unspecified	Unspecified			NO STIPEND
V	Northern Waterfront Economic Development Ad Hoc Committee	Federal Glover	Unspecified	Unspecified			NO STIPEND
V	Northern Waterfront Economic Development Ad Hoc Committee	Diane Burgis	Unspecified	Unspecified	x		NO STIPEND
The Following Committees Should NOT be Reassigned		Term Expiration					
II	Contra Costa Family Justice Alliance	Diane Burgis	12/31/2022		x		NO STIPEND
II	East County Water Management Association	Diane Burgis	12/31/2022		x		STIPEND of \$170/meeting; max 6 per month
II	East County Water Management Association, Alternate	Federal Glover	12/31/2022				STIPEND of \$170/meeting; max 6 per month
III	Bay Area Air Quality Management District Board of Directors	Karen Mitchoff	1/20/2024				Per diem of \$100/meeting + travel exp; max \$6,000
III	Local Agency Formation Commission, Alternate	Diane Burgis	5/6/2024		x		STIPEND of \$150 per meeting.

District III Supervisor Burgis

III	Metropolitan Transportation Commission	Federal Glover	2/1/2023				STIPEND of \$100/meeting; up to \$500/month per agency.
III	Bay Area Air Quality Management District Board of Directors	John Gioia	6/17/2025				Per diem of \$100/meeting + travel exp; max \$6,000
III	Bay Area Air Quality Management District Board of Directors	Karen Mitchoff	1/20/2024				Per diem of \$100/meeting + travel exp; max \$6,000
III	Central Contra Costa Transit Authority (CCCTA) Board of Directors	Candace Andersen	5/1/2023				STIPEND of \$100 per meeting; up to \$200 month
III	Central Contra Costa Transit Authority (CCCTA) Board of Directors, Alternate	Karen Mitchoff	5/1/2023				STIPEND of \$100 per meeting; up to \$200 month
III	Contra Costa Transportation Authority Board of Commissioners (Seat 1)	Federal Glover	1/31/2023				STIPEND of \$100 per meeting; up to \$400 month
III	Contra Costa Transportation Authority Board of Commissioners, Alternate (Seat 1)	Candace Andersen	1/31/2023				STIPEND of \$100 per meeting; up to \$400 month
III	Contra Costa Transportation Authority Board of Commissioners, Second Alternate (Seat 1)	Diane Burgis	1/31/2023		x		STIPEND of \$100 per meeting; up to \$400 month
III	Contra Costa Transportation Authority Board of Commissioners, Third Alternate (Seat 1)	John Gioia	1/31/2023				STIPEND of \$100 per meeting; up to \$400 month
III	Marin Energy Authority (MCE) Board of Directors	John Gioia	12/31/2022				NO STIPEND
III	Marin Energy Authority (MCE) Board of Directors, Alternate	Federal Glover	12/31/2022				NO STIPEND
III	Tri Delta Transit Authority, Board of Directors (Seat 1)	Federal Glover	12/31/2022				STIPEND of \$100/month
IV	CCCERA (Contra Costa County Employees Retirement Association) Board of Trustees	Candace Andersen	6/30/2023				STIPEND of \$100 per meeting.
IV	CSAC (California State Association of Counties) Board of Directors	John Gioia	11/30/2022				NO STIPEND
IV	CSAC Board of Directors, Alternate	Diane Burgis	11/30/2022		x		NO STIPEND

District V Supervisor Glover

Type*	Committee Name	Appointee	Term Expiration	New Term Expiration	Preference 1	Preference 2	Stipend Information
I	Airport Committee, Chair	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
I	Airport Committee, Vice Chair	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND
I	Family & Human Services Committee, Chair	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
I	Family & Human Services Committee, Vice Chair	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
I	Finance Committee, Chair	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND
I	Finance Committee, Vice Chair	John Gioia	12/31/2021	12/31/2022			NO STIPEND
I	Hiring Outreach & Oversight Committee, Chair	Federal Glover	12/31/2021	12/31/2022	X		NO STIPEND
I	Hiring Outreach & Oversight Committee, Vice-Chair	John Gioia	12/31/2021	12/31/2022			NO STIPEND
I	Internal Operations Committee, Chair	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
I	Internal Operations Committee, Vice Chair	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
I	Legislation Committee, Chair	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
I	Legislation Committee, Vice Chair	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND
I	Public Protection, Chair	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
I	Public Protection, Vice Chair	Federal Glover	12/31/2021	12/31/2022	X		NO STIPEND
I	Sustainability Committee, Chair	John Gioia	12/31/2021	12/31/2022			NO STIPEND
I	Sustainability Committee, Vice Chair	Federal Glover	12/31/2021	12/31/2022	X		NO STIPEND
I	Transportation, Water & Infrastructure Committee, Chair	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
I	Transportation, Water & Infrastructure Committee, Vice Chair	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	Bay Area Counties Caucus	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND
II	Bay Area Counties Caucus, Alternate	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	Bay Area Regional Interoperable Communications System (BayRICS) Authority	Mike Casten	12/31/2021	12/31/2022			NO STIPEND
II	BayRICS Authority, Alternate	Elise Warren	12/31/2021	12/31/2022			NO STIPEND
II	California Identification System Remote Access Network Board (Cal-ID RAN Board)	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	Central Contra Costa Solid Waste Authority	Candace Andersen	Unspecified	Unspecified			STIPEND of \$50/meeting; max of 2 paid/month
II	Central Contra Costa Solid Waste Authority	Karen Mitchoff	Unspecified	Unspecified			STIPEND of \$50/meeting; max of 2 paid/month
II	Contra Costa Health Plan Joint Conference Committee	John Gioia	12/31/2021	12/31/2022			NO STIPEND
II	Contra Costa Health Plan Joint Conference Committee	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	Dougherty Valley Oversight Committee	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	Dougherty Valley Oversight Committee	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
II	East Bay Regional Communication System (EBRCS) Authority Governing Board	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
II	East Bay Regional Communication System (EBRCS) Authority Governing Board, Alternate	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND
II	East Contra Costa County Habitat Conservancy, Governing Board	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	East Contra Costa County Habitat Conservancy, Governing Board, Alternate	Federal Glover	12/31/2021	12/31/2022	X		NO STIPEND
II	East Contra Costa Regional Fee & Finance Authority	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	East Contra Costa Regional Fee & Finance Authority, Alternate	Federal Glover	12/31/2021	12/31/2022	X		NO STIPEND
II	eBART (Bay Area Rapid Transit) Partnership Policy Advisory Committee	Federal Glover	12/31/2021	12/31/2022	X		NO STIPEND
II	eBART (Bay Area Rapid Transit) Partnership Policy Advisory Committee	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	First 5 Children and Families Commission Member	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
II	First 5 Children and Families Commission Alternate Member	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	Hazardous Waste Management Facility Allocation Committee	Candace Andersen	Unspecified	Unspecified			STIPEND of \$150 per meeting.
II	Hazardous Waste Management Facility Allocation Committee, Alternate	Karen Mitchoff	Unspecified	Unspecified			STIPEND of \$150 per meeting.
II	Kensington Solid Waste Committee Alternate	Kate Rauch	12/31/2021	12/31/2022			NO STIPEND
II	Kensington Solid Waste Committee Member	John Gioia	12/31/2021	12/31/2022			NO STIPEND
II	Medical Services Joint Conference Committee, Chair	John Gioia	12/31/2021	12/31/2022			NO STIPEND
II	Medical Services Joint Conference Committee, Vice Chair	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	North Richmond Waste and Recovery Mitigation Fee Committee	John Gioia	12/31/2021	12/31/2022			NO STIPEND
II	North Richmond Waste and Recovery Mitigation Fee Committee, Alternate	Robert Rogers	12/31/2021	12/31/2022			NO STIPEND
II	Open Space/Parks & East Bay Regional Parks District Liaison Committee, Chair	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	Open Space/Parks & East Bay Regional Parks District Liaison Committee, Vice Chair	Federal Glover	12/31/2021	12/31/2022	X		NO STIPEND
II	Pleasant Hill BART/Contra Costa Centre Joint Powers Authority Board of Trustees	Karen Mitchoff	Unspecified	Unspecified			NO STIPEND
II	Pleasant Hill BART/Contra Costa Centre Joint Powers Authority Board of Trustees	Candace Andersen	Unspecified	Unspecified			NO STIPEND
II	State Route 4 Bypass Authority	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	State Route 4 Bypass Authority, Alternate	Federal Glover	12/31/2021	12/31/2022	X		NO STIPEND
II	SWAT (Southwest Area Transportation Committee)	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
II	SWAT, Alternate	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND
II	TRAFFIX (Measure J Traffic Congestion Relief Agency)	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
II	TRAFFIX (Measure J Traffic Congestion Relief Agency), Alternate	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND
II	TRANSPAC (Central County Transportation Partnership and Cooperation)	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND
II	TRANSPAC, Alternate	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
II	TRANSPAC (East County Transportation Planning)	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
II	TRANSPAC, Alternate	Federal Glover	12/31/2021	12/31/2022	X		NO STIPEND
II	Tri-Valley Transportation Council	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND

District V Supervisor Glover

II	Urban Counties of California	Federal D. Glover	12/31/2021	12/31/2022	X		NO STIPEND
II	Urban Counties of California, Alternate	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
II	WCCTAC (West County Transportation Advisory Committee)	John Gioia	12/31/2021	12/31/2022			NO STIPEND
II	WCCTAC, Alternate	Federal Glover	12/31/2021	12/31/2022	X		NO STIPEND
II	West Contra Costa Integrated Waste Management Authority	John Gioia	Unspecified	Unspecified			STIPEND of \$50 per meeting.
II	West Contra Costa Integrated Waste Management Authority, Alternate	Federal Glover	Unspecified	Unspecified	X		STIPEND of \$50 per meeting.
III	Contra Costa Transportation Authority Board of Commissioners (Seat 2)	Karen Mitchoff	1/31/2022	1/31/2024			STIPEND of \$100 per meeting; up to \$400 month
III	Contra Costa Transportation Authority Board of Commissioners, Alternate (Seat 2)	John Gioia	1/31/2022	1/31/2024			STIPEND of \$100 per meeting; up to \$400 month
III	Local Agency Formation Commission	Candace Andersen	5/2/2022	5/2/2026			STIPEND of \$150 per meeting.
III	Local Agency Formation Commission	Federal D. Glover	5/2/2022	5/2/2026	X		STIPEND of \$150 per meeting.
III	Tri Delta Transit Authority, Board of Directors (Seat 2)	Diane Burgis	12/31/2021	12/31/2023			STIPEND of \$100/month
III	WCC Healthcare District Finance Committee	Federal Glover	Unspecified	Unspecified	X		NO STIPEND
III	WCC Healthcare District Finance Committee	John Gioia	Unspecified	Unspecified			NO STIPEND
III	CCTA, Community Based Transportation Steering Committee	Federal Glover	Unspecified	Unspecified	X		NO STIPEND
IV	ABAG Executive Board (Seat 1)	Karen Mitchoff	6/30/2022	6/30/2024			STIPEND of \$150 per meeting.
IV	ABAG Executive Board (Seat 2)	Candace Andersen	6/30/2022	6/30/2024			STIPEND of \$150 per meeting.
IV	ABAG Executive Board, Alternate 1	John Gioia	6/30/2022	6/30/2024			STIPEND of \$150 per meeting.
IV	ABAG Executive Board, Alternate 2	Diane Burgis	6/30/2022	6/30/2024			STIPEND of \$150 per meeting.
IV	ABAG Finance Authority for Nonprofit Corporations Board of Directors and its Executive Committee	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND
IV	ABAG Finance Authority for Nonprofit Corporations Board of Directors and its Executive Committee, First Alternate	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
IV	ABAG Finance Authority for Nonprofit Corporations Board of Directors and its Executive Committee, Second Alternate	Russell Watts	12/31/2021	12/31/2022			NO STIPEND
IV	ABAG General Assembly	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND
IV	ABAG General Assembly, Alternate	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
IV	ABAG Regional Planning Committee	Karen Mitchoff	Unspecified	Unspecified			STIPEND of \$150 per meeting.
IV	Bay Conservation & Development Commission	John Gioia	Unspecified	Unspecified			STIPEND of \$100 per meeting; max of 4 meetings.
IV	Bay Conservation & Development Commission, Alternate	Federal Glover	Unspecified	Unspecified	X		STIPEND of \$100 per meeting; max of 4 meetings.
IV	Contra Costa Countywide Redevelopment Successor Agency Oversight Board	Federal Glover	Unspecified	Unspecified	X		NO STIPEND
IV	Contra Costa Countywide Redevelopment Successor Agency Oversight Board	Karen Mitchoff	Unspecified	Unspecified			NO STIPEND
IV	Delta Diablo Sanitation District Governing Board	Federal Glover	12/31/2021	12/31/2022	X		STIPEND of \$170 per meeting; max of 6 meetings.
IV	Delta Diablo Sanitation District Governing Board, Alternate	Karen Mitchoff	12/31/2021	12/31/2022			STIPEND of \$170 per meeting; max of 6 meetings.
IV	Delta Protection Commission	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
IV	Delta Protection Commission, Alternate	Karen Mitchoff	12/31/2021	12/31/2022			NO STIPEND
IV	Law Library Board of Trustees	Nolan Armstrong	12/31/2021	12/31/2022			NO STIPEND
IV	Mental Health Commission	Candace Andersen	12/31/2021	12/31/2022			NO STIPEND
IV	Mental Health Commission, Alternate	Diane Burgis	12/31/2021	12/31/2022			NO STIPEND
IV	Sacramento-San Joaquin Delta Conservancy Board	Karen Mitchoff	Unspecified	Unspecified			NO STIPEND
IV	Sacramento-San Joaquin Delta Conservancy Board, Alternate	Diane Burgis	Unspecified	Unspecified			NO STIPEND
V	Ad Hoc Committee on COVID-19 Economic Impact and Recovery, Chair	Candace Andersen	Unspecified	Unspecified			NO STIPEND
V	Ad Hoc Committee on COVID-19 Economic Impact and Recovery, Vice Chair	Karen Mitchoff	Unspecified	Unspecified			NO STIPEND
V	Childhood Asthma Ad Hoc Committee, Chair	John Gioia	Unspecified	Unspecified			NO STIPEND
V	Childhood Asthma Ad Hoc Committee, Vice Chair	Federal Glover	Unspecified	Unspecified	X		NO STIPEND
V	Industrial Safety Ordinance/Community Warning System Ad Hoc Committee	John Gioia	Unspecified	Unspecified			NO STIPEND
V	Industrial Safety Ordinance/Community Warning System Ad Hoc Committee	Federal Glover	Unspecified	Unspecified	X		NO STIPEND
V	Northern Waterfront Economic Development Ad Hoc Committee	Federal Glover	Unspecified	Unspecified			NO STIPEND
V	Northern Waterfront Economic Development Ad Hoc Committee	Diane Burgis	Unspecified	Unspecified			NO STIPEND
The Following Committees Should NOT be Reassigned		Term Expiration					
II	Contra Costa Family Justice Alliance	Diane Burgis	12/31/2022				NO STIPEND
II	East County Water Management Association	Diane Burgis	12/31/2022				STIPEND of \$170/meeting; max 6 per month
II	East County Water Management Association, Alternate	Federal Glover	12/31/2022				STIPEND of \$170/meeting; max 6 per month
III	Bay Area Air Quality Management District Board of Directors	Karen Mitchoff	1/20/2024				Per diem of \$100/meeting + travel exp; max \$6,000
III	Local Agency Formation Commission, Alternate	Diane Burgis	5/6/2024				STIPEND of \$150 per meeting.

District V Supervisor Glover

III	Metropolitan Transportation Commission	Federal Glover	2/1/2023				STIPEND of \$100/meeting; up to \$500/month per agency.
III	Bay Area Air Quality Management District Board of Directors	John Gioia	6/17/2025				Per diem of \$100/meeting + travel exp; max \$6,000
III	Bay Area Air Quality Management District Board of Directors	Karen Mitchoff	1/20/2024				Per diem of \$100/meeting + travel exp; max \$6,000
III	Central Contra Costa Transit Authority (CCCTA) Board of Directors	Candace Andersen	5/1/2023				STIPEND of \$100 per meeting; up to \$200 month
III	Central Contra Costa Transit Authority (CCCTA) Board of Directors, Alternate	Karen Mitchoff	5/1/2023				STIPEND of \$100 per meeting; up to \$200 month
III	Contra Costa Transportation Authority Board of Commissioners (Seat 1)	Federal Glover	1/31/2023				STIPEND of \$100 per meeting; up to \$400 month
III	Contra Costa Transportation Authority Board of Commissioners, Alternate (Seat 1)	Candace Andersen	1/31/2023				STIPEND of \$100 per meeting; up to \$400 month
III	Contra Costa Transportation Authority Board of Commissioners, Second Alternate (Seat 1)	Diane Burgis	1/31/2023				STIPEND of \$100 per meeting; up to \$400 month
III	Contra Costa Transportation Authority Board of Commissioners, Third Alternate (Seat 1)	John Gioia	1/31/2023				STIPEND of \$100 per meeting; up to \$400 month
III	Marin Energy Authority (MCE) Board of Directors	John Gioia	12/31/2022				NO STIPEND
III	Marin Energy Authority (MCE) Board of Directors, Alternate	Federal Glover	12/31/2022				NO STIPEND
III	Tri Delta Transit Authority, Board of Directors (Seat 1)	Federal Glover	12/31/2022				STIPEND of \$100/month
IV	CCCERA (Contra Costa County Employees Retirement Association) Board of Trustees	Candace Andersen	6/30/2023				STIPEND of \$100 per meeting.
IV	CSAC (California State Association of Counties) Board of Directors	John Gioia	11/30/2022				NO STIPEND
IV	CSAC Board of Directors, Alternate	Diane Burgis	11/30/2022				NO STIPEND



**Contra
Costa
County**

To: Contra Costa County Fire Protection District Board of Directors

From: Monica Nino, County Administrator

Date: December 14, 2021

Subject: Salary Reallocation of Fire District Chief of Administrative Services

RECOMMENDATION(S):

ADOPT Position Adjustment Resolution No. 25858 to reallocate the salary of Fire District Chief of Administrative Services (APDE) (unrepresented) from eleven step salary plan and grade B82 1894 (\$9,109.36 - \$11,660.76) to 5 step salary plan and grade B85 1894 (\$10,561.03 - \$12,837.00) and place the incumbent employee #60023 (Position #5681) at the new step 5, in the Contra Costa County Fire Protection District.

FISCAL IMPACT:

Upon approval, the cost of reallocating the specific classification is approximately \$11,000 this fiscal year and has an annual impact of approximately \$22,000.

BACKGROUND:

The single position class of Fire District Chief of Administrative Services has overall responsibility for the operation of the payroll, personnel, fiscal and administrative functions in the Contra Costa County Fire Protection District. The Fire District Chief of Administrative Services receives general direction from and reports directly to the Fire Chief and is a key member of the District's executive management team.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR ☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Paul Reyes,
925-655-2049

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:

BACKGROUND: (CONT'D)

The District is currently in the process of annexing East Contra Costa Fire Protection District (ECCFPD). As part of the annexation process, the staffing and salaries of ECCFPD were reviewed and it was noted that the comparable position within ECCFPD had a higher max base salary by approximately 10%. This action will align the Fire District Chief of Administrative Services salary scale with the comparable ECCFPD position.

CONSEQUENCE OF NEGATIVE ACTION:

The District may lose the services of a highly trained executive manager if this action is not approved.

ATTACHMENTS

P300 25858

POSITION ADJUSTMENT REQUEST

NO. 25858
DATE 12/8/2021

Department CCC Fire Protection District

Department No./

Budget Unit No. 7300 Org No. 7300 Agency No. 70

Action Requested: ADOPT Position Adjustment Resolution No. 25858 to reallocate the salary of Fire District Chief of Administrative Services (APDE) (unrepresented) from eleven step salary plan and grade B82 1894 (\$9,109.36 - \$11,660.76) to 5 step salary plan and grade B85 1894 (\$10,561.03 - \$12,837.00) and place the incumbent employee #60023 (Position #5681) at the new step 5, in the Contra Costa County Fire Protection District.

Proposed Effective Date: 1/1/22

Classification Questionnaire attached: Yes ☐ No ☒ / Cost is within Department's budget: Yes ☒ No ☐

Total One-Time Costs (non-salary) associated with request: \$0.00

Estimated total cost adjustment (salary / benefits / one time):

Total annual cost \$11,000.00

Net County Cost \$0.00

Total this FY \$22,000.00

N.C.C. this FY \$0.00

SOURCE OF FUNDING TO OFFSET ADJUSTMENT 100% District Operating Fund

Department must initiate necessary adjustment and submit to CAO.
Use additional sheet for further explanations or comments.

Paul Reyes

(for) Department Head

REVIEWED BY CAO AND RELEASED TO HUMAN RESOURCES DEPARTMENT

Paul Reyes

12/8/2021

Deputy County Administrator

Date

HUMAN RESOURCES DEPARTMENT RECOMMENDATIONS

DATE _____

Reallocate the salary of Fire District Chief of Administrative Services (APDE) (unrepresented) from eleven step salary plan and grade B82 1894 (\$9,109.36 - \$11,660.76) to 5 step salary plan and grade B85 1894 (\$10,561.03 - \$12,837.00) and place the incumbent employee #60023 (Position #5681) at the new step 5, in the Contra Costa County Fire Protection District.

Amend Resolution 71/17 establishing positions and resolutions allocating classes to the Basic / Exempt salary schedule.

Effective: ☐ Day following Board Action.

☒ 1/1/2022(Date)

Tina Pruett

12/8/2021

(for) Director of Human Resources

Date

COUNTY ADMINISTRATOR RECOMMENDATION:

DATE 12/9/2021

☒ Approve Recommendation of Director of Human Resources

☐ Disapprove Recommendation of Director of Human Resources

☐ Other: _____

Paul Reyes

(for) County Administrator

BOARD OF SUPERVISORS ACTION:

Adjustment is APPROVED ☐ DISAPPROVED ☐

David J. Twa, Clerk of the Board of Supervisors
and County Administrator

DATE _____

BY _____

APPROVAL OF THIS ADJUSTMENT CONSTITUTES A PERSONNEL / SALARY RESOLUTION AMENDMENT

POSITION ADJUSTMENT ACTION TO BE COMPLETED BY HUMAN RESOURCES DEPARTMENT FOLLOWING BOARD ACTION

Adjust class(es) / position(s) as follows:

REQUEST FOR PROJECT POSITIONS

Department _____

Date 12/9/2021

No. xxxxxx

1. Project Positions Requested:
2. Explain Specific Duties of Position(s)
3. Name / Purpose of Project and Funding Source (do not use acronyms i.e. SB40 Project or SDSS Funds)
4. Duration of the Project: Start Date _____ End Date _____
Is funding for a specified period of time (i.e. 2 years) or on a year-to-year basis? Please explain.
5. Project Annual Cost
 - a. Salary & Benefits Costs: _____
 - b. Support Costs: _____
(services, supplies, equipment, etc.)
 - c. Less revenue or expenditure: _____
 - d. Net cost to General or other fund: _____
6. Briefly explain the consequences of not filling the project position(s) in terms of:
 - a. potential future costs
 - b. legal implications
 - c. financial implications
 - d. political implications
 - e. organizational implications
7. Briefly describe the alternative approaches to delivering the services which you have considered. Indicate why these alternatives were not chosen.
8. Departments requesting new project positions must submit an updated cost benefit analysis of each project position at the halfway point of the project duration. This report is to be submitted to the Human Resources Department, which will forward the report to the Board of Supervisors. Indicate the date that your cost / benefit analysis will be submitted
9. How will the project position(s) be filled?
 - ☐ a. Competitive examination(s)
 - ☐ b. Existing employment list(s) Which one(s)? _____
 - ☐ c. Direct appointment of:
 - ☐ 1. Merit System employee who will be placed on leave from current job
 - ☐ 2. Non-County employee

Provide a justification if filling position(s) by C1 or C2

USE ADDITIONAL PAPER IF NECESSARY



Contra Costa County

To: Board of Supervisors
From: Deborah R. Cooper, Clerk-Recorder
Date: December 14, 2021

Subject: Add Network Administrator II Position in Clerk-Recorder Department

RECOMMENDATION(S):

ADOPT Position Adjustment Resolution No. 25850 to add one Network Administrator II (LNSB) (represented) position at salary plan and grade ZA5 1787 (\$7,950 - \$9,663) in the Clerk-Recorder Department.

FISCAL IMPACT:

\$185,535 annually. 100% County General Fund, partially offset by charges to agencies served by Elections.

BACKGROUND:

With new mandates on elections officials, elections are growing in complexity and technical sophistication. Technology and cybersecurity requirements, as well as multiple additions to the number of integrated technologies, create an environment that cannot be supported by existing staff. The Department continues to face intense scrutiny for security (physical and cyber-security), and the threat landscape is ever-changing. Cybersecurity cannot be done in a defensive mode. The Department must be vigilant and proactive.

The staff that currently oversee the Clerk-Recorder IT functions are also responsible for duties related to conducting elections. Election processes take precedence in order to meet

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Debi Cooper (925)
335-7899

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Sylvia Wong-Tam

BACKGROUND: (CONT'D)

statutory deadlines. Current staff do not have time to perform the parallel cybersecurity processes while conducting the election processes. The addition of a Network Administrator II is necessary to oversee the Elections networks, integrated technology systems and cybersecurity.

CONSEQUENCE OF NEGATIVE ACTION:

Without sufficient technology and management support for our IT and cybersecurity needs, the Elections Division may not have sufficient protections in place to prevent a cyber attack.

ATTACHMENTS

P300 25850

POSITION ADJUSTMENT REQUEST

NO. 25850
DATE 12/2/2021

Department Clerk-Recorder

Department No./

Budget Unit No. 0043 Org No. 2353 Agency No. 24

Action Requested: Add one Network Administrator II (LNSB) position.

Proposed Effective Date: 12/15/2021

Classification Questionnaire attached: Yes ☐ No ☒ / Cost is within Department's budget: Yes ☒ No ☐

Total One-Time Costs (non-salary) associated with request: _____

Estimated total cost adjustment (salary / benefits / one time):

Total annual cost \$185,000.00

Net County Cost \$185,000.00

Total this FY \$92,000.00

N.C.C. this FY \$92,000.00

SOURCE OF FUNDING TO OFFSET ADJUSTMENT Department budget/Vacancy factor

Department must initiate necessary adjustment and submit to CAO.

Use additional sheet for further explanations or comments.

(for) Department Head

REVIEWED BY CAO AND RELEASED TO HUMAN RESOURCES DEPARTMENT

/s/ Julie DiMaggio Enea

12/2/2021

Deputy County Administrator

Date

HUMAN RESOURCES DEPARTMENT RECOMMENDATIONS

DATE _____

Add one Network Administrator II (LNSB) (represented) position at salary plan and grade ZA5 1787 (\$7,950 - \$9,663) in the Clerk-Recorder Department.

Amend Resolution 71/17 establishing positions and resolutions allocating classes to the Basic / Exempt salary schedule.

Effective: ☒ Day following Board Action.

☐ _____(Date)

Alycia Leach

12/6/2021

(for) Director of Human Resources

Date

COUNTY ADMINISTRATOR RECOMMENDATION:

DATE 12/8/21

☒ Approve Recommendation of Director of Human Resources

☐ Disapprove Recommendation of Director of Human Resources

☐ Other: _____

/s/ Julie DiMaggio Enea

(for) County Administrator

BOARD OF SUPERVISORS ACTION:

Adjustment is APPROVED ☐ DISAPPROVED ☐

Monica Nino, Clerk of the Board of Supervisors
and County Administrator

DATE _____

BY _____

APPROVAL OF THIS ADJUSTMENT CONSTITUTES A PERSONNEL / SALARY RESOLUTION AMENDMENT

POSITION ADJUSTMENT ACTION TO BE COMPLETED BY HUMAN RESOURCES DEPARTMENT FOLLOWING BOARD ACTION

Adjust class(es) / position(s) as follows:

REQUEST FOR PROJECT POSITIONS

Department _____

Date _____

No. _____

1. Project Positions Requested:
2. Explain Specific Duties of Position(s)
3. Name / Purpose of Project and Funding Source (do not use acronyms i.e. SB40 Project or SDSS Funds)
4. Duration of the Project: Start Date _____ End Date _____
Is funding for a specified period of time (i.e. 2 years) or on a year-to-year basis? Please explain.
5. Project Annual Cost
 - a. Salary & Benefits Costs: _____
 - b. Support Costs: _____
(services, supplies, equipment, etc.)
 - c. Less revenue or expenditure: _____
 - d. Net cost to General or other fund: _____
6. Briefly explain the consequences of not filling the project position(s) in terms of:
 - a. potential future costs
 - b. legal implications
 - c. financial implications
 - d. political implications
 - e. organizational implications
7. Briefly describe the alternative approaches to delivering the services which you have considered. Indicate why these alternatives were not chosen.
8. Departments requesting new project positions must submit an updated cost benefit analysis of each project position at the halfway point of the project duration. This report is to be submitted to the Human Resources Department, which will forward the report to the Board of Supervisors. Indicate the date that your cost / benefit analysis will be submitted
9. How will the project position(s) be filled?
 - ☐ a. Competitive examination(s)
 - ☐ b. Existing employment list(s) Which one(s)? _____
 - ☐ c. Direct appointment of:
 - ☐ 1. Merit System employee who will be placed on leave from current job
 - ☐ 2. Non-County employee

Provide a justification if filling position(s) by C1 or C2

USE ADDITIONAL PAPER IF NECESSARY



**Contra
Costa
County**

To: Board of Supervisors
From: Brian M. Balbas, Public Works Director/Chief Engineer
Date: December 14, 2021

Subject: Accept the 2021 Semi Annual Report of Real Estate Delegation of Leases and Licenses, dated January 1, 2021 through June 30, 2021.

RECOMMENDATION(S):

ACCEPT the 2021 Semi Annual Report of Real Estate Delegation of Leases and Licenses, dated January 1, 2021 through June 30, 2021, as recommended by the Public Works Director, to lease real property for use by the County or to obtain the use of real property for the County by license and to amend real property leases or licenses to permit improvements or alterations, or both, under certain circumstances, Concord and Martinez areas.

FISCAL IMPACT:

No fiscal impact.

BACKGROUND:

Pursuant to the Contra Costa County, Ordinance Code, Title 11, Division 1108, Chapter 1108-10.002, the Board of Supervisors authorizes the Public Works Director, or designee, to perform all acts necessary to lease or license real property for use by the County if the term does not exceed five years and the rent does not exceed \$7,500 per month and to amend real property leases or licenses to permit improvements or alterations, or both, under the following conditions: (1) the total cost under an amendment may not exceed

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Jessica Dillingham,
925-957-2453

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:

BACKGROUND: (CONT'D)

\$7,500; (2) an amendment may not extend the term of the lease or license; and (3) no more than two amendments, not to exceed \$7,500 each, may be made within a 12-month period.

The Public Works Director shall submit a semi-annual report to the Board of Supervisors on each lease or license done pursuant to this section, including the interest acquired, its price, and the necessity for the lease or license, which is describe in the attached Semi-Annual Delegation of Leases and Licenses Report.

CONSEQUENCE OF NEGATIVE ACTION:

The Board of Supervisors would not be informed of the leases and licenses accepted by the Public Works Director pursuant to Contra Costa County Ordinance Code.

ATTACHMENTS

2021 Semi Annual Report

2021 Semi- Annual Delegation of Leases and Licenses Report

January 2021 - June 30, 2021

LICENSES					
Project Name/ Property Address/ APN	City	Purpose	Fee	Term	Licensor
Former Concord Naval Weapons Station/ APN 111-010-017	Concord	Use of Former Naval Weapons Station for Training.	N/A	4/16/2021 - 4/15/2022	United States of America by the Secretary of the Navy

LEASES					
Property Address	City	Purpose	Lease Amount	Term	Owner
1320 Arnold Dr., Ste 162 & 167	Martinez	Lease for Health Services Department- Payroll Division	\$56,328.00	4/5/2021-5/31/2023	RPE Muir, LLC
1340 Arnold Dr., Ste 225	Martinez	Lease for Health Services Department - Behavioral Health	\$113,715.00	4/22/2021-7/31/2023	RPE Muir, LLC
1340 Arnold Dr., Ste 227	Martinez	Lease for Health Services Department - Health Services	\$69,573.00	4/22/2021-7/31/2023	RPE Muir, LLC
1340 Arnold Dr., Ste 229	Martinez	Lease for Health Services Department - Financial Counselors Group	\$61,698.00	4/22/2021-7/31/2023	RPE Muir, LLC



**Contra
Costa
County**

To: Board of Supervisors
From: Kathy Gallagher, Employment & Human Services Director
Date: December 14, 2021

Subject: Early Head Start Childcare Partnership Grant Extension

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Employment and Human Services Director, or designee, to submit an application to the U.S. Department of Health and Human Services, Administration for Children and Families (ACF) to extend the grant project period to allow sufficient time to complete grant activities under the Early Head Start Child Care Partnership grant, including the facility renovation and construction of the central kitchen, for the term January 1, 2022 through December 31, 2022.

FISCAL IMPACT:

The Board Order will extend the grant period to expend the previously board approved (C.42 - approved 04/20/2021; amount of \$1,457,564) carry-over budget of unobligated Federal funds from the Administration for Children and Families (ACF) Office of Head Start in the amount of \$1,457,562 for the Early Head Start Child Care Partnership Program. ACF's Notice of Award (NOA), dated 11/12/2021, is for the amount of \$1,457,562. No local match is required. (CFDA #93.600) (100% Federal)

BACKGROUND:

The Administration for Children and Families (ACF) allows grantees to

<input checked="" type="checkbox"/> APPROVE	<input type="checkbox"/> OTHER
<input checked="" type="checkbox"/> RECOMMENDATION OF CNTY ADMINISTRATOR	<input type="checkbox"/> RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: V. Kaplan, (925)
608-5052

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:

BACKGROUND: (CONT'D)

carry-over unobligated funds to the next grant period to allow grantees to complete unfinished program initiatives and projects that were identified in the previous years' operation, but are still work-in-progress in the current grant period. Additionally, ACF issued Information Memorandum 21-01, Updated Coronavirus Disease 2021 (COVID-19) Fiscal and Administrative Flexibilities, allowing grantees to request extensions on expiring awards.

The Board approved the submission of a grant application to ACF for Early Head Start Child Care Partnership (EHS-CCP) grant funds on August 16, 2016 (C.37). As a result, the County was awarded funding in the amount not to exceed \$5,000,000 for the budget period of January 1, 2017 through December 31, 2017 to address program initiative of health and safety, nutrition, disabilities and mental health of families as well as professional development of Early Head Start staff. Community Services Bureau (CSB) was unable to fully utilize the initial grant amount due to many factors such as an inability to hire qualified teaching staff, difficulty in finding qualified partners/sub-recipients and project delays.

ACF recognized these difficulties and granted the roll-over of the unspent portion of \$4,035,918 into the grant period of September 1, 2018 through August 31, 2019, in addition to the new grant funding of \$3,540,487 (May 1, 2018, C.20) for the same budget period. During this budget period, Employment and Human Services Department (EHSD), Community Services Bureau (CSB), was able to meet its program initiatives, however, was unable to fully utilize the amount of unobligated funds of \$1,798,050 when the grant period ended on August 31, 2019 as a result of delays in the completion of County Public Works projects. The carry-over request of \$1,798,050 is the result of unobligated funds of \$450,234 from the basic grant of \$3,540,487 and \$1,347,816 from the first carry-over amount of \$4,035,918.

ACF recognized the Grantee's situation and agreed to extend the grant period of the unobligated funds from the period September 1, 2019 through August 31, 2020. The Board approved this carry-over of unobligated funds under EHS-CCP in the amount of \$1,798,050 on April 28, 2020 (C.20).

CSB then identified an unobligated balance from the grant budget period of September 1, 2019 through August 31, 2020. The Board approved to carry-over unobligated funds in the amount of \$1,457,564 for the period April 1, 2021 through December 31, 2021 on April 20, 2021 (C.42).

This Board Order is to approve the submission of an application to request an extension of the project period for EHS-CCP to allow sufficient time to fully expend based on the 2021 carry-over of unobligated funds. Due to the complexity of ACF's pre-approval requirements for facility renovation, additional time is needed for ACF to review and approve CSB's proposed renovation and construction of the central kitchen facility. The Head Start Policy Council approved this action at their November 17, 2021 meeting.

CONSEQUENCE OF NEGATIVE ACTION:

If not approved, the County will lose funding required to complete budgeted facilities projects which will have adverse effects on the health and safety of children being served.

CHILDREN'S IMPACT STATEMENT:

The Head Start program of the Community Services Bureau of the Employment and Human Services Department supports three (3) of Contra Costa County's community outcomes - Outcome 1: Children Ready for and Succeeding in School, Outcome 3: Families that are Economically Self-sufficient, and Outcome 4: Families that are Safe, Stable, and Nurturing. These outcomes are achieved by offering comprehensive services, including high quality early childhood education, nutrition, and health services to low-income children throughout Contra Costa County.



**Contra
Costa
County**

To: Board of Supervisors
From: Kathy Gallagher, Employment & Human Services Director
Date: December 14, 2021

Subject: Continued Funding Application Fiscal Year 2022-2023 for California State Preschool Program

RECOMMENDATION(S):

ADOPT Resolution No. 2021/407 to approve and authorize the Employment and Human Services Director, or designee, to apply for and accept grant funding from the California State Preschool Program (CSPP) in an amount not to exceed \$11,562,313 for CSPP services for the period July 1, 2022 through June 30, 2023, and authorize the Employment and Human Services Director to sign the continued CSPP funding application.

FISCAL IMPACT:

This agreement is funded 100% by State California Department of Education funding and there is no County match required.

BACKGROUND:

California State Preschool Program (CSPP) funded by California Department of Education (CDE) is a state program that promotes the school readiness of children ages three (3) through five (5) years old from low-income families by enhancing their cognitive, social and emotional development. CSPP provides a learning environment that supports children's growth in the following domains: Language and literacy; cognition and general knowledge; physical development and health; social and emotional development; and approaches to learning. Children and families access these through various

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: V. Kaplan, (925)
608-5052

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:

BACKGROUND: (CONT'D)

service models, including: directly operated centers or community partner school/centers that children attend part or full-day.

California Code of Regulations, Title 5 (5 CCR) states, "Contractors that intend to accept the offer to continue services in the subsequent contract period shall respond to a Continued Funding Application request from the Child Development Division in accordance with the instructions and timelines specified in the request." On November 5, 2021, CDE issued Management Bulletin 21-14 notifying CSPP Executive Officers and Program Directors of changes to the Continued Funding Application (CFA) process for Fiscal Year 2022-2023. As part of the process, a board order is required authorizing the signature of Employment and Human Services Director on the Continued Funding Application for Fiscal Year 2022-2023. By authorizing the signature of Employment and Human Services Director, the application will meet all requirements for submission of FY 2022-2023 CFA to CDE.

Approval of this Board order will allow the continued provision of the CSPP services to program eligible children and families.

CONSEQUENCE OF NEGATIVE ACTION:

If not approved, the County will not receive funding to operate California State Preschool Programs.

CHILDREN'S IMPACT STATEMENT:

This board order supports three of the community outcomes established in the Children's Report Card: 1) "Children Ready for and Succeeding in School"; 3) "Families that are Economically Self-sufficient"; and, 4) "Families that are Safe, Stable, and Nurturing" by offering comprehensive services, including high quality early childhood education, nutrition, and health services to low-income children throughout Contra Costa County.

ATTACHMENTS

Resolution 2021/407

CSPP Continued Funding Application FY2022-2023

Additional Board Members for CSPP Continued Funding Application

THE BOARD OF SUPERVISORS OF CONTRA COSTA COUNTY, CALIFORNIA
and for Special Districts, Agencies and Authorities Governed by the Board

Adopted this Resolution on 12/14/2021 by the following vote:

AYE: ☐

NO: ☐

ABSENT: ☐

ABSTAIN: ☐

RECUSE: ☐



Resolution No. 2021/407

IN THE MATTER OF: Continued Funding Application Fiscal Year 2022-2023 for California State Preschool Program (CSPP).

WHEREAS, the Employment and Human Services Department provides California State Preschool Program (CSPP) services that promotes the school readiness of children ages three (3) through five (5) years old from low-income families by enhancing their cognitive, social and emotional development, and **WHEREAS**, CSPP provides a learning environment that supports children's growth in the following domains: Language and literacy; cognition and general knowledge; physical development and health; social and emotional development; and approaches to learning, and **WHEREAS**, children and families access these through various service models, including: directly operated centers or community partner school/centers that children attend part or full-day, and **WHEREAS**, this Board Order is to apply for and accept grant funding from the California State Preschool Program (CSPP) in an amount not to exceed \$11,562,313 for CSPP services for the period July 1, 2022 through June 30, 2023, and **WHEREAS**, authorize the Employment and Human Services Director to sign the continued funding application.

NOW, THEREFORE, BE IT RESOLVED: The Contra Costa County Board of Supervisors approve and authorize the Employment and Human Services Director, or designee, to apply for and accept grant funding from the California State Preschool Program (CSPP) in an amount not to exceed \$11,562,313 for CSPP services for the period July 1, 2022 through June 30, 2023 and authorize the Employment and Human Services Director to sign the continued CSPP funding application.

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

Contact: V. Kaplan, (925) 608-5052

ATTESTED: December 14, 2021

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:

California State Preschool Program Continued Funding Application Fiscal Year 2022–23

California State Preschool Program (CSPP) contractors who wish to be considered for continued funding for fiscal year (FY) 2022–23 must read the accompanying instructions and fully and accurately complete this application for continued funding. Instructions may be accessed on the Continued Funding Application (CFA) web page at: <https://www.cde.ca.gov/sp/cd/ci/cfaforms2223.asp>.

Please note that CSPP contractors have no vested right to a subsequent contract. Completion of this CFA does not guarantee a renewal of funding. Upon completion of this CFA the California Department of Education (CDE) will review the application and may contact your agency seeking additional information. If the CDE determines your agency will not be renewed for a subsequent contract year, you will be notified in writing no later than April 7, 2022, pursuant to the *California Code of Regulations*, Title 5 (5 CCR). CSPP contractors who apply for and are approved for continued funding do not need to sign a contract with the CDE to provide CSPP services for FY 2022–23, as contracts will be automatically renewed in accordance with all applicable federal and state laws as well as all CSPP Funding Terms and Conditions and Program Requirements that will be incorporated into the 2022–23 CSPP contract. By signing this CFA, the CSPP contractor is indicating that it wishes to automatically renew the CSPP contract for FY 2022–23 and is willing to, and does accept, all of the terms and conditions of the CSPP contract, which will be provided to the CSPP contractor no later than June 1, 2022. The CSPP contractor may reject the FY 2022–23 CSPP contract by providing the CDE with a written notice no later than July 1, 2022. Instructions on how to provide written notice of rejection of the terms of the new FY 2022–23 contract will be provided in forthcoming communication, on or before June 1, 2022, to CSPP contractors.

Failure to submit the CFA in a timely manner shall constitute as a notice to the CDE of the intent to discontinue services at the end of the current contract year, unless the CSPP contractor has received a written notice of extension of time from the CDE. If the CFA is returned to the CDE in a timely manner but is not fully and accurately completed, funding for FY 2022–23, if approved, may be delayed.

If you have any questions regarding the CFA, please contact CFA@cde.ca.gov.

Section I – CSPP Contractor Information

Legal Name of CSPP Contractor:

CSPP Contractor *Doing Business As* (DBA):

Headquartered County:

Vendor Number:

Executive Director Name:

Executive Director Telephone Number:

Executive Director Fax Number:

Executive Director Email Address:

Legal Business Address:

City:

Zip Code:

Mailing Address (if different from above):

City:

Zip Code:

Name of Person Completing the CFA:

Title of Contact Person Completing the CFA:

Contact Person Telephone Number:

Contact Person Email Address:

Contractor Name:

Vendor #: County:

Section II – CSPP Contract Type

Check all applicable boxes indicating the programs the CSPP contractor intends to continue to administer for the Fiscal Year 2022–23. The CSPP contractor agrees to continue implementation of these programs with funds provided by the CDE.

CSPP Type

Full-Day/Full-Year

Part-Day/Part-Year

Family Childcare Home Education Network

Contractor Name:

Vendor #: County:

Section III – CSPP Contractor’s Officers and Board of Directors Information

Does the CSPP contractor have a board of directors? Yes No

If no, please explain the entity type and the governance structure (i.e., number of owners and partnership).

Have any of the listed officers, board members, owners or other governing individuals ever served as an officer, board member, owner or governing individual with an agency that received state or federal funding and which agency funding was terminated or involuntarily non-renewed, or the agency was debarred from funding for any period of time?

Yes

No

If yes, list on a separate page the officer(s), board member(s), owner(s) or other governing individual(s) to which this applies and include the former agency(ies) with which the individual(s) was/were previously affiliated and the circumstances leading to the termination, involuntary non-renewal or debarment.

List all officers and board members/governing individuals (i.e., owner, director, etc.) Attach additional sheets as necessary.

Officer, Board Member, Owner or Governing Individual Name	Title	Telephone Number	Mailing Address	Email Address

Contractor Name:

Vendor #: County:

Section IV – Program Narrative

- A. Please select the box below if the CSPP contractor **does not** have programmatic **or** calendar changes to their CSPP.

No changes

- B. Please select all applicable fields below if the CSPP contractor **does** have programmatic **or** calendar changes to their CSPP. Programmatic or calendar changes require completion of a form ELCD 3704A. This form is available on the CFA web page at: <https://www.cde.ca.gov/sp/cd/ci/cfaforms2223.asp>.

Note: Program calendars must be submitted for both the part-day/part-year CSPP and the full-day/full-year CSPP, as applicable. Making changes to the Minimum Days of Operation (MDO) does not change the contract Maximum Reimbursable Amount (MRA).

Programmatic change

Calendar change

Contractor Name:

Vendor #: County:

Section V – CSPP Personnel Certification

The State of California requires any CSPP contractor receiving child care and development funds, disbursed by the CDE, to employ fully qualified personnel as stipulated in the *California Education Code (EC)*; and the *California Code of Regulations*, Title 5 (5 *CCR*); and the Funding Terms and Conditions of the CSPP contract.

I certify, as the authorized agent representing this CSPP contractor, that I have read and understand the staffing requirements for Program Director, Site Supervisor, and Teacher. All staff employed in CDE funded CSPP are fully qualified for their respective positions. The exception to this certification is a person employed as Program Director or Site Supervisor who possesses a current Staffing Qualifications Waiver approved by the Early Education Division (ELCD).

**Signature of the CSPP Contractor's
Authorized Representative:**

**Printed Name and Title of the CSPP
Contractor's Authorized
Representative:**

Date of Signature:

**Authorized Representative's
Telephone Number:**

**Authorized Representative's
Email Address:**

Contractor Name:

Vendor #: County:

Section VI – Subcontract Certification

- A. Please select the box below if the CSPP contractor **does not** have subcontractors, and move to section VII:

No subcontractors

- B. Please select the box below if the CSPP contractor **does** have subcontractors, and complete the information and sign in the section below. CSPP Contractors who subcontract CSPP services will need to complete and submit the form ELCD 3704B. The form is available on the CFA web page at:

<https://www.cde.ca.gov/sp/cd/ci/cfaforms2223.asp>.

Subcontractors

I certify that the contractual arrangement(s) listed above are made in adherence to the required subcontract provisions contained in the 5 CCR, and the Funding Terms and Conditions of the CSPP contract.

I understand that signing this certificate does not lessen the legal responsibility for the CSPP contract requirements. As the CSPP contractor, it is my responsibility to monitor the performance of the subcontractor to ensure services are provided appropriately through the entire contract term.

**Signature of the CSPP Contractor's
Authorized Representative:**

**Printed Name and Title of the CSPP
Contractor's Authorized Representative:**

Date of Signature:

Authorized Representative's Telephone Number:

Authorized Representative's Email Address:

Contractor Name:

Vendor #: County:

Section VII – CSPP Contractor Certification

- Under penalty of perjury, I certify the following:
- I am authorized by the CSPP contractor's Board of Directors or other governing authority to execute this CFA, signifying their intent to automatically renew the current contract for FY 2022–23, under new terms and conditions to be established by the CDE, unless rejected in writing prior to the effective date of the new CSPP contract on July 1, 2022.
- On behalf of the CSPP contractor and its governing authority, we understand some information requested in this CFA is intended for use by CDE auditors in connection with future audit work and performance reviews and may not be used, or even reviewed or considered by the CDE until well after the CSPP contract has expired, if ever. Therefore, we further understand that the information (and any underlying transactions) disclosed by this CFA shall not be considered properly noticed to the CDE, nor approved, accepted or authorized by the CDE, even if our request for continued funding by the CDE is subsequently approved.
- The governing board members have been trained in understanding conflict of interest requirements associated with their positions on the board and have reported all known conflicts of interest.
- I have supervisory authority over the CSPP, have actual, personal knowledge of the information provided in this CFA and certify that it is true and correct in all material respects.
- I am familiar with and will ensure that the CSPP contractor complies with all applicable program statutes and regulations, including:
 - Subcontracting requirements, including competitive bidding, CDE approval, and audit requirements in 5 CCR.
 - Prohibitions on conflicts of interests, including (i) the assurances required to establish that transactions with officers, directors and other related party transactions are conducted at arm's length, and (ii) employment limitations stated in *Education Code*.
 - Cost reimbursement requirements, including reimbursable and non-reimbursable costs, documentation requirements, the provisions for determining the reimbursable amount and other provisions in 5 CCR, Accounting and reporting requirements in 5 CCR.
 - Operational and programmatic requirements.

Contractor Name:

Vendor #: County:

By signing this CFA, the CSPP contractor is indicating that it wishes to automatically renew the current CSPP contract for FY 2022-23 and, if approved, is willing to, and does accept, all of the terms and conditions of the CSPP contract, which will be provided to the CSPP contractor no later than June 1, 2022. The CSPP contractor may reject the FY 2022–23 CSPP contract by providing the CDE with a written notice of rejection no later than July 1, 2022. Instructions on how to provide written notice of rejection of the terms of the new FY 2022–23 contract will be provided in forthcoming communication, on or before June 1, 2022, to CSPP contractors.

**Signature of the CSPP Contractor's
Authorized Representative:**

**Printed Name and Title of the
CSPP Contractor's
Authorized Representative:**

Date of Signature:

**Authorized Representative's
Telephone Number:**

**Authorized Representative's Email
Address:**

Contractor Name:

Vendor #: County:

Section VIII – Certification of CSPP Contractor Information in the Child Development Management Information System

CSPP contractors are required to review all information in the Child Development Management Information System (CDMIS) and update any outdated or incorrect information. To review the information and submit changes, log on to the CDMIS at <https://www4.cde.ca.gov/cdmis/default.aspx>.

As the authorized representative of the CSPP contractor listed below, I certify, under penalty of perjury, that I have reviewed all of the information for

and updates, additions, or deletions have been submitted as needed for information in all of the areas below:

- Executive Director/Superintendent information
 - Program Director information
 - Sites and Licenses and/or Office information
 - CSPP Family Child Care Home Education Network (FCCHEN) provider summary information
-

To the best of my knowledge, the information on the CDMIS website reflects accurate information for the

as of the date this certification is signed.

Program Director/Authorized Representative Signature:

Date Signed:

Printed Name of Program Director/Authorized Representative:

Contractor Name:

Vendor #: County:

Section IX – Required Attachments

All attachments and/or documentation below must be completed and included when submitting the CFA. Attachments A-J are located on the CFA web page at:

<https://www.cde.ca.gov/sp/cd/ci/cfaforms2223.asp>.

- A. Fiscal Year 2022–23 Program Calendar (ELCD-9730)**
- B. Payee Data Record (STD. 204) (Non-public agencies only)**
- C. Payee Data Record Supplement (STD. 205) (Non-public agencies only, as applicable)**
- D. Secretary of State (Non-public agencies only)**
- E. Verification of School District Name and Address (Public agencies only)**
- F. Program Narrative Change (ELCD 3704A) (As applicable)**
- G. Subcontractor Certification (ELCD 3704B) (As applicable)**
- H. California Civil Rights Laws Certification (CO-005)**
- I. Contractor Certification Clauses (CCC 04/2017)**
- J. Federal Certification (CO.8)**
- K. For Public Agencies only, include a copy of the agency’s board resolution and/or minutes authorizing signature on this document, and a delegation of authority, if applicable**

Contractor Name:

Vendor #: County:

Section X – CFA Checklist

Section	Section Description	Page	Check
Section I	CSPP Contractor Information	2	
Section II	CSPP Contract Type	3	
Section III	CSPP Contractor's Officers and Board of Directors Information	4	
Section IV	Program Narrative	5	
Section V*	CSPP Personnel Certification	6	
Section VI*	Subcontractor Certification	7	
Section VII*	CSPP Contractor Certification	8	
Section VIII*	Certification of CSPP Contractor Information in the CDMIS Database	10	
Section IX A.	CSPP Program Calendar(s) (ELCD-9730)	11	
Section IX B.*	State of California, Payee Data Record (STD. 204) (non-public agencies only)	11	
Section IX C.*	Payee Data Record Supplement (STD. 205) (Non-public agencies only)	11	
Section IX D.	Secretary of State search results (non-public agencies only)	11	
Section IX E.	Verification of School District Name and Address search, as applicable	11	
Section IX F.	Program Narrative Change (ELCD 3704A)	Insert after page 5	

Contractor Name:

Vendor #: County:

Section Number	Section Description	Page Number	Check Box
Section IX G.	Subcontractor Certification (ELCD 3704B)	Insert after page 7	
Section IX H.*	California Civil Rights Laws Certification (CO-005)	11	
Section IX I.*	Contractor Certification Clauses (CCC 04/2017)	11	
Section IX J.*	Federal Certification (CO.8)	11	
Section IX K.*	For Public Agencies, include a copy of the agency's board resolution or minutes authorizing signature on this document, and a delegation of authority, if applicable	11	

All Sections must be included in the CFA package, as applicable

***Bolded sections require a signature**

Contractor Name:

Vendor #: County:

[Insert Legal Name of Contractor here.]

00 Select One

Section III – CSPP Contractor's Officers and Board of Directors Information

Does the CSPP contractor have a board of directors? ☒ Yes ☐ No

If no, please explain the entity type and the governance structure (i.e., number of owners and partnership).

--

Have any of the listed officers, board members, owners or other governing individuals ever served as an officer, board member, owner or governing individual with an agency that received state or federal funding and which agency funding was terminated or involuntarily non-renewed, or the agency was debarred from funding for any period of time?

☐ Yes ☒ No

If yes, list on a separate page the officer(s), board member(s), owner(s) or other governing individual(s) to which this applies and include the former agency(ies) with which the individual(s) was/were previously affiliated and the circumstances leading to the termination, involuntary non-renewal or debarment.

List all officers and board members/governing individuals (i.e., owner, director, etc.) Attach additional sheets as necessary.

Officer, Board Member, Owner or Governing Individual Name	Title	Telephone Number	Mailing Address	Email Address
Federal D. Glover	Board of Supervisors	(925) 608-4200	190 E. 4th Street Pittsburg, CA 94565	district5@bos.cc county.us
Karen Mitchoff	Boasrd of Supervisors	(925) 521-7100	2151 Salvio st., Suites R, Concord CA 94520	Supervisormitchoff@bos.cccounty.us



Contra
Costa
County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Grant Agreement #28-390-2 with California Department of Public Health

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute on behalf of the County Grant Agreement #28-390-2 (State #21-10226) including indemnification with the California Department of Public Health (CDPH), to pay the County an amount not to exceed \$1,163,574, for the Perinatal Health Equity Initiative, for the period from July 1, 2021 through June 30, 2023.

FISCAL IMPACT:

Approval of this grant agreement will allow the County to receive funding from the California Department of Public Health through June 30, 2023. No County match is required.

BACKGROUND:

The Perinatal Health Equity Initiative aims to improve birth outcomes in African American communities and was established with the passage of California State Legislature's AB 1810. Contra Costa Health Services - Family, Maternal & Child Health (FMCH) programs have been funded to accomplish a scope of work which includes conducting an environmental scan, engaging community partners in a planning process to determine needs and gain a deeper understanding of the Black community and its infant mortality rate in Contra Costa County, and developing and implementing a public health awareness campaign to raise awareness about pre-term birth and infant mortality.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Ori Tzvieli, M.D.,
925-608-5267

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Marcy Wilhelm

BACKGROUND: (CONT'D)

On May 12, 2020, the Board of Supervisors approved Grant Agreement #28-390-1 with California Department of Public Health for the Perinatal Health Equity Initiative, to pay the County an amount not to exceed \$1,163,574, for the period from October 1, 2019 through June 30, 2021.

Approval of Grant Agreement #28-390-2 will allow the County to continue to receive funding from the California Department of Public Health for the Perinatal Health Equity Initiative through June 30, 2023. This agreement includes agreeing to indemnify the State for any claims arising out of the County's performance under the agreement.

CONSEQUENCE OF NEGATIVE ACTION:

If this agreement is not approved, the County will not receive funding to support the Perinatal Health Equity Initiative for Contra Costa County residents.



**Contra
Costa
County**

To: Board of Supervisors
From: John Kopchik, Director, Conservation & Development Department
Date: December 14, 2021

Subject: Grant Agreement Between the City of Oakland and Contra Costa County - 2020 HOPWA-CV Funds

RECOMMENDATION(S):

1. APPROVE the allocation of the 2020 Housing Opportunities for Persons with HIV/AIDS (HOPWA) Program CARES Act funds as follows: \$122,467 to the County Health Services HIV/AIDS program and \$9,218 for program administration; and
2. APPROVE and AUTHORIZE the Conservation and Development Director, or designee, to enter into a Grant Agreement between the City of Oakland and Contra Costa County that authorizes the County to administer \$131,685 in HOPWA Program CARES Act funds for housing and supportive services for low-income persons with HIV/AIDS in response to the COVID-19 pandemic, for the period April 1, 2020 through August 15, 2022.

FISCAL IMPACT:

No General Fund impact. Housing Opportunities for Persons with HIV/AIDS (HOPWA) funds are provided through the U.S. Department of Housing and Urban Development (HUD) to the City of Oakland, as administering agent.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Kristin Sherk,
925-655-2889

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:

BACKGROUND:

On April 2, 2020, the U.S. Department of Housing and Urban Development (“HUD”) issued a grant award letter to the City of Oakland (City) pursuant to the Coronavirus Aid, Relief, and Economic Security Act (“CARES Act”) that states, among other things, “The supplemental funds provided under the CARES Act are to be used by HOPWA grantees as additional funding to maintain operations and for rental assistance, supportive services, and other necessary actions, in order to prevent, prepare for, and respond to coronavirus.” The City of Oakland is the HUD grantee for both Alameda and Contra Costa Counties.

On October 13, 2020, the Board of Supervisors approved the form to the Grant Agreement for HOPWA Program CARES Act Funds. In April 2021, the City notified the County of revisions to the form of the Grant Agreement. On June 8, 2021, the Board of Supervisors approved the revised form to the Grant Agreement for HOPWA Program CARES Act Funds. Since then, the City has not fully finalized/executed the Grant Agreement and has made additional revisions to the form of the Grant Agreement. The third version/final form of the Grant Agreements for HOPWA Program CARES Act Funds is attached.

The recommendation is to use the allocation of HOPWA Program CARES Act funds to continue Contra Costa Health Service Department's (HSD) HIV/AIDS program activities that include housing advocacy and housing information services, including client intake, housing needs assessment, assistance with locating affordable housing, assistance with housing-related benefit applications, and permanent housing placement (security deposits). CCHS will continue and expand a Short Term Rental Mortgage Utility (STRMU) Assistance program as part of a homelessness prevention strategy to maintain housing in response to the COVID-19 pandemic. The STRMU program is intended to reduce the risks of homelessness and to improve access to health care and other needed support. The CCHS HIV/AIDS group currently manages a STRMU program with HOPWA funds. As proposed CCHS will also manage the HOPWA Program CARES Act STRMU program, which will involve efforts to restore client self-sufficiency and future independence from housing support by the end of the program's term. This will be accomplished using time-limited housing assistance payments for eligible individuals and by the creation of individual housing service plans that include an assessment of current resources and the establishment of long-term goals for recipient households.

DCD requests that the Board of Supervisors approve the recommended allocations and attached Grant Agreement in substantially final form, which has been approved by County Counsel.

CONSEQUENCE OF NEGATIVE ACTION:

If the Board does not approve the Emergency (COVID-19) Grant Agreement with the City of Oakland, the County would not receive and administer \$131,685 in HOPWA Program CARES Act funds, and low-income persons living with HIV/AIDS in the County would lose vital housing and supportive services in response to the public health order related to the COVID-19 pandemic.

ATTACHMENTS

2020 HOPWA Program CARES Act Grant Agreement

**GRANT AGREEMENT
BETWEEN THE CITY OF OAKLAND AND CONTRA COSTA COUNTY
FOR THE 2020 HOPWA PROGRAM CARES ACT**

PARTIES AND EFFECTIVE DATE

This **Grant Agreement** (“Agreement” or “Contract”) dated April 1, 2020 is made and entered into by and between the City of Oakland, a municipal corporation (the “City”), and CONTRA COSTA COUNTY, a political subdivision of the State of California, (the “County” or “Grantee”) . The City and the County are hereinafter collectively referred to as the “Parties.”

Grant Number: CAH20-FHW001

RECITALS

WHEREAS, on April 4, 2020, the U.S. Department of Housing and Urban Development (“HUD”) issued a grant award letter to the City pursuant to the Coronavirus Aid, Relief, and Economic Security Act (“CARES Act”) that states, among other things, “The supplemental funds provided under the CARES Act are to be used by HOPWA [Housing Opportunities for Persons With AIDS] grantees as additional funding to maintain operations and for rental assistance, supportive services, and other necessary actions, in order to prevent, prepare for, and respond to coronavirus.”; and

WHEREAS, on July 3, 2020, the Oakland City Council passed Resolution No. 88202, which, among other things, authorized the City Administrator to award a grant to the County, based on CARES funding, in the not to exceed amount of \$ 131,685, identified as project No. 62 set forth in Exhibit A to said resolution; and

WHEREAS, the City Administrator has determined that using the selection process set forth in Schedule A, the County will contract with one or more nonprofit housing developers (each a “Developer”) and service providers (each a "Sub-recipient") to carry out projects that result in housing development, supportive services, and/or homeless prevention activities for persons with HIV/AIDS that are needed on an emergency basis; and

WHEREAS, funds are available for this Agreement in the Human Services Department Fund (2103), Program [1005319];

Now, therefore, the Parties to this Agreement covenant as follows:

AGREEMENT PROVISIONS

1. **Grant**

Subject to the terms and conditions of this Agreement, the City agrees to provide a grant of funds to Grantee in an amount up to \$131,685 dollars. (the “Grant”).

2. **Scope of Work**

As a condition of this Grant, Grantee must diligently and in good faith perform the community-related work, services, and activities (“Work”) specified in the **Scope of Work** attached to this Agreement and incorporated herein as **Schedule A**.

The County shall select projects to be undertaken (“Activities”) pursuant to this Agreement in accordance with the priority-setting and selection process set forth in Schedule A. A list of Developers, Sub-recipients and Activities approved by both the City and the County will be attached to this Agreement as Schedule A-1 once the list is approved by both the City and the County, which Schedule A-1 shall immediately form part of this Agreement. The County shall use the HOPWA Allocation in accordance with the budget set forth in Schedule B. The HOPWA Allocation may only be used for activities (i) identified in Schedule A-1 that are carried out by the corresponding Developers or Sub-recipients identified on Schedule A-1 and (ii) consistent with the activities described in Section 7 – Use of Funds, below. Amounts received from this Agreement may not be used to replace other amounts made available or designated by State or local governments.

Grantee shall designate an individual who shall be responsible for communications with the City for the duration of this Agreement. The Project Manager for the City shall be Kelly Rush, Program Analyst II, Community Housing Services.

3. Agreement Documents and Provisions

Grantee shall perform or arrange for the performance of Work under this Agreement in accordance with conditions of this Agreement including the attached **Schedule A** in addition to City of Oakland rules, regulations and policies to the extent possible without conflicting with County rules, regulations and policies and except as waived herein, and applicable federal and state laws.

The County shall distribute the HOPWA Allocation to Sub-recipients and Developers in the County of Contra Costa.

Prior to the execution of any proposed contract in connection with this Agreement, the County shall submit to City a staff report allocating funds and describing the proposed Activities to be funded. The City reserves the right to review and approve the contract, and will provide any comments within 15 days of receipt. Following the execution of any contract by the County in connection with this Agreement, the City reserves the right to monitor the performance of the Sub-recipient and/or Developer under the contract to ensure that the County appropriately administers and monitors said contracts.

The County is responsible for ensuring that Sub-recipients and Developers comply with all HOPWA Program requirements, as set forth in 24 CFR Part 574, the AIDS Housing Opportunity Act, as amended by the Housing and Community Development Act of 1992, and any other program requirements imposed by HUD. The relevant requirements are hereby incorporated into this Agreement by reference. The County will ensure all Activities are carried out in compliance with the following federal laws and regulations:

- a. Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (URA) (42 U.S.C. 4601-4655) and implementing regulations at 49 CFR part 24
- b. The Lead-Based Paint Poisoning Prevention Act (42 U.S.C. 4821-4846) and the Residential Lead-Based Paint Hazard Reduction Act of 1992 (42 U.S.C.

4851- 4856), and implementing regulations at 24 CFR Part 35;

- c. Flood Disaster Protection Act of 1973 (42 U.S.C. 4001 et seq.); and
- d. The Coastal Barrier Resources Act, 16 U.S.C. 3501
- e. Applicability of OMB Circulars (24 CFR Part 574, Subpart G, 574.605)
- f. The requirements of the Coronavirus Aid, Relief, and Economic Security Act (“CARES Act”) (Public Law No. 116-136) (3/27/20), as made applicable to thereceipt and use of HOPWA supplemental funds under this Agreement

4. Time of Performance

The Grant term shall begin on April 1, 2020, and shall end on August 15, 2022

5. Method of Payment

Grantee shall be paid for the performance of the Work set forth in the Scope of Work in accordance with the Program Budget included in the Scope of Work. Payments shall be made in the amounts stated in the Scope of Work and shall be based on actual eligible costs, fees and expenses incurred by Grantee for the Work. Payments shall be due upon completion of the Work or as otherwise specified in the Scope of Work. Grantee shall submit an invoice accompanied by an itemization of expenditures submitted for reimbursement prepared on the City’s expense forms. Invoices shall state a description of the Work completed, itemized costs, fees and expense and the amount due.

The County may submit requests for payment to the City no more than once per month and not less than once per quarter. When submitting a request for payment, the County shall use the Request for Payment form. Each Request for Payment form will include a summary of the funds expended, by budget category and Sub-recipients and Developers, for the months for which funds are requested.

The County shall retain, for review by the City, documentation to support the funding requested. In order to receive payment, each request must be substantiated by documentation reasonably sufficient to support the payment requested by the County including documentation of rate and hours for staff and consultant and invoices for non-personnel costs. The County shall grant access to representatives of the City to any supporting documentation within seven days after receipt of a written request by the City.

Any income generated by the County from the use of HOPWA Funds governed by this Agreement shall be considered HOPWA program income. All HOPWA program income shall be retained by the County for the term of this Agreement. The use of all HOPWA program income is reserved specifically for HOPWA-eligible Activities listed in Schedule A-1 and is subject to the terms of this Agreement. Any program income held by the County at the time of the Request for Payment will be used to reduce the total amount disbursed to the County.

Funds disbursed to the County may not exceed the amount set forth in the Budget attached as Schedule B or the amount of the HOPWA Allocation as set forth in section 2 herein. The City shall verify and approve requisitions and required supporting data for accuracy and programmatic compliance prior to payment. Relevant reports and documents are to be

submitted as required within the context of this Agreement. The County's failure to comply with these requirements will cause a delay in payment and could result in termination of the Agreement. The City shall be responsible for the IDIS system, setting up all projects and activities, and tracking budgets in the HUD system. The City shall draw funds as required for timely reimbursement. The County shall assist the City in IDIS management as needed and as requested by City.

All authorized financial obligations incurred in the performance of this Agreement must be reported to the City within sixty (60) days of the expiration of the Performance Period under the Agreement, as such period may be adjusted from time to time. No claims submitted after the sixty-day period shall be recognized as binding upon the City for reimbursement. Any financial obligation and/or debts incurred by the County and not reported to the City within the sixty-day period may become the sole liability of the County, and the City may be relieved of any and all responsibilities unless there is a justifiable cause and valid reason of delayed submission.

Subject to applicable requirements described in HOPWA regulation Title 24 C.F.R. sections 574.310, 574.320, 574.330, and 574.340, HOPWA Allocation is meant to assist all forms of housing designed to assist Low Income Persons with HIV/AIDS, including preventing homelessness, providing emergency housing, shared housing arrangements, apartments, single room occupancy (SRO) dwellings, and community residences. Appropriate supportive services, as required by section 574.310(a), must be provided as part of any HOPWA-assisted housing, but the County may use the HOPWA Allocation to provide services independent of any housing activity. The County shall ensure that the HOPWA Allocation is used only for HOPWA-eligible activities as approved by the City identified in Schedule A-1 and that fall under one or more of the following activity categories:

- a. Housing information services including, but not limited to, providing counseling, information and referral to assist an eligible person to locate, acquire, finance and maintain housing. This may include Fair Housing counseling for eligible persons who may encounter discrimination on the basis of race, color, religion, sex, age, national origin, familial status, or handicap;
- b. Resource identification to establish, coordinate and develop housing assistance resources (preliminary research, determining feasibility of specific housing related initiatives).
- c. Acquisition, rehabilitation, conversion, lease, and repair of facilities to provide housing and services.
- d. New construction (SROs and community residences only).
- e. Project or tenant-based rental assistance, including assistance with shared housing arrangements.
- f. Short-term rent, mortgage, and utility payments to prevent homelessness.
- g. Supportive services including, but not limited to health, mental health assessment, permanent housing placement, drug and alcohol abuse treatment and counseling,

day care, personal assistance, nutritional services, intensive care when required, and assistance in gaining access to local State and Federal government benefits and services, except that health services may only be provided to individuals with acquired immunodeficiency syndrome or related diseases and not to family members of these individuals;

- h. Operating costs for housing, including maintenance, security, operation, insurance, utilities, furnishings, equipment and other incidental costs.
- I. Technical assistance in establishing and operating a community residence, including planning and other predevelopment or pre-construction expenses and outreach and education regarding HIV/AIDS to persons residing in close proximity.

The documents submitted shall be reviewed and approved for payment by the Project Manager. The City shall have sole and absolute discretion to determine the sufficiency of supporting documentation for payment. Determination of satisfactory completion of the Scope of Work will be based on an overall assessment of the progress Grantee has made towards achieving the goals of the Agreement and the performance measures.

All authorized obligations incurred in the performance of the terms of this Agreement must be reported to the City within 30 days following the completion or termination of this Agreement. No claims submitted after the 30-day period will be recognized as binding upon the City for payment. Any obligations and/or debts incurred by Grantee and not reported to the City within the 30-day period become the sole liability of Grantee, and the City shall be relieved of any and all responsibilities.

6. Prompt Payment

This Agreement is subject to the Prompt Payment Ordinance codified in Chapter 2.06 of the Oakland Municipal Code. Under said Ordinance, the City must disburse Grant funds to Grantee within 20 business days after receipt of an undisputed request for payment. An undisputed request for payment is a request for payment that is not a "disputed invoice" within the meaning of the Prompt Payment Ordinance. Under the Ordinance, a "disputed invoice" is an invoice or request for payment that is either (1) improperly executed by Grantee, (2) contains errors, (3) requires additional evidence to determine its validity, and/or (4) contains expenditures or proposed expenditures that are ineligible or that do not otherwise comply with reimbursement or disbursement requirements of the City or another grant funding source. If a request for payment is "disputed", the payment/disbursement shall not be subject to late penalties until the dispute is resolved. In the event a request for payment is disputed, the City shall notify Grantee and the City's Liaison (as defined in the Prompt Payment Ordinance) in writing within five business days of receiving the disputed request for payment that there is a bona fide dispute, in which case the City shall withhold the disputed amount and may withhold the full amount if the funding source for the Grant requires that the disputed expenditures be fully resolved prior to any disbursement of Grant funds. If the funding source for the Grant requires review and approval before payments are made to Grantee, this period shall be suspended for any period of review by said agency. If any amount due by the City to be disbursed to a Project Sponsor

pursuant to this Agreement is not timely paid in accordance with the Prompt Payment Ordinance, the Project Sponsor is entitled to interest penalty in the amount of 10% of the improperly withheld amount per year for every month that payment is not made, provided that the Project Sponsor agrees to release the City from any and all further claims for interest penalties that may be claimed or collected on the amount due and paid. Grant recipients that receive interest penalties for late payment pursuant to the Prompt Payment Ordinance may not seek further interest penalties on the same late payment in law or equity.

The Prompt Payment Ordinance further requires that, unless specific exemptions apply, Grantee shall pay undisputed invoices of its subcontractors for goods and/or services within 20 business days of submission of invoices unless Grantee notifies the City's Liaison in writing within five business days that there is a bona fide dispute between Grantee and claimant, in which case Grantee may withhold the disputed amount but shall pay the undisputed amount. Disputed payments are subject to investigation by the City's Liaison and, upon the filing of a compliant, Grantee, if opposing payment, shall provide security in the form of cash, certified check or bond to cover the disputed amount and penalty during the investigation. If Grantee fails or refuses to deposit security, the City will withhold an amount sufficient to cover the claim from the next Grant payment. The City, upon a determination that an undisputed invoice or payment is late, will release security deposits or withholds directly to claimants for valid claims. Grantee is not allowed to retain monies from subcontractor payments for goods as project retention, and is required to release subcontractor project retention in proportion to the subcontractor services rendered, for which payment is due and undisputed, within five business days of payment. For the purpose of posting on the City's website, Grantee is required to file notice with the City of release of retention and payment of mobilization fees, within five business days of such payment or release; and Grantee is required

to file an affidavit, under penalty of perjury, that he or she has paid all subcontractors, within five business days following receipt of payment from the City. The affidavit shall provide the names and address of all subcontractors and the amount paid to each.

7. Evaluation, Monitoring and Reporting

Grantee shall be monitored and evaluated by the City in terms of its effectiveness and timely compliance with the provisions of this Agreement and the effective and efficient achievement of the Scope of Work. Grantee shall undertake continuous quantitative and qualitative evaluation of the Scope of Work as specified in this Agreement and shall make written reports on the results of such evaluation to the Project Manager as reasonably requested by the Project Manager.

In addition to the financial requirements described elsewhere in this Agreement, Grantee agrees that authorized representatives of the City may perform fiscal monitoring of Grantee's record-keeping and reporting to assure compliance with this Agreement.

The County may use up to seven percent (7%) of the funds allocated to a particular project ("Project Activity Funds") for Project Sponsor administrative expenses. The amounts designated as administrative funds in the Budget are to be used as administrative expenditures related to carrying out the HOPWA program activities, housing, and services

described in this Agreement in compliance with 24 C.F.R. § 574.500 and 2 CFR§ 200.

The County shall conduct an ongoing assessment of the housing assistance and supportive services provided by the Sub-recipients and Developers with the HOPWA Allocation. The County shall conduct the reasonable and necessary recordkeeping and reporting activities described below for the purpose of carrying out the City's HOPWA program in an effective and efficient manner. Where appropriate, reports and records shall include client race and ethnic data.

- a. The County shall provide quarterly reports to the City. Quarterly reports shall include all required data and narrative updates of HOPWA activities listed in Schedule A-1 to report to HUD regarding HOPWA activities through the Integrated Disbursement and Information System (IDIS) and the Consolidated Annual Performance & Evaluation Report (CAPER). Quarterly reports are due thirty days following the end of each of the first three quarters of the fiscal year, on October 30, January 30, and April 30.

- b. The County shall submit annual reports to the City not later than July 31 of each year. Annual reports are to be submitted using HUD's HOPWA Consolidated Annual Progress & Evaluation Report-CAPER – *form HUD-40110-D, form HUD-60002*, Section 3 Summary Report, Economic Opportunities for Low- and Very Low-Income Person and the HOPWA Beneficiary Verification form.

Reporting requirements and the CAPER & Beneficiary Verification forms can be accessed at the following sites:

<https://www.onecpd.info/resource/1011/hopwa-caper-form-hud-40110d/> and <http://www.hudhre.info/documents/HOPWACAPERBeneficiaryVerification.doc>

- c. The County shall assess the service provided by Sub-recipients and Developer no less often than every three years; provided, however, (i) the County may assess the service provided by Sub-recipients and Developers as often as every year, (ii) for any Sub-recipient or Developer who had multiple findings during the initial monitoring, the County shall assess the service provided by such Sub-recipient or Developer every year during the term of the contract, and (iii) for any Sub-recipient or Developer who had one finding during the initial monitoring, the County shall assess the service provided by such Sub-recipient or Developer no less often than every two years. By May 30 of each year, the County shall develop a preliminary monitoring schedule for the next fiscal year. The County shall use a risk assessment tool to determine which Sub-recipients and Developers will be monitored. Existing Sub-recipients and Developers that have the highest number of risk factors, as determined by the County, along with new Sub-recipients and Developers that have never been monitored by the County, will be given the highest priority for monitoring. The City and County shall monitor Sub-recipients and Developers as required by HUD.

- d. The County shall retain all project files, financial records, and any other

documents related to this Agreement for a period of four (4) years from the date of the final annual report of this Agreement, except in the following cases:

- i. If any litigation, claim, or audit concerning the activities subject to this Agreement is started before the expiration of the 4-year period, the relevant records must be retained until all litigation, claims, or audit findings involving the records have been resolved and final action taken.
 - ii. When the County is notified in writing by the City to extend the retention period.
 - iii. Records for real property and equipment acquired with Federal funds must be retained for three years after final disposition.
- e. The City shall monitor and evaluate County's performance under this Agreement to determine compliance with this Agreement and HOPWA requirements. The County shall cooperate with the City and any federal auditors authorized by the City and shall provide reasonable access to both records and personnel during normal business hours for the purpose of assuring compliance with this Agreement and evaluating performance hereunder. The rights of access in this section are not limited to the required retention period but last as long as the records are retained.

8. Program Income

Any income generated by the County from the use of HOPWA Funds governed by this Agreement shall be considered HOPWA program income. All HOPWA program income shall be retained by the County for the term of this Agreement. The use of all HOPWA program income is reserved specifically for HOPWA-eligible Activities listed in Schedule A-1 and is subject to the terms of this Agreement. Any program income held by the County at the time of the Request for Payment will be used to reduce the total amount disbursed to the County.

9. Proprietary or Confidential Information of the City

Grantee understands and agrees that, in the performance of the work or services under this Agreement or in contemplation thereof, Grantee may have access to private or confidential information which may be owned or controlled by the City and that such information may contain proprietary or confidential details, the disclosure of which to third parties may be damaging to the City. Grantee agrees that all information disclosed by the City to Grantee shall be held in confidence and used only in performance of the Agreement. Grantee shall exercise the same standard of care to protect such information as a reasonably prudent Grantee would use to protect its own proprietary data.

10. Records and Audit

Grantee must maintain (a) a full set of accounting records in accordance with generally accepted accounting principles and procedures for all funds received under this Agreement,

and (b) full and complete documentation of performance related matters such as benchmarks and deliverables associated with this Agreement. Grantee agrees to comply with all audit, inspection, record-keeping and fiscal reporting requirements mandated by the City, and all state and/or federal audit requirements applicable to the funding sources of the Grant. The City shall notify the Grantee of any records it deems in its reasonable judgment to be insufficient. Grantee shall have 15 calendar days from such notice to correct any specified deficiency in the records, or, if more than 15 days shall be reasonably necessary to correct the deficiency, Grantee shall begin to correct the deficiency within 15 days and correct the deficiency as soon as reasonably possible. Grantee must maintain such records for a period of four years following the last fiscal year during which the City paid an invoice to Grantee under this Agreement.

Grantee must make available at Grantee's office for examination at reasonable intervals and during normal business hours to the City's representatives, as well as representatives of agencies providing funding for the Grant, all books, accounts, reports, files, financial records, and other papers or property with respect to all matters covered by this Agreement, as well as the financial condition of Grantee in general, and shall permit these representatives to audit, examine, and make copies, excerpts or transcripts from such records. The City's representatives may make audits of any conditions relating to this Agreement, as well as the financial condition of Grantee in general, throughout the term of this Agreement and for three years following the expiration of the term of this Agreement.

In addition to the reporting requirements listed in Section 8 – Monitoring and Reporting, the County shall commission an independent auditing firm to prepare and file with the City an annual audit report for the County's Department of Conservation and Development (DCD) for each year during the term of this Agreement. The County's failure to submit the audit report may result in the termination of this Agreement.

The audit report shall be submitted to the City by March 30th of each year during the term of this Agreement. The audit report shall be made in accordance with the provisions of 200 CFR Subpart F. The City will use the audit report to determine whether:

1. The financial statements of the DCD present fairly its financial position and the results of its operations in accordance with generally accepted accounting principles.
2. The DCD has (i) an internal control structure to provide reasonable assurance that the DCD is managing Federal awards in compliance with applicable laws and regulations, and (ii) controls that ensure compliance with laws and regulations that could have a material impact on the DCD's financial statements.
3. The DCD has complied with laws and regulations for the HOPWA Program that may have a direct and material effect on the DCD's financial statements.

The County shall also submit any internal control monitoring (or audit) conducted for DCD during the term of this Agreement to the City. The County shall require Sub-recipients and Developers with which the County contracts in connection with this

Agreement to meet the same audit requirements set forth in this Section.

11. Fraud, Waste and Abuse

Grantee must immediately inform the City of any information or complaints involving criminal fraud, waste, abuse, or other criminal activity in connection with the Work.

12. Compliance with Federal Standards

Grantee shall be responsible for complying with the terms, conditions, and requirements set forth in 24 C.F.R. Section 574, and all other applicable federal and state laws with respect to federal grants, including but not limited to those awarded under the HOPWA program and the CARES Act (Public Law No. 116-136) (3/27/20).

Subject to applicable requirements described in HOPWA regulation Title 24 C.F.R. sections 574.310, 574.320, 574.330, and 574.340, HOPWA Allocation is meant to assist all forms of housing designed to assist Low Income Persons with HIV/AIDS, including preventing homelessness, providing emergency housing, shared housing arrangements, apartments, single room occupancy (SRO) dwellings, and community residences. Appropriate supportive services, as required by section 574.310(a), must be provided as part of any HOPWA-assisted housing, but the County may use the HOPWA Allocation to provide services independent of any housing activity. The County shall ensure that the HOPWA Allocation is used only for HOPWA-eligible activities as approved by the City identified in Schedule A-1 and that fall under one or more of the following activity categories:

- a. Housing information services including, but not limited to, providing counseling, information and referral to assist an eligible person to locate, acquire, finance and maintain housing. This may include Fair Housing counseling for eligible persons who may encounter discrimination on the basis of race, color, religion, sex, age, national origin, familial status, or handicap;
- b. Resource identification to establish, coordinate and develop housing assistance resources (preliminary research, determining feasibility of specific housing related initiatives).
- c. Acquisition, rehabilitation, conversion, lease, and repair of facilities to provide housing and services.
- d. New construction (SROs and community residences only).
- e. Project or tenant-based rental assistance, including assistance with shared housing arrangements.
- f. Short-term rent, mortgage, and utility payments to prevent homelessness.
- g. Supportive services including, but not limited to health, mental health assessment, permanent housing placement, drug and alcohol abuse treatment and counseling,

day care, personal assistance, nutritional services, intensive care when required, and assistance in gaining access to local State and Federal government benefits and services, except that health services may only be provided to individuals with acquired immunodeficiency syndrome or related diseases and not to family members of these individuals;

- h. Operating costs for housing, including maintenance, security, operation, insurance, utilities, furnishings, equipment and other incidental costs.
- i. Technical assistance in establishing and operating a community residence, including planning and other predevelopment or pre-construction expenses and outreach and education regarding HIV/AIDS to persons residing in close proximity.

Grantee understands and agrees that it is Grantee's responsibility, independent of the City, to inform itself of the applicability and contents of all regulations applicable to this Agreement, including but not limited to all of those set forth above, and that this duty is a material condition of accepting this grant.

Grantee has submitted Schedule Z, Certification of Debarment and Suspension, attached hereto and incorporated by reference herein.

Project Sponsor and any and all Sub-recipients and Developers shall submit information concerning any investigations and/or discipline imposed by any state or federal authorities by completing Schedule V – Affidavit of Non-Disciplinary or Investigatory Action and Schedule Z – Certification of Debarment and Suspension.

13. Assignment and Subcontracting

Grantee may not assign, subcontract, or otherwise transfer any rights, duties, obligations or interest in this Grant or Agreement or arising hereunder to any person, persons, entity or entities whatsoever without the prior written consent of the City, and any attempt to assign, subcontract, or transfer without such prior written consent shall be void. Consent to any single assignment, subcontract, or transfer shall not constitute consent to any further assignment, subcontract or transfer.

14. Publicity

Any publicity generated by Grantee for the program funded pursuant to this Agreement, during the term of this Agreement or for one year thereafter, shall make reference to the contribution of the City in making the project possible. The words "City of Oakland" shall be explicitly stated in all pieces of publicity, including but not limited to flyers, press releases, posters, brochures, public service announcements, interviews and newspaper articles.

City staff will be available whenever possible at the request of Grantee to assist Grantee in generating publicity for the program funded pursuant to this Agreement. Grantee further agrees to cooperate with authorized City officials and staff in any City-generated publicity or promotional activities undertaken with respect to this program.

15. Insurance

Unless a written waiver or approval of self-certification is obtained from the City's Risk Manager, County must at all times during the term of this Agreement, including for the duration of any amendment to this Agreement, procure and maintain the insurance listed in the policies of insurance identified in **Schedule Q, Insurance Requirements**, attached hereto and incorporated herein. Grantee shall provide proof of insurance, as set forth in the attached **Schedule Q**, prior to execution of this Agreement, and any amendment hereto.

Unless a written waiver is obtained from the City's Risk Manager, Grantee must provide the insurance listed in the City of Oakland **Insurance Requirements** attached hereto as **Schedule Q** and incorporated herein by reference.

16. Indemnification

The County shall indemnify and hold the City, its Councilmembers, officials, directors, employees, and agents harmless from any losses, damages, liabilities, claims, demands, judgments, actions, court costs, and legal or other expenses (including attorneys' fees) that the City may incur as a result of (i) the improper use of HOPWA Allocation by the County, (ii) the County's failure to perform its obligation to monitor the use of HOPWA Allocation under this Agreement, or (iii) any demand by HUD to the City for reimbursement of any HOPWA Allocation to the extent such demand is based on the negligent acts or omissions or willful misconduct of the County in the performance of its obligations under this Agreement. The duty of the County to indemnify includes the duty to defend the City in any court action, administrative action, or other proceeding brought by any third party, including HUD, to the extent such action or proceeding arises as a result of the County's sole negligence or willful misconduct in the performance of its obligations under this Agreement. The County's duty to indemnify shall survive the term of this Agreement.

The County shall require each Sub-recipient and Developer to indemnify and defend the City to the same extent and in the same manner as described in the first paragraph of this Section 16 from the consequences of the Sub-recipient's and Developer's negligent acts or omissions or willful misconduct in the performance of its obligations under contracts entered into in connection with this Agreement.

The City shall indemnify and defend the County to the same extent and in the same manner as described in the first paragraph of this Section 16 from the consequences of the City's negligent acts or omissions or willful misconduct in the performance of its obligations under this Agreement.

The party with the obligation to indemnify pursuant to this Section 16 shall pay the indemnified parties as soon as practicable following the determination of the amount due.

17. Non-Liability of Individuals

No member, official, officer, director, employee, or agent of the City shall be liable to Grantee for any obligation created under the terms of this Agreement except in the case of

actual fraud or willful misconduct by such person.

No individual member, official, officer, director, employee, or agent of the County shall be liable to City for any obligation created under the terms of this Agreement except in the case of actual fraud or willful misconduct by such person.

18. Right to Offset Claims for Money

All claims for money due or to become due from the City shall be subject to deduction or offset by the City from any monies due Grantee by reason of any claim or counterclaim arising out of this Agreement, any purchase order, or any other transaction with Grantee.

19. Events of Default and Remedies

The occurrence of any of the following shall constitute a material default and breach of this Agreement by Grantee:

- a. Failure to adequately perform the Work set forth in the Scope of Work;
- b. Improper use or reporting of funds provided under this Agreement by Grantee or its employees or agents;
- c. Substantial failure by Grantee to observe and perform any other provision of this Agreement; or
- d. Grantee's (1) filing for bankruptcy, dissolution, or reorganization, or failure to obtain a full dismissal of any such involuntary filing brought by another party before the earlier of final relief or 60 days after the filing; (2) making a general assignment for the benefit of creditors; (3) applying for the appointment of a receiver, trustee, custodian, or liquidator, or failure to obtain a full dismissal of any such involuntary application brought by another party before the earlier of final relief or 60 days after the filing; (4) insolvency; or (5) failure, inability or admission in writing of its inability to pay its debts as they become due.

The City shall give written notice to Grantee or Grantee's agent of any default by specifying (a) the nature of the event or deficiency giving rise to the default, (b) the action required to cure the deficiency, if an action to cure is possible, and (c) a date, which shall be not less than 30 calendar days from the mailing of the notice, by which such action to cure, if a cure is possible, must be undertaken. Grantee shall not be in default if Grantee cures such default within the specified cure period, or, if such default is not reasonably capable of cure within the specified period, Grantee begins to cure the default within the cure period and thereafter diligently pursues the cure to completion. Following any notice of an event of default, the City may suspend payments under this Agreement pending Grantee's cure of the specified breach. Upon an event of default that has not been cured by Grantee, the City, in its discretion, may take any of the following actions:

- A. Terminate this Agreement in whole or in part;
- B. Suspend payments under this Agreement;
- C. Demand immediate reimbursement of any funds disbursed under this Agreement;
- D. Bring an action for equitable relief (a) seeking the specific performance by Grantee of the terms and conditions of the Agreement, and/or (b) enjoining, abating, or preventing any violation of said terms and conditions, and/or (c) seeking declaratory relief;
- E. Bar Grantee from future funding by the City; and/or
- F. Pursue any other remedy allowed at law or in equity.

Unless otherwise terminated as provided in this Agreement, this Agreement will terminate on August 15, 2022

20. Termination or Modification for Lack of Appropriation

This Agreement may be terminated by either party if the City and County mutually agree in writing to its termination and upon the termination conditions, including the effective date and in the case of partial termination, the portion to be terminated.

If, through any cause, the County shall fail to fulfill in timely and proper manner its obligations under this Agreement, or if the County violates any of the covenants, agreements, or stipulations of this Agreement, the City shall thereupon have the right to terminate this Agreement by giving written notice to the County of such termination and specifying the effective date thereof, at least 30 days before the effective date of such termination. In such event, the County shall be entitled to receive reimbursement for any eligible work completed subject to the limitations of this Agreement.

The City's obligations under this Agreement are contingent upon the availability of funds from the funding source for this Grant. The City may terminate this Agreement on 30 days' written notice to Grantee without further obligation if said funding is withdrawn or otherwise becomes unavailable for continued funding of the Work.

21. Litigation and Pending Disputes

Grantee shall promptly give notice in writing to the City of any litigation pending or threatened against Grantee in which the amount claimed is in excess of \$50,000. Grantee shall disclose, prior to execution of this Agreement and any amendment hereto, and represents that it has disclosed, by completing Schedule K, Pending Dispute Disclosure, attached hereto and incorporated herein any and all pending disputes with the City prior to execution of this Agreement. Failure to disclose pending disputes prior to execution of this Agreement, and any amendment hereto, shall be a basis for termination of this Agreement.

The County shall provide written notice to the City within five (5) days of all potential conflicts of interest and violations of criminal law involving fraud, bribery, or gratuity violations potentially affecting this Agreement. Failure to make required disclosures can result in termination of the Agreement and suspension or debarment from future federal awards.

22. Conflict of Interest

- a. Grantee certifies that no member, officer, or employee of the City or its designees or agents, and no other public official of the City who exercises any functions or responsibilities with respect to the programs or projects covered by this Agreement, shall have any interest, direct or indirect in this Agreement, or in its proceeds during his/her tenure or for one year thereafter.
- b. Grantee warrants and represents, to the best of its present knowledge, that no public official or employee of City who has been involved in the making of this Agreement, or who is a member of a City board or commission which has been involved in the making of this Agreement whether in an advisory or decision-making capacity, has or will receive a direct or indirect financial interest in this Agreement in violation of the rules contained in California Government Code Section 1090 et seq., pertaining to conflicts of interest in public contracting. Grantee shall exercise due diligence to ensure that no such official will receive such an interest.
- c. Grantee further warrants and represents, to the best of its present knowledge and excepting any written disclosures as to these matter already made by Grantee to City, that (1) no public official of City who has participated in decision-making concerning this Agreement or has used his or her official position to influence decisions regarding this Agreement, has an economic interest in Grantee or this Agreement, and (2) this Agreement will not have a direct or indirect financial effect on said official, the official's spouse or dependent children, or any of the official's economic interests. For purposes of this paragraph, an official is deemed to have an "economic interest" in (a) any for-profit business entity in which the official has a direct or indirect investment worth \$2,000 or more, (b) any real property in which the official has a direct or indirect interest worth \$2,000 or more, (c) any for-profit business entity in which the official is a director, officer, partner, trustee, employee or manager, or (d) any source of income or donors of gifts to the official (including nonprofit entities) if the income totaled more than \$500, or value of the gift totaled more than \$500 the previous year. Grantee agrees to promptly disclose to the City in writing any information it may receive concerning any such potential conflict of interest. Grantee's attention is directed to the conflict of interest rules applicable to governmental decision-making contained in the Political Reform Act (California Government Code Section 87100 et seq.) and its implementing regulations (California Code of Regulations, Title 2, Section 18700 et seq.).
- d. Grantee shall incorporate or cause to be incorporated into all subcontracts for work to be performed under this Agreement a provision governing conflict of interest in substantially the same form set forth herein.

- e. Nothing herein is intended to waive any applicable federal, state or local conflict of interest law or regulation.
- f. In addition to the rights and remedies otherwise available to the City under this Agreement and under federal, state and local law, Grantee understands and agrees that, if the City reasonably determines that Grantee has failed to make a good faith effort to avoid an improper conflict of interest situation or is responsible for the conflict situation, the City may (1) suspend payments under this Agreement, (2) terminate this Agreement, and/or (3) require reimbursement by Grantee to the City of any amounts disbursed under this Agreement. In addition, the City may suspend payments or terminate this Agreement whether or not Grantee is responsible for the conflict of interest situation.

23. Non-Discrimination/Equal Employment Practices

Grantee shall not discriminate or permit discrimination against any person or group of persons in any manner prohibited by federal, state or local laws. During the performance of this Agreement, Grantee agrees as follows:

- a. Grantee and Grantee's subgrantees, if any, shall not discriminate against any employee or applicant for employment because of actual or perceived age, marital or familial status, religion, gender, gender identity, gender expression, sexual orientation, race, creed, color, genetic information, ancestry, national origin, physical or mental disability (including but not limited to Acquired-Immune Deficiency Syndrome (AIDS) and AIDS-Related Complex (ARC)), military or military veteran status, or any other legally-protected class. This nondiscrimination policy shall include, but not be limited to, the following: Employment, upgrading, promotion, or failure to promote, demotion or transfer, recruitment advertising, layoffs, termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship.
- b. Grantee and Grantee's subgrantees shall state in all solicitations or advertisements for employees placed by or on behalf of Grantee that all qualified applicants will receive consideration for employment without regard to actual or perceived age, marital or familial status, religion, gender, gender identity, gender expression, sexual orientation, race, creed, color, genetic information, ancestry, national origin, physical or mental disability (including but not limited to Acquired-Immune Deficiency Syndrome (AIDS) and AIDS-Related Complex (ARC)), military or military veteran status, or any other legally-protected class.
- c. Grantee shall make its goods, services, and facilities accessible to people with disabilities and shall verify compliance with the Americans with Disabilities Act by executing **Schedule C-1, Declaration of Compliance with the Americans with Disabilities Act**, attached hereto and incorporated herein.
- d. If applicable, Grantee will send to each labor union or representative of workers with whom Grantee has a collective bargaining agreement or contract or

understanding, a notice advising the labor union or workers' representative of Grantee's commitments under this nondiscrimination clause and shall postcopies of the notice in conspicuous places available to employees and applicants for employment.

24. Local/Small Local Enterprise Participation

The City has established requirements for participation by local and small local enterprises, including local nonprofit organizations and small local nonprofit organizations, in publicly-supported projects. Unless otherwise indicated, the City acknowledges that Grantee complies with this requirement.

25. Living Wage Requirements

Grantee will be considered a City Financial Assistance Recipient ("CFAR") and must comply with the Oakland Living Wage Ordinance if it receives \$100,000 or more in financial assistance from the City during a 12-month period. The Living Wage Ordinance requires that nothing less than a prescribed minimum level of compensation (a living wage) be paid to employees of CFARs (OMC 2.28, Ord. 1250 § 1, 1998). The Ordinance also requires submission of the Declaration of Compliance attached and incorporated herein as **Schedule N** and made part of this Agreement, and, unless specific exemptions apply or a waiver is granted, that Grantee provide the following to its employees who perform services under or related to this Agreement:

- a. Minimum compensation – Said employees shall be paid an initial hourly wage rate of **\$14.98 with health benefits** and **\$17.19 without health benefits**. These initial rates shall be upwardly adjusted each year no later than April 1 in proportion to the increase at the immediately preceding December 31 over the year earlier level of the Bay Region Consumer Price Index as published by the Bureau of Labor Statistics, U.S. Department of Labor. . **Grantee agrees to pay adjusted living wage rates effective July 1st of each year during which this Agreement, as well as any amendment to this Agreement, is in effect.**
- b. Health benefits – Said full-time and part-time employees paid at the lower living wage rate shall be provided health benefits of at least \$2.21 per hour. Grantee shall provide proof that health benefits are in effect for those employees no later than 30 days after execution of the contract or receipt of City financial assistance.
- c. Compensated days off – Said employees shall be entitled to twelve compensated days off per year for sick leave, vacation or personal necessity at the employee's request, and ten uncompensated days off per year for sick leave. Employees shall accrue one compensated day off per month of full time employment. Part-time employees shall accrue compensated days off in increments proportional to that accrued by full-time employees. The employees shall be eligible to use accrued days off after the first six months of employment or consistent with company policy, whichever is sooner. Paid holidays,

consistent with established employer policy, may be counted toward provision of the required 12 compensated days off. Ten uncompensated days off shall be made available, as needed, for personal or immediate family illness after the employee has exhausted his or her accrued compensated days off for that year.

- d. Federal Earned Income Credit (EIC) – Grantee shall inform employees that he or she may be eligible for EIC and shall provide forms to apply for advance EIC payments to eligible employees.
- e. Grantee shall provide to all employees and to the Office of Contract Compliance, written notice of its obligation to eligible employees under the City's Living Wage requirements. Said notice shall be posted prominently in communal areas of the work site(s) and shall include the above-referenced information.
- f. Grantee shall provide all written notices and forms required above in English, Spanish or other languages spoken by a significant number of employees within 30 days of employment under this Agreement.
- g. Reporting – Grantee shall maintain a listing of the name, address, hire date, occupation classification, rate of pay and benefits for each of its employees. Grantee shall provide a copy of said list to the Office of Contract Compliance, on a quarterly basis, by March 31, June 30, September 30 and December 31 for the applicable compliance period. Failure to provide said list within five days of the due date will result in liquidated damages of five hundred dollars (\$500.00) for each day that the list remains outstanding. Grantee shall maintain employee payroll and related records for a period of four (4) years after expiration of the compliance period.
- h. Grantee shall require subgrantees that provide services under or related to this Agreement to comply with the above Living Wage provisions. Grantee shall include the above-referenced sections in its subcontracts. Copies of said subcontracts shall be submitted to the Office of Contract Compliance.

The parties acknowledge that, in accordance with the requirements of Section XI of the California Constitution and Sections 25300, et seq. of the California Government Code, the wages for County employees are established by County ordinance or similar County action. In the event of a conflict between the provisions of this Agreement and any applicable salary ordinance or similar County action establishing compensation, the salary ordinance or other County action shall take precedence.

26. Equal Benefits Ordinance

This Agreement is subject to the Equal Benefits Ordinance codified in Chapter 2.32 of the Oakland Municipal Code and its implementing regulations. The purpose of this Ordinance is to protect and further the public, health, safety, convenience, comfort, property and general welfare by requiring that public funds be expended in a manner so as to prohibit

discrimination in the provision of employee benefits by City grantees between employees with spouses and employees with domestic partners, and/or between domestic partners and spouses of such employees.

The Ordinance shall only apply to those portions of a Grantee's operations that occur (1) within the City of Oakland; (2) on real property outside the City of Oakland if the property is owned by the City or if the City has a right to occupy the property, and if the contract's presence at that location is connected to a contract with the City; and (3) elsewhere in the United States where work related to a City contract is being performed. The requirements of this chapter shall not apply to subcontracts or subgrantees of Grantee.

The Equal Benefits Ordinance requires, among other things, submission of the Equal Benefits Declaration of Nondiscrimination attached hereto as **Schedule N-1** and incorporated herein by reference.

27. Political Prohibition

Subject to applicable State and Federal laws, moneys paid pursuant to this Agreement shall not be used for political purposes, sponsoring or conducting candidate's meetings, engaging in voter registration activity, nor for publicity or propaganda purposes designed to support or defeat legislation pending before federal, state or local government.

28. Religious Prohibition

There shall be no religious worship, instruction, or proselytization as part of, or in connection with the performance of the Agreement.

29. Abandonment of Grant

The City may abandon or indefinitely postpone the Grant at any time. Should the Grant be abandoned, the City shall pay Grantee for all services performed thereto in accordance with the terms of this Agreement.

30. Relationship of Parties

The relationship of the City and Grantee is solely that of a grantor and grantee of funds, and should not be construed as a joint venture, equity venture, partnership, or any other relationship. The City does not undertake or assume any responsibility or duty to Grantee (except as provided for herein) or to any third party with respect to the Work performed under this Agreement. Except as the City may specify in writing, Grantee has no authority to act as an agent of the City or to bind the City to any obligation.

31. Warranties

Grantee represents and warrants: (1) that it has access to professional advice and support to the extent necessary to enable Grantee to fully comply with the terms of this Agreement and otherwise carry out the Work; (2) that it is duly organized, validly existing and in good

standing under the laws of the State of California; (3) that it has the full power and authority to undertake the Work; (4) that there are no pending or threatened actions or proceedings before any court or administrative agency which may substantially affect the financial condition or operation of the Grantee, other than those already disclosed to the City; and (5) that the persons executing and delivering this Agreement are authorized to execute and deliver such document on behalf of Grantee.

32. Unavoidable Delay in Performance

The time for performance of provisions of this Agreement by either party shall be extended for a period equal to the period of any delay directly affecting this Agreement which is caused by: war; insurrection; strikes; lock-outs; riots; floods; earthquakes; fires; casualties; acts of God; acts of a public enemy; epidemics; quarantine restrictions; freight embargoes; lack of transportation; suits filed by third parties concerning or arising out of this Agreement; or unseasonable weather conditions. An extension of time for any of the above-specified causes will be deemed granted only if written notice by the party claiming such extension is sent to the other party within ten calendar days from the commencement of the cause. Times of performance under this Agreement may also be extended for any cause for any period of time by the mutual written agreement of the City and Grantee.

33. Validity of Contracts

This Agreement shall not be binding or of any force or effect until it is approved for form and legality by the Office of the City Attorney and signed by the City Administrator or his or her designee.

34. Governing Law

This Agreement shall be interpreted under and be governed by the laws of the State of California, except for those provisions relating to choice of law or those provisions preempted by federal law or expressly governed by federal law.

35. Notice

If either party shall desire or be required to give notice to the other, such notice shall be given in writing, via facsimile and concurrently by prepaid U.S. certified or registered postage, addressed to recipient as follows:

City
City of Oakland
Human Services Department
150 Frank H. Ogawa Plaza, Suite 4340
Oakland, CA 94612
Attn: Lara Tannenbaum
ltannenbaum@oaklandnet.com
DUNS/ HOPWA CFDA: 137137977/ 14.241
Grantee

County Project Sponsor
Contra Costa County
Department of Conservation and Development
30 Muir Road
Martinez, CA 94553
Attn: Kristin Sherk
Kristin.sherk@dcd.cccounty.us
DUNS/ HOPWA CFDA: 139441955/ 14.241

Any party to this Agreement may change the name or address of representatives for purpose of this Notice section by providing written notice to all other parties ten (10) business days before the change is effective.

36. Entire Agreement of the Parties

This Agreement supersedes any and all agreements, either oral or written, between the parties with respect to this Grant and contains all of the representations, covenants and agreements between the parties with respect to the Grant. Each party to this Agreement acknowledges that no representations, inducements, promises or agreements, orally or otherwise, have been made by any party, or anyone acting on behalf of any party which are not contained in this Agreement, and that no other agreement, statement or promise not contained in this Agreement will be valid or binding.

37. Amendments and Modifications

Any amendment to or modification of this Agreement will be effective only if it is in a writing signed by all parties to this Agreement.

38. Waiver

Any waiver by the City of an obligation in this Agreement must be in writing and must be executed by an authorized agent of the City. No waiver should be implied from any delay or failure by the City to take action on any breach or event of default of Grantee or to pursue any remedy allowed under this Agreement or applicable law. Any extension of time granted to Grantee to perform any obligation under this Agreement will not operate as a waiver or release from any of its obligations under this Agreement. Consent by the City to any act or omission by Grantee should not be construed to be a consent to any other act or omission or to waive the requirement for the City's written consent to future waivers.

39. Other Agreements

Grantee represents that it has not entered into any agreements that are inconsistent with the terms of this Agreement. Grantee may not enter into any agreements that are inconsistent with the terms of this Agreement without an express written waiver by the City.

40. Severability/Partial Invalidity

If any term or provision of this Agreement, or the application of any term or provision of this Agreement to a particular situation, shall be finally found to be void, invalid, illegal or unenforceable by a court of competent jurisdiction, then notwithstanding such determination, such term or provision shall remain in force and effect to the extent allowed by such ruling and all other terms and provisions of this Agreement or the application of this Agreement to other situation shall remain in full force and effect.

Notwithstanding the foregoing, if any material term or provision of this Agreement or the application of such material term or condition to a particular situation is finally found to be void, invalid, illegal or unenforceable by a court of competent jurisdiction, then the parties hereto agree to work in good faith and fully cooperate with each other to amend this Agreement to carry out its intent.

41. Commencement, Completion and Close-out

It shall be the responsibility of Grantee to coordinate and schedule the Work to be performed so that commencement and completion take place in accordance with the provisions of this Agreement. Any time extension granted to Grantee to enable Grantee to complete the Work must be in writing and shall not constitute a waiver of rights the City may have under this Agreement. Should Grantee not complete the Work by the scheduled date or by an extended date, the City shall be released from all of its obligations under this Agreement.

Within thirty (30) days of completion of the performance under this Agreement, Grantee shall make a determination of any and all final costs due under this Agreement and shall submit a requisition for such final and complete payment (including without limitations any and all claims relating to or arising from this Agreement) to the City. Failure of Grantee to timely submit a complete and accurate requisition for final payment shall relieve the City of any further obligations under this Agreement, including without limitation any obligation for payment of work performed or payment of claims by Grantee.

42. Consents and Approvals

Any consent or approval required under this Agreement may not be unreasonably withheld, delayed, or conditioned.

43. Inconsistency

If there is any inconsistency between the main agreement and the attachments/exhibits, the text of the main agreement shall prevail.

44. Counterparts

This Agreement may be executed in any number of counterparts, each of which so executed shall be deemed to be an original, and such counterparts shall together constitute but one

and the same Contract. The parties shall be entitled to electronically sign and transmit this Contract (whether by facsimile, PDF or other email transmission), which signature shall be binding on the signing party or the party on whose behalf the document has been signed. Any party providing an electronic signature agrees to promptly execute and deliver to the other parties an original signed Contract upon request.

45. Incorporated Documents, Certifications & Exhibits

The following exhibits and schedules are attached to this Agreement and are hereby incorporated herein by reference:

- Schedule A: Scope of Work and Budget
- Schedule A-1: Approved Developers, Sub-recipients & Activities
- Schedule B: Budget
- Combined Grants Schedules
 - Schedule C-1: Compliance with ADA
 - Schedule K: Pending Dispute Disclosure Form
 - Schedule N: Declaration of Compliance with Living Wage
 - Schedule N-1: Equal Benefits, Declaration of Nondiscrimination
 - Schedule P: Nuclear Free Zone
 - Schedule V: Non-Disciplinary or Investigatory Action
 - Oakland's Minimum Wage Law Certification
 - Affirmative Action Certification
- Schedule Q: Insurance Requirements
- Schedule Z: Certification regarding Debarment and Suspension

All declarations in the Schedules and Exhibits are made subject to the terms contained herein. In the event of a conflict between the Schedules or Exhibits and the terms in the body of this Agreement, the terms in the body of this Agreement shall take precedence.

46. Authority:

The persons signing below represent and warrant that they have authority to bind their respective party, and all necessary approvals to sign on behalf of their respective party have been obtained.

If the terms of this Agreement are acceptable to County and City, sign and date below.

[SIGNATURES ON NEXT PAGE]

The City and the County are signing this Agreement as of the date set forth in the introductory paragraph.

CITY OF OAKLAND
A Municipal Corporation

By: _____
City Administrator Date

ADMINISTERING AGENCY APPROVAL FOR FORWARDING
Human Services Department

By: _____
Director, Human Services Department Date

Resolution No. 88202 C.M.S.

APPROVED AS TO FORM AND LEGALITY

By: _____
City Attorney Date

COUNTY OF CONTRA COSTA
A Political Subdivision of the State of California

By: _____
John Kopchik, Director Date
Department of Conservation and Development

APPROVED AS TO FORM
Mary Ann McNett Mason, County Counsel

By: _____
Deputy County Counsel Date

2947018.13

SCHEDULE A

PRIORITY SETTING AND SELECTION PROCESS

The County, in consultation with the City as laid out below, shall allocate and award the HOPWA allocation received under this contract to Sub-recipients and Developers to carry out HOPWA-eligible activities within the County's jurisdiction, and shall monitor and report on the results. This work shall be carried out consistent with the following requirements:

1. Consolidated Planning Process

The City prepares a Consolidated Plan and an annual Action Plan as a requirement for participation in certain federal housing programs funded through the U.S. Department of Housing and Urban Development, including the HOPWA program. The County will coordinate the development of such information as is required to substantially complete all narratives, tables and other sections related to HOPWA funds and activities, unmet HIV/AIDS housing and supportive service needs, and priorities and strategies within the County, and provide this information to the City in a format to be determined by the City. The City shall present the County with a schedule of needed information well in advance of deadlines, and shall closely coordinate on compiling required information.

The City will include the County's HOPWA priorities and contemplated allocation of resources among eligible funding categories in the Consolidated Plan and/or Annual Plan.

2. Establishment of Priorities

In consultation with the City and other stakeholders in the community, the County will recommend priorities for the HOPWA funds, categories for funding, and a method and schedule for awarding funds within the County.

In preparing these recommendations the County will use, but is not limited to, information from the following sources and planning documents:

- The most recent HOPWA or HIV/AIDS housing needs assessment;
- The most recent Oakland Transitional Grant Area (TGA) HIV/AIDS Health Services Comprehensive Plan (the "Comprehensive Plan"), required for participation in programs funded through the U.S. Department of Health and Human Services' Ryan White Program.
- The Continuum of Care Plan, 10-year Plan or other plans adopted by the Board of Supervisors to address homelessness and housing crises in the County, and any updates or addenda to this Plan.
- Other relevant documents or needs assessments related to housing needs, homelessness, HIV/AIDS prevalence and related matters.

The County's recommendations will take into consideration the priorities of the community as expressed in any comprehensive HIV/AIDS housing needs assessment, and shall endeavor to incorporate recommendations from relevant homeless or housing plans, changes in the

HIV/AIDS epidemic that may change the demand for HIV/AIDS housing and related services, and priorities established by complementary funding streams which HOPWA funds

may be used to leverage.

3. Consultation with Local HIV/AIDS Advisory Bodies:

The County shall, either in the creation of a comprehensive needs assessment as referenced above, or through other means of consultation, consult with the following agencies: the County department with responsibility for HIV/AIDS care, the HIV/AIDS Planning Council, which sets priorities for Ryan White funding; with the cities and/or entitlement jurisdictions that participate in county-level housing planning; public and private organizations involved in the provision of housing and services to persons living with HIV/AIDS; and other local interest groups.

4. Public Meetings

The County will strive to encourage persons with HIV/AIDS, their families and advocates to express their views and ideas of what they perceive as community development and housing needs in the County through the above mentioned priority-setting processes.

The County will include a discussion of HOPWA in its meetings for its Annual Action Plan. Meeting participants will be provided with information about the HOPWA program, amount of HOPWA funds available, eligible activities, and the application process.

In addition, the County shall cause an annual meeting to be held for coordination of HIV/AIDS programs. County shall ensure that the annual meeting is widely publicized and open to the public. The annual public meeting will be held to advise residents and nonprofit organizations of program requirements and processes to be followed in developing and approving applications for federal grant programs, including HOPWA.

County shall provide meeting participants with information about the HOPWA program, funds available for both housing and community development activities and for planning and administrative activities. County shall make information available to citizens, public agencies, and other interested parties, including the specific amount of assistance the County expects to receive and the range of eligible activities that may be undertaken. County shall publish this information in the non-legal section of one or more newspapers of general circulation at least thirty (30) days prior to the date applications for funding are due. The City may conduct additional public meetings at various stages of the funding process. Meetings will be scheduled at times and locations that permit broad participation by very low and low-income persons. When needed or upon request, translators will be made available for non-English speaking attendees and the hearing-impaired.

5. Recommendations for Funding Categories and Allocations

Based on HOPWA priorities established through the consultative process described above, the County will develop recommendations concerning the amount of HOPWA funds to be allocated to each eligible funding category. The County will present these recommendations to the City for its review and comment. City approval will depend on the County's proposal being: (a) consistent with the City's established community priorities, and (b) eligible for receipt of HOPWA funds in accordance with HOPWA regulations and guidance.

6. Competitive Application Process

HOPWA funds will be allocated to eligible activities consistent with the established funding priorities through one or more competitive application processes seeking program Sub-recipients and Developers to work directly with people living with HIV/AIDS. The City may participate in this process as an observer and may provide technical assistance. The County will host public meetings to discuss the use of HOPWA funds in the County's jurisdiction and to provide technical assistance to potential applicants in developing eligible projects. City may request additional technical assistance from HUD upon request.

The County is responsible for overall implementation of the competitive application. County will send the Notices of Funding Availability (NOFAs) to all interested parties. The County will convene a review panel consisting of County staff and representatives from a selected number of cities or other parties with knowledge of the community who have declared that they do not have a conflict of interest with respect to the outcomes of the funding recommendations. The funding recommendations from the County will be based on the following established criteria: consistency with established priorities; eligibility under federal regulations; alleviation of identified needs; target population; project feasibility and cost-effectiveness; experience; outreach and affirmative marketing program; and project readiness.

In addition to the conflict of interest requirements in 2 CFR 200.318, no person who is an employee, agent, consultant, officer, or elected or appointed official of the City or County who exercises or has exercised any functions or responsibilities with respect to activities funded by this Agreement, or who participates in a decision making process or gains inside information with regard to such activities, may obtain a financial interest or benefit from the activity, or have an interest in any contract, subcontract, or agreement with respect thereto, or the proceeds thereunder, either for himself or herself or for those with whom he or she has close family or significant business ties, during his or her tenure. Any subcontracts awarded pursuant to this section and funded by this Agreement shall include a requirement that the subcontractor shall not use such funds as compensation for any of its employees, consultants or other agents who were engaged by City or County and were subject to the restrictions in paragraph during the year prior to their engagement by subcontractor.

7. Funds Awarded and Distributed

Following completion of the competitive application process described above, the County shall submit to the City a description of the priority-setting, selection process and a list of selected Sub-recipients and Developers. No later than thirty days after execution of this Agreement, County shall submit HOPWA County Staff Report for approval by City.

The City will review the proposed projects to confirm eligibility under federal regulations and contracting requirements (24 CFR Part 574). If the proposed projects comply with federal HOPWA regulations, the City will approve the projects and so inform the County. If the City finds that the proposed projects are inconsistent with federal HOPWA regulations, the City will so inform the County and provide a rationale for its finding(s). Unless rejected

by the City in writing within thirty (30) days after receipt of the staff report and budget allocation report, the projects will be deemed accepted.

Following approval by the City, the County will submit the recommended projects and program Sub-recipients and Developers to the County Board of Supervisors for its review and consideration. If approved by the County Board of Supervisors, the County will immediately submit a final Schedule A-1 to the City.

The County, Sub-recipients, Developers, and their agents may not acquire, rehabilitate, convert, lease, repair, dispose of, demolish, or construct property, which work is to be funded from this Agreement, or commit or expend any funding for such work to be funded from this Agreement, until the City has completed its environmental review process. The City will disallow any project that takes choice-limiting actions before completion of the environmental review.

Any HOPWA eligible Program Delivery costs associated with any of the Developer or Sub-recipient contracts shall be built into the budget line item for Developer or Sub-recipient per 24 CFR 574.3.

8. Contract Renewals

In order to encourage continuity and cost-effectiveness in the provision of services, the County shall consider two-year contracts for housing operations, housing counseling and supportive service projects and/or programs. Projects and/or programs will be evaluated after the first year of performance. Second-year implementation will be contingent upon funds availability and a satisfactory performance evaluation. The County will provide the City with information regarding the second-year funding recommendations.



Contra
Costa
County

To: Board of Supervisors
From: John Kopchik, Director, Conservation & Development Department
Date: December 14, 2021

Subject: Authorization of Application for Permanent Local Housing Allocation Grant of Estimated \$13 Million

RECOMMENDATION(S):

ADOPT Resolution No. 2021/406 authorizing the submittal of a Permanent Local Housing Allocation grant application to the State of California for an allocation up to \$13,061,028 and AUTHORIZE the Conservation and Development Director, or designee, to execute the grant Standard Agreement and all related documents.

FISCAL IMPACT:

The grant allows up to 5% administrative costs, and staff has prepared an application that includes that 5% allocation. Staff anticipates all costs to the County being funded by that amount. This will result in no net costs to the County if the grant application is approved as submitted.

BACKGROUND:

The Permanent Local Housing Allocation (PLHA) program is a new State program with entitlement and competitive components. The State designated Contra Costa County as the administrator of the entitlement grant award for the Contra Costa "Urban County," which includes the unincorporated communities and all the cities except for Antioch, Pittsburg, Walnut Creek, and Concord, which have their own entitlements. The State estimates the Urban County will receive approximately \$13 million over the program's first five years, but the amount may fluctuate from year to year as it is based on recording fees from actual real estate transactions.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Amalia Cunningham,
925-655-2881

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:

BACKGROUND: (CONT'D)

The required submittal includes an expenditure plan called a “Five Year Plan” (Plan) for the Board’s approval as part of the complete application package. The draft Plan (attached) identifies the broad categories of planned uses of the PLHA award to comply with the program parameters. The anticipated category of use is new multifamily rental housing construction for households earning up to 80% of the Area Median Income (AMI) anywhere in the Urban County. This is consistent with the Board's direction on August 9, 2021, when it authorized staff to prepare the full PLHA application and include the funding source in the Housing and Community Improvement (HCI) group's annual Notice of Funding Available. In accordance with the State's PLHA Guidelines, proposals that include even deeper levels of affordability, 60% AMI and below, will be given priority consideration for the funds.

While it is a cumbersome application process, PLHA is an entitlement grant so the County will receive it once a complete application is accepted. It is expected to be permanent, but programmed on a five year basis, with annual funding amounts for the following year announced each spring. The Plan and the complete application must be authorized by the Board of Supervisors for the initial submittal, with subsequent annual requests submitted administratively. PLHA funding for new construction will be low-interest deferred loans to eligible projects, restricted to the target household income limit for 55 years, in accordance with the State guidelines. The State allows a plan amendment process to provide some flexibility in the event that the funds are undersubscribed, but HCI staff has already received multiple inquiries about PLHA funds, and expects them to be fully subscribed.

Affordable developments throughout the Urban County will be eligible for the program. Every city in the Urban County was invited to a meeting with DCD staff in December 2020 to learn more about PLHA. While some cities considered requesting a sub-allocation of funds, ultimately none pursued it due to the administrative burden of meeting the State's requirements.

On September 21, 2021, the Board opened and closed a public hearing to take public comment on the Five-Year Plan and related resolution; the item was advertised in the East Bay Times 10 days in advance of the meeting date, and the Plan and application were posted online for public review, meeting the State's public notice requirements. The Board approved Resolution No. 2021/286 at the September 21, 2021 meeting. Staff subsequently submitted the complete application materials to the State on September 28, 2021. On December 1, 2021, County staff was informed by HCD staff that the State's resolution template language had been updated; HCD requested that the County adopt the new language in a new resolution authorizing the PLHA application and approving the Five-Year Plan. The updated resolution is attached. There is no change to the application and Five-Year Plan as previously approved by the Board of Supervisors.

CONSEQUENCE OF NEGATIVE ACTION:

If the Board does not authorize the submittal of the PLHA grant application, the Urban County will not receive an estimated \$13 million to help fund new housing affordable to households making 80% or less of the Area Median Income over the next five years.

ATTACHMENTS

Resolution 2021/406

PLHA Application

PLHA Five-Year Plan

THE BOARD OF SUPERVISORS OF CONTRA COSTA COUNTY, CALIFORNIA
and for Special Districts, Agencies and Authorities Governed by the Board

Adopted this Resolution on 12/14/2021 by the following vote:

AYE: ☐

NO: ☐

ABSENT: ☐

ABSTAIN: ☐

RECUSE: ☐



Resolution No. 2021/406

Authorizing the application and adopting the PLHA plan for the Permanent Local Housing Allocation Program

The Board of Supervisors of the County of Contra Costa hereby consents to, adopts, and ratifies the following resolution:

- A. WHEREAS, the Department is authorized to provide up to \$304 million to Cities and Counties for assistance under the SB 2 Permanent Local Housing Allocation Program Entitlement Jurisdiction Component from the Building Homes and Jobs Trust Fund (as described in Health and Safety Code section 50470 et seq. (Chapter 364, Statutes of 2017 (SB 2)));
- B. WHEREAS, the State of California (the "State"), Department of Housing and Community Development ("Department") issued a Notice of Funding Availability ("NOFA") dated 5/3/21 under the Permanent Local Housing Allocation ("PLHA") Program;
- C. WHEREAS, Contra Costa County ("County") is an eligible local government who has applied for program funds to administer one or more eligible activities, or a Local or Regional Housing Trust Fund to whom an eligible Local government delegated its PLHA formula allocation;
- D. WHEREAS, the Department may approve funding allocations for the PLHA Program, subject to the terms and conditions of the PLHA Program Guidelines, NOFA, Program requirements, the Standard Agreement, and other contracts between the Department and PLHA grant recipients;
- E. WHEREAS a properly noticed public hearing was held by the Board on September 21, 2021, to receive public comments on the PLHA Plan prepared by County staff, following which the Board adopted the PLHA Plan;

NOW, BE IT THEREFORE RESOLVED:

- 1. If Applicant receives a grant of PLHA funds from the Department pursuant to the above referenced PLHA NOFA, it represents and certifies that it will use all such funds in a manner consistent and in compliance with all applicable state and federal statutes, rules, regulations, and laws, including without limitation all rules and laws regarding the PLHA Program, as well as any and all contracts Applicant may have with the Department.
- 2. Applicant is hereby authorized and directed to receive a PLHA grant, in an amount not to exceed the five-year estimate of the PLHA formula allocations, as stated in Appendix C of the current NOFA to be \$13,061,028, in accordance with all applicable rules and laws.
- 3. Applicant hereby agrees to use the PLHA funds only for eligible activities as approved by the Department and in accordance with all Program requirements, PLHA Program Guidelines, other rules and laws, as well as in a manner consistent and in compliance with the Standard Agreement, its Application, and other contracts between the Applicant and the Department.
- 4. Pursuant to Section 302(c)(4) of the Guidelines, Applicant's PLHA Plan for the 2019-2023 Allocations, as presented and previously approved in a properly noticed public hearing held September 21, 2021, is attached to this resolution, and Applicant hereby adopts this PLHA Plan and certifies compliance with all public notice, public comment, and public hearing requirements in accordance with the Guidelines.
- 5. If applicable, Applicant certifies that it was delegated by another local government to submit an application on its behalf and administer the PLHA grant award for the formula allocation of PLHA funds, pursuant to Guidelines Section 300(c) and 300(d), and the legally binding agreement between the recipient of the PLHA funds and the Applicant is submitted with the PLHA application.
- 6. If applicable, Applicant certifies that it has or will subgrant some or all of its PLHA funds to another entity or entities. Pursuant to Guidelines Section 302(c)(3), "entity" means a housing developer or program operator, but does not mean an

administering Local government to whom a Local government may delegate its PLHA allocation.

7. If applicable, Applicant certifies that its selection process of these subgrantees was or will be accessible to the public and avoided or shall avoid any conflicts of interest.
8. If applicable, pursuant to Applicant's certification in this resolution, the PLHA funds will be expended only for eligible Activities and consistent with all program requirements.
9. If applicable, Applicant certifies that, if funds are used for the acquisition, construction or rehabilitation of for-sale housing projects or units within for-sale housing projects, the grantee shall record a deed restriction against the property that will ensure compliance with one of the requirements stated in Guidelines Section 302(c)(6)(A),(B) and (C).
10. If applicable, Applicant certifies that, if funds are used for the development of an Affordable Rental Housing Development, the Local government shall make PLHA assistance in the form of a low-interest, deferred loan to the Sponsor of the Project, and such loan shall be evidenced through a Promissory Note secured by a Deed of Trust and a Regulatory Agreement that shall restrict occupancy and rents in accordance with a Local-government approved underwriting of the Project for a term of at least 55 years.
11. Applicant shall be subject to the terms and conditions as specified in the Standard Agreement, the PLHA Program Guidelines, and any other applicable SB 2 guidelines published by the Department.
12. Director of the Department of Conservation and Development John Kopchik, or his designee, is authorized to execute the PLHA Program Application, the PLHA Standard Agreement and any subsequent amendments or modifications thereto, as well as any other documents which are related to the Program or the PLHA grant awarded to Applicant, as the Department may deem appropriate.

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

**Contact: Amalia Cunningham,
925-655-2881**

ATTESTED: December 14, 2021

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:

Permanent Local Housing Allocation (PLHA) Formula Allocation

2021 Application for New Applicants



**State of California
Governor, Gavin Newsom**

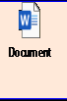
**Lourdes Castro Ramírez, Secretary
Business, Consumer Services and Housing Agency**

**Gustavo Velasquez, Director
Department of Housing and Community Development**

Program Design and Implementation, PLHA Program
2020 West El Camino Avenue, Suite 150, Sacramento, CA 95833
PLHA Program Email: PLHA@hcd.ca.gov

**Final Filing Date: December 31, 2021
at 11:59 P.M. PST**

Instructions This application form is limited to Applicants who did not apply to the 2020 Formula Allocation NOFA			Rev. 5/14/21
When opening this file, a yellow banner at the top may appear with a button that says "Enable Content". It is essential that you click this box so that the macros are enabled. Enabling macros is necessary for full worksheet functionality. Macros do not work with Microsoft's Excel version for Apple Mac.			
Applications must be submitted electronically to the Department's website. Requirements for uploading the Application Workbook and required supporting documentation, including naming conventions, are described in the application instructions available at https://www.hcd.ca.gov/grants-funding/active-funding/plha.shtml . All applicable information must be received by HCD no later than 11:59 p.m. on:			
Friday, December 31, 2021			
Applications must be on the Department's forms and cannot be altered or modified by the Applicant. Excel forms must be in Excel format and 'save as' .xls or .xlsx. Do not 'save as' .xlsm or .pdf format. If you encounter problems with the application, please fill out the Application Support worksheet and email the entire workbook to Application Support at AppSupport@hcd.ca.gov and PLHA@hcd.ca.gov			
General Instructions Additional instructions and guidance are given throughout the Formula Allocation Application in "red" text and in cell comments.			
Guideline references are made with "\$" and the corresponding guideline section number.			
"Yellow" cells are for Applicant input. Failure to provide the required attachments and documentation will disqualify your application from consideration.			
Required attachments are indicated in "orange" throughout the Supplemental Application. Failure to provide the required attachments and documentation may disqualify your application from consideration. Electronically attached files must use the naming convention in the PLHA Application. For Example: "App1 Payee Data" for Applicant 1 Payee Data Record/STD. 204.			
Threshold items are indicated in "blue" cells.			
"Red" shaded cells indicate the Sponsor has failed to meet a requirement of the program.			
Applicant must complete the following worksheets in the PLHA Formula Allocation Application.			
Formula Allocation Application			
302(c)(4) Plan			
Legislative Contacts			
Checklist			
Threshold Requirement	Electronic File Name	Document Description	Included?
X	Application and Adopting the PLHA Plan (2019-2023 Allocations) Reso	Pursuant to section 302(c)(4) of the Guidelines, Applicant's PLHA Plan for 2019-2023 allocations is attached to this resolution, and Applicant certifies compliance with all public notice, comment, and hearing requirements in accordance with the Guidelines.	Included
	App1 TIN	Taxpayer Identification Number Document	Included
X	Applicant Delegation Agreement	Legally binding agreement between Delegating and Administering Local Governments (sample provided—just click on icon in row 17, column A1)	N/A
X	Reuse Plan	Program Income Reuse Plan describing how repaid loans or accrued interest will be used for eligible activities in Section 301.	Included
X	Executed Application	Provide a copy of the signed application. Signature in blue ink preferred.	Included
Disclosure of Application (California Public Records Act Statutes of 1968 Chapter 1473): Information provided in the application will become a public record available for review by the public, pursuant to the California Public Records Act Statutes of 1968 Chapter 1473. As such, any materials provided will be disclosable to any person making a request under this Act. The Department cautions Applicants to use discretion in providing information not specifically requested, including but not limited to, bank accounts, personal phone numbers and home addresses. By providing this information to the Department, the Applicant is waiving any claim of confidentiality and consents to the disclosure of submitted material upon request.			

Local Government Formula Allocation for New Applicants										Rev. 5/14/21	
Eligible Applicant Type:		Entitlement									
Local Government Recipient of PLHA Formula Allocation:										Contra Costa County	
2019 PLHA Formula Allocation Amount:		\$2,170,178				2020 Allowable Local Admin (5%):		\$108,509			
2020 PLHA Formula Allocation Amount:		\$3,373,129				2021 Allowable Local Admin (5%):		\$168,656			
<p>Instructions: If the Local Government Recipient of the PLHA Formula Allocation delegated its PLHA formula allocation to a Local Housing Trust Fund or to another Local Government, the Applicant (for which information is required below) is the Local Housing Trust Fund or administering Local Government. The PLHA award will be made to the Applicant (upon meeting threshold requirements) and the Applicant is responsible for meeting all program requirements throughout the term of the Standard Agreement.</p> <p>The 302(c)(4) Plan template worksheet requires first choosing one or more of the Eligible Activities listed below. If "Yes" is clicked, the 302(c)(4) Plan worksheet opens a series of questions about what precise activities are planned. Some specific activities, such as providing downpayment assistance to lower-income households for acquisition of an affordable home, could be included under either Activity 2 or 9. Please only choose one of those Activities; don't list the downpayment assistance under both Activities.</p> <p>If the PLHA funds are used for the same Activity but for different Area Median Income (AMI) level, select the same Activity twice (or more times) and the different AMI level the Activity will serve. Please enter the percentage of funds allocated to the Activity in only the first Activity listing to avoid double counting the funding allocation.</p> <p>For each year (2019-2023), allocations must equal to 100% annually including the allowable administrative costs of up to five percent.</p>											
Eligible Applicants §300											
<p>§300(a) and (b) Eligible Applicants for the Entitlement and Non-Entitlement formula component described in Section §100(b)(1) and (2) are limited to the metropolitan cities and urban counties allocated a grant for the federal fiscal year 2017 pursuant to the federal CDBG formula specified in 42 USC, Section §5306 and Non-entitlement local governments.</p>											
Applicant:		Department of Conservation and Development									
Address:		30 Muir Road									
City:	Martinez	State:	CA	Zip:	94553	County:	Contra Costa				
Auth Rep Name:	Amalia Cunningham	Title:	Assistant Deputy Director	Auth Rep. Email:	amalia.cunningham@dcd.cccounty.us		Phone:	925-655-2881			
Address:	30 Muir Road	City:	Martinez	State:	CA	Zip Code:	94553				
Contact Name:	Cathy Remick	Title:	Planner	Contact Email:	cathy.remick@dcd.cccounty.us		Contact Phone:	925-655-2887			
Address:	30 Muir Road	City:	Martinez	State:	CA	Zip Code:	94553				
§300(d) Is Applicant delegated by another Local government to administer on its behalf its formula allocation of program funds?											No
<p>§300(d) If Applicant answered "Yes" above, has the Applicant attached the legally binding agreement required by §300 (c) and (d)?</p> <p>A sample agreement can be found by double clicking on the icon to the right</p>											
File Name:	Application and Adopting the PLHA Plan (2019-2023 Allocations) Reso			Pursuant to section 302(c)(4) of the Guidelines, Applicant's PLHA Plan for 2019-2023 allocations is attached to this resolution, and Applicant certifies compliance with all public notice, comment, and hearing requirements in accordance with the Guidelines.				Uploaded to HCD?	Yes		
File Name:	App1 TIN			Taxpayer Identification Number Document				Uploaded to HCD?	Yes		
File Name:	Applicant Delegation Agreement			Legally binding agreement between Delegating and Administering Local Governments (sample provided—just click on icon in row 17, column AI)				Uploaded to HCD?	N/A		
Eligible Activities, §301											
§301(a) Eligible activities are limited to the following:											Included?
§301(a)(1) The predevelopment, development, acquisition, rehabilitation, and preservation of multifamily, residential live-work, rental housing that is affordable to Extremely low-, Very low-, Low-, or Moderate-income households, including necessary operating subsidies.											<input checked="" type="checkbox"/> YES
§301(a)(2) The predevelopment, development, acquisition, rehabilitation, and preservation of affordable rental and ownership housing, including Accessory Dwelling Units (ADUs), that meets the needs of a growing workforce earning up to 120 percent of AMI, or 150 percent of AMI in high-cost areas. ADUs shall be available for occupancy for a term of no less than 30 days.											<input type="checkbox"/> YES
§301(a)(3) Matching portions of funds placed into Local or Regional Housing Trust Funds.											<input type="checkbox"/> YES
§301(a)(4) Matching portions of funds available through the Low- and Moderate-Income Housing Asset Fund pursuant to subdivision (d) of HSC Section 34176.											<input type="checkbox"/> YES
§301(a)(5) Capitalized Reserves for services connected to the preservation and creation of new permanent supportive housing.											<input type="checkbox"/> YES
§301(a)(6) Assisting persons who are experiencing or At-risk of homelessness, including, but not limited to, providing rapid re-housing, rental assistance, supportive/case management services that allow people to obtain and retain housing, operating and capital costs for navigation centers and emergency shelters, and the new construction, rehabilitation, and preservation of permanent and transitional housing.											<input type="checkbox"/> YES
§301(a)(7) Accessibility modifications in Lower-income Owner-occupied housing.											<input type="checkbox"/> YES
§301(a)(8) Efforts to acquire and rehabilitate foreclosed or vacant homes and apartments.											<input type="checkbox"/> YES
§301(a)(9) Homeownership opportunities, including, but not limited to, down payment assistance.											<input type="checkbox"/> YES
§301(a)(10) Fiscal incentives made by a county to a city within the county to incentivize approval of one or more affordable housing Projects, or matching funds invested by a county in an affordable housing development Project in a city within the county, provided that the city has made an equal or greater investment in the Project. The county fiscal incentives shall be in the form of a grant or low-interest loan to an affordable housing Project. Matching funds investments by both the county and the city also shall be a grant or low-interest deferred loan to the affordable housing Project.											<input type="checkbox"/> YES
Threshold Requirements, §302											
§302(a) The Applicant's Housing Element and Delegating Local Government's Housing Element (if applicable) was/were adopted by the Local Government's governing body by the application submittal date subsequently determined to be in substantial compliance with state Housing Element Law pursuant to Government Code Section 65585.											Yes
§302(c)(2) Applicant certified in the Resolution submitted with this application that submission of the application was authorized by the governing board of the Applicant.											Yes
§302(c)(3) Applicant certified in the Resolution submitted with this application that, if the Local Government proposes allocation of funds for any activity to another entity, the Local government's selection process had no conflicts of interest and was accessible to the public.											Yes
§302(c)(4) Applicant certified in the Resolution submitted with this application that the application include a Plan in accordance with §302(c)(4)?											Yes
§302(c)(4)(D) Applicant certified in the Resolution submitted with this application that the Plan was authorized and adopted by resolution by the Local Government and that the public had an adequate opportunity to review and comment on its content.											Yes
§302(c)(5) Applicant certified in the Resolution submitted with this application that the Plan submitted is for a term of five years (2019-2023). Local Governments agree to inform the Department of changes made to the Plan in each succeeding year of the term of the Plan.											Yes

§302(c)(6) Applicant certified in the Resolution submitted with this application that it will ensure compliance with §302(c)(6) if funds are used for the acquisition, construction, or rehabilitation of for-sale housing projects or units within for-sale housing projects.				Yes
§302(c)(7) Applicant certified in the Resolution submitted with this application that it will ensure that the PLHA assistance is in the form of a low-interest, deferred loan to the Sponsor of the Project, if funds are used for the development of an Affordable Rental Housing Development. The loan shall be evidenced through a Promissory Note secured by a Deed of Trust and a Regulatory Agreement shall restrict occupancy and rents in accordance with the Local government-approved underwriting of the Project for a term of at least 55 years.				Yes
§302(c)(8) Has Applicant attached a program income reuse plan describing how repaid loans or accrued interest will be reused for eligible activities specified in Section				Yes
File Name:	Reuse Plan	Program Income Reuse Plan describing how repaid loans or accrued interest will be used for eligible activities in Section 301.	Narrative uploaded to HCD?	Yes
Administration				
Applicant agrees to adhere to §500 , Accounting Records.				Yes
Applicant agrees to adhere to §501 , Audits/Monitoring of PLHA Files.				Yes
Applicant agrees to adhere to §502 , Cancellation/Termination.				Yes
Applicant agrees to adhere to §503 , Reporting.				Yes
Certifications				
On behalf of the entity identified below, I certify that: The information, statements and attachments included in this application are, to the best of my knowledge and belief, true and correct and I possess the legal authority to submit this application on behalf of the entity identified in the signature block.				
Amalia Cunningham		Assistant Deputy Director		
Authorized Representative Printed Name		Title	Signature	Date

§302(c)(4) Plan															Rev. 5/14/21
<p>§302(c)(4)(A) Describe the manner in which allocated funds will be used for eligible activities.</p> <p>Contra Costa County plans to use the funds for the predevelopment, development, acquisition, rehabilitation, and preservation of housing that is affordable to Extremely Low-Income, Very Low-Income, and Low-Income households (Activity 1).</p> <p>PLHA assistance will be offered in the form of low-interest, deferred loans. The loans will be evidenced through a Promissory Note secured by a Deed of Trust, and a Regulatory Agreement will restrict occupancy and rents for a term of at least 55 years.</p>															
<p>§302(c)(4)(B) Provide a description of the way the Local government will prioritize investments that increase the supply of housing for households with incomes at or below 60 percent of Area Median Income (AMI).</p> <p>PLHA funds will be made available to affordable housing developers through a competitive Notice of Funding Availability (NOFA) process, which the County has extensive experience in from many years of successfully administering Federal Community Development Block Grant (CDBG) and Home Investment Partnership (HOME) funds for affordable housing. The PLHA funds will be added to the annual NOFA cycle for the Federal housing funds. The NOFA will seek development proposals that include new affordable housing units for households with incomes at or below 80% AMI, with priority consideration given to projects with units serving 60% AMI and below. A mixed-income project with some units at higher levels may be eligible, but awards will be based on number of units at 80% AMI or lower.</p> <p>The County has successfully leveraged HOME and CDBG funds to support affordable housing projects that have been funded by tax credits and other state funds. This existing plan will be utilized for administering PLHA funds as well. County housing staff is currently aware of potential projects in the pipeline that may be eligible for PLHA funds and will be reviewing applications annually as part of the NOFA process.</p>															
<p>§302(c)(4)(C) Provide a description of how the Plan is consistent with the programs set forth in the Local Government's Housing Element.</p> <p>Providing funds for affordable housing and assisting in new construction of affordable housing is one of the key policies in the County's Certified Housing Element. The following sections of the County's Certified Fifth Cycle Housing Element demonstrate that this 302(c)(4) Plan is consistent with the overall goals to increase the number and quality of affordable housing in the area:</p> <p>Housing Element Goal 1: Maintain and improve the quality of the existing housing stock and residential neighborhoods in Contra Costa County.</p> <p>Housing Element Goal 3: Increase the supply of housing with a priority on the development of affordable housing, including housing affordable to extremely low-income households.</p> <p>Housing Element Goal 4: Increase the supply of appropriate and supportive housing for special needs populations.</p>															
Activities Detail (Activities Detail (Must Make a Selection on Formula Allocation Application worksheet under Eligible Activities, §301))															
<p>§301(a)(1) The predevelopment, development, acquisition, rehabilitation, and preservation of multifamily, residential live-work, rental housing that is affordable to extremely low-, very low-, low-, or moderate-income households, including necessary Operating subsidies.</p>															
<p>§302(c)(4)(E)(i) Provide a detailed and complete description of how allocated funds will be used for each proposed Affordable Rental Housing Activity.</p> <p>The PLHA funds will be used for the predevelopment, development, acquisition, rehabilitation, and/or preservation of multifamily rental housing that is affordable to low-income persons earning 80% or less of the area median income (AMI). Funds will be evidenced through a Promissory Note and secured by a Deed of Trust and a Regulatory Agreement shall restrict occupancy and rents in accordance with the PLHA-required term of 55 years.</p>															
Complete the table below for each proposed Affordable Rental Housing Activity to be funded with 2019-2023 PLHA allocations. If a single Activity will be assisting households at more than one level of Area Median Income, please list the Activity as many times as needed to capture all of the AMI levels that will be assisted, but only show the percentage of annual funding allocated to the Activity one time (to avoid double counting).															
Funding Allocation Year	2019	2020	2021	2022	2023										
§302(c)(4)(E)(i) Percentage of Funds Allocated for the Proposed Affordable Rental Housing Activity	95.0%	95.0%	95.0%	95.0%	95.0%										
§302(c)(4)(E)(ii) Area Median Income Level Served	80%	80%	80%	80%	80%										TOTAL
§302(c)(4)(E)(ii) Unmet share of the RHNA at the AMI Level Note: complete for year 2019 & 2020 only	35	35													70
§302(c)(4)(E)(ii) Projected Number of Households Served	10	15	11	11	11										58
§302(c)(4)(E)(iv) Period of Affordability for the Proposed Affordable Rental Housing Activity (55 years required for rental housing projects)	55 Years	55 Years	55 Years	55 Years	55 Years	55 Years	55 Years	55 Years	55 Years	55 Years	55 Years	55 Years	55 Years	55 Years	
<p>§302(c)(4)(E)(iii) A description of major steps/actions and a proposed schedule for the implementation and completion of the Activity.</p>															

The funds will be included in the County's annual Notice of Funding Availability (NOFA). The 2022-2023 NOFA will be released the week of October 7, 2021, and will be the first to include PLHA funds (contingent upon a successful application). Year 1 and Year 2 funds will be included in the funds awarded to applicants who meet the guidelines of the PLHA program.

Awards will be made in Spring 2022 for funds available July 1, 2022, subject to the State's schedule. Once the County is in contract with the State for the PLHA entitlement award, the funding awards may be under contract within a year of award, and disbursement complete one year thereafter.

§301(a)(2) The predevelopment, development, acquisition, rehabilitation, and preservation of Affordable rental and ownership housing, including Accessory Dwelling Units (ADUs), that meets the needs of a growing workforce earning up to 120 percent of AMI, or 150 percent of AMI in high-cost areas. ADUs shall be available for occupancy for a term of no less than 30 days.

§301(a)(3) Matching portions of funds placed into Local or Regional Housing Trust Funds.

§301(a)(4) Matching portions of funds available through the Low- and Moderate-Income Housing Asset Fund pursuant to subdivision (d) of HSC Section 34176.

§301(a)(5) Capitalized Reserves for Services connected to the preservation and creation of new permanent supportive housing.

§301(a)(6) Assisting persons who are experiencing or At risk of homelessness, including, but not limited to, providing rapid rehousing, rental assistance, supportive/case management services that allow people to obtain and retain housing, operating and capital costs for navigation centers and emergency shelters, and the new construction, rehabilitation, and preservation of permanent and transitional housing.

§301(a)(7) Accessibility modifications in Lower-income Owner-occupied housing.

§301(a)(8) Efforts to acquire and rehabilitate foreclosed or vacant homes and apartments.

§301(a)(9) Homeownership opportunities, including, but not limited to, down payment assistance.

§301(a)(10) Fiscal incentives made by a county to a city within the county to incentivize approval of one or more affordable housing Projects, or matching funds invested by a county in an affordable housing development Project in a city within the county, provided that the city has made an equal or greater investment in the Project. The county fiscal incentives shall be in the form of a grant or low-interest loan to an affordable housing Project. Matching funds investments by both the county and the city also shall be a grant or low-interest deferred loan to the affordable housing Project.

Legislative and Congressional Information

Rev. 5/14/21

Provide the Legislative and Congressional information for the applicant and each activity location, (if different than applicant location), included in this application.

To locate or verify the Legislative and Congressional information, click on the respective links below and enter the applicant office location zip code, the activity location site zip code(s) (i.e. zip code(s) where activities are performed), and any additional activity location site(s), as applicable.

[California State Assembly](#)

[California State Senate](#)

[U.S. House of Representatives](#)

Applicant Office Location			
	District #	First Name	Last Name
State Assembly Member	Please see attached list.		
State Senate Member			
U.S. House of Representatives			
Activity Location 1 (if different from applicant location)			
	District #	First Name	Last Name
State Assembly Member			
State Senate Member			
U.S. House of Representatives			
Activity Location 2 (if different from applicant location)			
	District #	First Name	Last Name
State Assembly Member			
State Senate Member			
U.S. House of Representatives			
Activity Location 3 (if different from applicant location)			
	District #	First Name	Last Name
State Assembly Member			
State Senate Member			
U.S. House of Representatives			
Activity Location 4 (if different from applicant location)			
	District #	First Name	Last Name
State Assembly Member			
State Senate Member			
U.S. House of Representatives			
Activity Location 5 (if different from applicant location)			
	District #	First Name	Last Name
State Assembly Member			
State Senate Member			
U.S. House of Representatives			
Activity Location 6 (if different from applicant location)			
	District #	First Name	Last Name
State Assembly Member			
State Senate Member			
U.S. House of Representatives			
Activity Location 7 (if different from applicant location)			
	District #	First Name	Last Name
State Assembly Member			
State Senate Member			
U.S. House of Representatives			
Activity Location 8 (if different from applicant location)			
	District #	First Name	Last Name
State Assembly Member			
State Senate Member			
U.S. House of Representatives			
Activity Location 9 (if different from applicant location)			
	District #	First Name	Last Name
State Assembly Member			
State Senate Member			
U.S. House of Representatives			
Activity Location 10 (if different from applicant location)			
	District #	First Name	Last Name
State Assembly Member			
State Senate Member			
U.S. House of Representatives			

LEGISLATIVE AND CONGRESSIONAL INFORMATION

Contra Costa County

	District Number	First Name	Last Name
State Assembly Member	14	Timothy	Grayson
State Senate Member	3	Bill	Dodd
U.S. House of Representatives	11	Mark	DeSaulnier
State Assembly Member	11	Jim	Frazier
State Senate Member	7	Steve	Glazer
U.S House of Representatives	9	Jerry	McNerney
State Assembly Member	16	Rebecca	Bauer-Kahan
State Senate Member	7	Steve	Glazer
U.S. House of Representatives	15	Eric	Swalwell
State Assembly Member	15	Buffy	Wicks
State Senate Member	9	Nancy	Skinner
U.S. House of Representatives	5	Mike	Thompson



Permanent Local Housing Allocation 5-Year Plan and Application for Funding

Contra Costa County
Department of Conservation and Development, Housing and Community Improvement Division
30 Muir Road
Martinez, CA 94553
925-655-2700
www.contracosta.ca.gov

September 2021

INTRODUCTION

§302(c)(4) Plan

In 2017, Governor Brown signed the Legislative Housing Package to address the State's housing shortage and high housing costs. Seventy percent of the revenues generated from the California State Property Transfer Fees (SB2, 2017) are earmarked for Permanent Local Housing Allocation (PLHA). The revenue from SB2 will vary from year to year, as revenue is dependent on real estate transactions with fluctuating activity.

The PLHA provides an annual source of funding to all governments in California to help cities and counties implement plans to increase affordable housing stock. These funds will be allocated as formula grants to entitlement and non-entitlement jurisdictions based on the formula prescribed under federal law for the Community Development Block Grant (CDBG) to be locally administered.

The California Department of Housing and Community Development (HCD) announced the availability of approximately \$195 million in funding for the PLHA program in their Notice of Funding Availability (NOFA). This NOFA is funded from revenues deposited in the Building Homes and Jobs Trust Fund in calendar year 2019.

PURPOSE

As an entitlement local government for PLHA funds for the Urban County, Contra Costa County will receive an estimated 5-year allocation of \$13,021,068. This document will provide a summary of Contra Costa County's Five-Year Plan and application to California HCD.

Eligible activities for the PLHA are limited to the following:

1. The predevelopment, development, acquisition, rehabilitation, and preservation of multifamily, residential live-work, rental housing that is affordable to Extremely low-, Very low-, Low-, or Moderate-income households, including necessary operating subsidies. Extremely Low Income is household income at or below 30% of Area Median Income (AMI); Very Low Income is at or below 50% AMI; Low Income is at or below 80% AMI and Moderate Income is at or below 120% AMI. Income limits are adjusted for household size.
2. The predevelopment, development, acquisition, rehabilitation, and preservation of affordable rental and ownership housing, including Accessory Dwelling Units (ADUs), that meets the needs of a growing workforce earning up to 120% of AMI. ADUs shall be available for occupancy for a term of no less than thirty days.
3. Matching portions of funds placed into Local or Regional Housing Trust Funds.
4. Matching portions of funds available through the Low- and Moderate-Income Housing Asset Fund pursuant to subdivision (d) of HSC Section 34176.
5. Capitalized Reserves for services connected to the preservation and creation of new, permanent supportive housing.

Draft Permanent Local Housing Allocation 5-Year Plan

6. Assisting persons who are experiencing or at-risk of homelessness, including, but not limited to, providing rapid re-housing, rental assistance, supportive/case management services that allow people to obtain and retain housing, operating and capital costs for navigation centers and emergency shelters, and the new construction, rehabilitation, and preservation of permanent and transitional housing.
7. Accessibility modifications in Lower-Income owner-occupied housing.
8. Efforts to acquire and rehabilitate foreclosed or vacant homes and apartments.
9. Homeownership opportunities, including, but not limited to, down payment assistance.
10. Fiscal incentives made by a county to a city within the county to incentivize approval of one or more affordable housing projects, or matching funds invested by a county in an affordable housing development project in a city within the county, provided that the city has made an equal or greater investment in the project. The county fiscal incentives shall be in the form of a grant or low-interest loan to an affordable housing project. Matching funds investments by both the county and the city also shall be a grant or low interest deferred loan to the affordable housing project.

Eligible activities must also be consistent and compliant with the County's Adopted Housing Element, and at least 20% of the allocation statewide must be used for Affordable Owner-Occupied Workforce Housing (AOWH) defined as housing that is affordable to persons and families of low- or moderate-income. Funds available for administrative expenses are limited to 5% of the allocation.

REQUIREMENTS

To participate in the formula allocation, Contra Costa County is required to develop a five-year plan detailing the way allocated funds will be used for eligible activities.

PERMANENT LOCAL HOUSING ALLOCATION FORMULA ALLOCATION PLAN APPLICATION

§302(c)(4)(A) The manner in which allocated funds will be used for eligible activities

Contra Costa County plans to use the funds for the predevelopment, development, acquisition, rehabilitation, and preservation of housing that is affordable to Extremely Low-Income, Very Low-Income, and Low-Income households (Activity 1).

PLHA assistance will be offered in the form of low-interest, deferred loans. The loans will be evidenced through a Promissory Note secured by a Deed of Trust, and a Regulatory Agreement will restrict occupancy and rents for a term of at least 55 years.

§302(c)(4)(B) Description of the way the County will prioritize investments that increase the supply of housing for households with incomes at or below 60% Area Median Income (AMI)

PLHA funds will be made available to affordable housing developers through a competitive Notice of Funding Availability (NOFA) process, which the County has extensive experience in from many years of successfully administering Federal Community Development Block Grant (CDBG) and Home

Investment Partnership (HOME) funds for affordable housing. The PLHA funds will be added to the annual NOFA cycle for the Federal housing funds. The NOFA will seek development proposals that include new affordable housing units for households with incomes at or below 80% AMI, with priority consideration given to projects with units serving 60% AMI and below. A mixed-income project with some units at higher levels may be eligible, but awards will be based on number of units at 80% AMI or lower.

The County has successfully leveraged HOME and CDBG funds to support affordable housing projects that have been funded by tax credits and other state funds. This existing plan will be utilized for administering PLHA funds as well. County housing staff is currently aware of potential projects in the pipeline that may be eligible for PLHA funds and will be reviewing applications annually as part of the NOFA process.

§302(c)(4)(C) Description of how the Plan is consistent with programs set forth in the County's Housing Element

Providing funds for affordable housing and assisting in new construction of affordable housing is one of the key policies in the County's Certified Housing Element.

The following sections of the County's Certified Fifth Cycle Housing Element demonstrate that this 302(c)(4) Plan is consistent with the overall goals to increase the number and quality of affordable housing in the area:

Housing Element Goal 1: Maintain and improve the quality of the existing housing stock and residential neighborhoods in Contra Costa County.

Housing Element Goal 3: Increase the supply of housing with a priority on the development of affordable housing, including housing affordable to extremely low-income households.

Housing Element Goal 4: Increase the supply of appropriate and supportive housing for special needs populations.

ACTIVITIES DETAIL

§302(c)(4)(E)(i) Detailed and complete description of how allocated funds will be used for each proposed Affordable Rental Housing Activity

The PLHA funds will be used for the predevelopment, development, acquisition, rehabilitation, and/or preservation of multifamily rental housing that is affordable to low-income persons earning 80% or less of the area median income (AMI). Funds will be structured as low-interest, deferred loans to the sponsor of the project. The loans will be evidenced through a Promissory Note and secured by a Deed of Trust and a Regulatory Agreement shall restrict occupancy and rents in accordance with the PLHA-required term of 55 years.

§302(c)(4)(E)(iii) Description of major steps/actions and a proposed schedule for the implementation and completion of the Activity

The funds will be included in the County's annual Notice of Funding Availability (NOFA). The County has completed this process annually for many years, successfully awarding millions of dollars of Federal HOME, CDBG, and Housing Opportunities for Persons with AIDS (HOPWA) funding. The 2022-2023 NOFA will be released the week of October 7, 2021, and will be the first to include PLHA funds (contingent upon a successful application). Year 1 and Year 2 funds will be included in the funds awarded to applicants who meet the guidelines of the PLHA program.

Awards will be made in Spring 2022 for funds available July 1, 2022, subject to the State's schedule. Once the County is in contract with the State for the PLHA entitlement award, the funding awards may be under contract within a year of award, and disbursement complete one year thereafter.

PROGRAM INCOME REUSE

Program income is defined as gross income received by the recipient or a subrecipient directly generated from the use of PLHA funds, 4.3.2. Any program income received from activities in this plan will first be utilized to deliver additional activities of the same type as defined by Section 2.5. If future amended plans no longer support the allocation of funds to that activity, the project income will be programmed according to the activity allocation in effect at that time. The County is committed to following the Reuse Plan adopted by this policy and defined further in Attachment A.

ASSURANCES

The County will provide PLHA assistance in the form of deferred, low-interest loans to project sponsors for use in the development of affordable rental housing. Regulatory Agreements and Promissory Notes secured by Deeds of Trust against the property housing the development will assure long-term affordability

REPORTING

Pursuant to HSC Section 504740(b)(2)(B)(ii)(III), the County will provide an Annual Report documenting the uses and expenditures of any awarded allocated every July 31 to the Department of Housing and Community Development grant management division according to its specifications.

Attachment A

CONTRA COSTA COUNTY RE-USE PLAN

Contra Costa County commits to maintaining policies and procedures that separate out Permanent Local Housing Allocation (PLHA) program income for future reuse in accordance with the following policies:

1. All repayments of PLHA loan principal and interest shall be received by the County Department of Conservation and Development and deposited into a separate reuse account maintained by the Department's Finance staff. The County's PLHA loan documentation will track information such as borrower name and address, loan/reference number, grant year, and principal and interest.
2. The reuse account shall be an interest-bearing account into which all earned interest shall be deposited. Interest earned shall be considered reuse funds and will be used in the same manner and with the same restrictions as principal and interest payments.
3. All funds deposited into the reuse account shall be the property of the County.
4. All PLHA reuse funds shall be expended in accordance with PLHA regulations. This includes, but is not limited to, income levels, homebuyer education requirements, and coordinated entry requirements.
5. Reuse funds may be used for PLHA eligible activities in the following categories, but must be in alignment with the State approved PLHA Plan.
 - a. The predevelopment, development, acquisition, rehabilitation, and preservation of multifamily, residential live-work, rental housing that is affordable to extremely low-, very low-, low-, or moderate-income households, including necessary operating subsidies.
 - b. The predevelopment, development, acquisition, rehabilitation, and preservation of Affordable rental and ownership housing, including Accessory Dwelling Units (ADUs), that meets the needs of a growing workforce earning up to 120-percent of AMI, or 150-percent of AMI in high-cost areas. ADUs shall be available for occupancy for a term of no less than 30-days.
 - c. Assisting persons who are experiencing or at risk of homelessness, including, but not limited to, providing rapid rehousing, rental assistance, supportive/case management services that allow people to obtain and retain housing, operating and capital costs for navigation centers and emergency shelters, and the new construction, rehabilitation, and preservation of permanent and transitional housing.
 - d. Accessibility modifications in lower-income owner-occupied housing.
 - e. Efforts to acquire and rehabilitate foreclosed or vacant homes and apartments.

f. Homeownership opportunities, including, but not limited to, down payment assistance.

g. Up to five percent (5%) for administration.

6. Reuse funds may be used within the boundaries of the Urban County of Contra Costa County.

7. The County shall allow HCD full access to the reuse account records for the purpose of determining compliance with PLHA regulations



**Contra
Costa
County**

To: Board of Supervisors
From: Marc Shorr, Chief Information Officer
Date: December 14, 2021

Subject: APPROVE and AUTHORIZE the Chief Information Officer, DoIT, to execute a contract with AT&T Corporation

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Chief Information Officer, Department of Information Technology, or designee, to execute a contract with AT&T Corp. in an amount not to exceed \$521,000 to provide support services for the period of December 1, 2021 through November 30, 2022.

FISCAL IMPACT:

The cost for this contract is within the Department of Information Technology's budget. (100% User Fees).

BACKGROUND:

The Department of Information Technology (DoIT) is critical need of support services in our wide area network (WAN) and local area network (LAN) division due to the retirement of a key staff member and other staffing shortages. While the department is actively recruiting to fill several vacancies, AT&T is able to provide temporary support services to fill this

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Marc Shorr, 925
608-4071

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Nancy Zandonella

BACKGROUND: (CONT'D)

critical void. Once permanent staff is on board, the need for this temporary staffing solution will no longer be necessary. The division is currently implementing a new Countywide email security software platform which guards against malware and non-malware threats and protects against advanced email breaches and the division needs immediate assistance with the software implementation.

CONSEQUENCE OF NEGATIVE ACTION:

If this contract is not approved, DoIT will continue to be understaffed and the implementation of the email protection software will be at risk.



**Contra
Costa
County**

To: Board of Supervisors
From: Marc Shorr, Chief Information Officer
Date: December 14, 2021

Subject: APPROVE and AUTHORIZE the Chief Information Officer, Department of Information Technology, to execute a contract with Sirius Computer Solutions, Inc.

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Chief Information Officer, Department of Information Technology, or designee, to execute a contract with Sirius Computer Solutions, Inc., including modified indemnification, in an amount not to exceed \$220,000 to provide IBM System Z Mainframe Operating System services for the period of November 1, 2021 through October 31, 2023. (100% General Fund)

FISCAL IMPACT:

Within the department's FY 20-21 budget. (100% User Fees)

BACKGROUND:

The County uses the IBM System Z mainframe operating system on its mainframe servers. During the term of the contract, Sirius Computer Solutions, Inc., will work with County employees, under the direction of the Chief Information Officer of the Department of Information Technology, to provide (on an as-needed basis) IBM System Z mainframe operating system support, including without limitation, general trouble-shooting assistance, application support, and system software administration.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR ☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Marc Shorr, 925
608-4071

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Michelle Colefield , Nancy Zandonella

BACKGROUND: (CONT'D)

The contract includes provisions requiring the contractor to indemnify the County for any claims for infringement of a third party's intellectual property rights to the extent the infringement claims are based on Contractor's performance of support services under the contract.

CONSEQUENCE OF NEGATIVE ACTION:

If not approved the County's critical Mainframe production job processing can negatively impact Finance, Land Information Systems (Assessor, Tax Collector & Auditor Controller), Property Tax Systems (Secured, Unsecured, Redemption and Delinquent), Courts (Criminal and Traffic), Probation (Adult & Juvenile), District Attorney Juvenile, Public Defender, and the Justice Automated Warrant System.



**Contra
Costa
County**

To: Board of Supervisors
From: John Kopchik, Director, Conservation & Development Department
Date: December 14, 2021

Subject: Contract Amendment with Benchmark, Inc., for Environmental Impact Preparation Services for the CEMEX Project, County File #'s LP15-2030 and LP15-2031

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Conservation and Development Director, or designee, to execute a contract amendment with Benchmark Land Use Group, Inc., to extend the term from December 31, 2021 through December 31, 2022 and increase the payment limit by \$86,207.50 to a new payment limit of \$382,159.50 in order for Benchmark Land Use Group, Inc., to complete the Environmental Impact Report for the CEMEX quarry project located in the Clayton area. (County File #'s LP15-2030 and LP15-2031)

FISCAL IMPACT:

No impact to the County General Fund. The contract is 100% funded by the applicant.

BACKGROUND:

In January of 2020, the Department of Conservation and Development (DCD) entered into a contract with Benchmark Land Use Group, Inc., to provide technical assistance and services to DCD related to the CEMEX quarry project. The contract amendment is necessary to provide peer review services for an additional biological resources technical report and health risk assessment, as well as to prepare a noise study and green house gas evaluation, and incorporate these items into the environmental impact report sections and findings. This amendment will allow the contractor to continue to prepare the environmental impact report for the project.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Francisco Avila, (925)
655-2866

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:

CONSEQUENCE OF NEGATIVE ACTION:

If the proposed contract amendment is not approved, the contractor would not be able to complete the environmental impact report.

ATTACHMENTS

Form L-7

Form L-2

Amendment Specifications

Revised Budget

CONTRACT AMENDMENT AGREEMENT
(Purchase of Services – Long Form)

Number: C46552
Fund/Org: As Coded
Account: 2310
Other:

1. **Identification of Contract to be Amended.**

Number: C46552

Effective Date: January 7, 2020

Department: Conservation and Development

Subject: To prepare an Environmental Impact Report for the CEMEX Clayton Quarry Project

2. **Parties.** The County of Contra Costa, California (County), for its Department named above, and the following named Contractor mutually agree and promise as follows:

Contractor: Benchmark Land Use Group, Inc., dba Benchmark Resources

Capacity: Corporation

Address: 2515 East Bidwell Street, Folsomm, CA 95630

3. **Amendment Date.** The effective date of this Contract Amendment Agreement is December 7, 2021.

4. **Amendment Specifications.** The Contract identified above is hereby amended as set forth in the “Amendment Specifications” attached hereto which are incorporated herein by reference.

5. **Signatures.** These signatures attest the parties’ agreement hereto:

COUNTY OF CONTRA COSTA, CALIFORNIA

BOARD OF SUPERVISORS	ATTEST: Clerk of the Board of Supervisors
By: _____ Chair/Designee	By: _____ Deputy

CONTRACTOR

Signature A Name of business entity: Benchmark Land Use Group, Inc.	Signature B Name of business entity: Benchmark Land Use Group, Inc.
By: _____ (Signature of individual or officer)	By: _____ (Signature of individual or officer)
_____ (Print name and title A, if applicable)	_____ (Print name and title B, if applicable)

Note to Contractor: For corporations (profit or nonprofit) and limited liability companies, the contract must be signed by two officers. Signature A must be that of the chairman of the board, president, or vice-president; and Signature B must be that of the secretary, any assistant secretary, chief financial officer or any assistant treasurer (Civil Code Section 1190 and Corporations Code Section 313). All signatures must be acknowledged as set forth on Form L-2.

ACKNOWLEDGMENT/APPROVALS
(Purchase of Services – Long Form)

Number: C46552

ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF CALIFORNIA)
)
COUNTY OF CONTRA COSTA)

On _____ (Date),

before me, _____ (Name and Title of the Officer),
personally appeared, _____,

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS MY HAND AND OFFICIAL SEAL.

Signature of Notary Public



Place Seal Above

ACKNOWLEDGMENT (by Corporation, Partnership, or Individual)
(Civil Code §1189)

APPROVALS

RECOMMENDED BY DEPARTMENT

By: _____
Designee

FORM APPROVED BY COUNTY COUNSEL

By: Kurt Chalk
Deputy County Counsel

APPROVED: COUNTY ADMINISTRATOR

By: _____
Designee

AMENDMENT SPECIFICATIONS

Under its Contract with the County, Benchmark Land Use Group, Inc. dba Benchmark Resources ("Contractor") is preparing an Environmental Impact Report ("EIR") for the CEMEX Clayton Quarry Project (LP15-2030 and LP15-2031) ("Project").

During Contractor's performance under the Contract, the Applicant submitted a revised application requiring additional review and revisions by Contractor not originally contemplated by the parties. Also during Contractor's performance under the Contract, the County, Applicant, and Contractor identified additional tasks the performance of which are necessary to properly analyze the Project. Accordingly, the County has requested that Contractor perform additional tasks not previously described in the Contract's Scope of Work.

The County and Contractor therefore agree to amend the Contract, as follows:

1. Section 3 (Term) is hereby amended to extend the termination date from December 31, 2021, to December 31, 2022.
2. Section 4 (Payment Limit) is hereby amended to increase the payment limit by \$86,207.50, from \$295,952 to a new total payment limit of \$382,159.50.
3. Section II (Scope of Work) of the Service Plan is hereby amended by adding the following to Subtask 2.2 (Peer Review):

Peer Review of Public Health Risk Assessment

Contractor will peer review the HRA prepared for the project and the EIR. The peer review will include:

- 1) review of the assumptions used in the modeling to assure appropriate reflection of the project. These include construction (e.g., grading quantities, equipment types and tiers, etc.) and operational considerations (e.g., traffic data, energy use, etc.),
- 2) evaluating the adequacy and appropriateness of the models employed in estimating construction and operation emissions,
- 3) evaluating the adequacy and appropriateness of the thresholds used in the analysis.
- 4) assessing the accuracy of the calculations and review the supporting data used in the modeling process, and
- 5) evaluating HRA impact conclusions based on thresholds used in the report and confirm that adequate mitigation measures have been provided to address any direct and indirect impacts.

Initials: _____
 Contractor County Dept.

AMENDMENT SPECIFICATIONS

Contractor will coordinate this peer review and incorporate the findings into the EIR's Air Quality impact analysis.

4. Section II (Scope of Work) of the Service Plan is hereby amended, adding the following to Subtask 2.2 (Peer Review):

Contractor will peer review one additional biological resources technical report. The peer review will include:

- 1) review of biological technical report.
- 2) Determine the adequacy of the study.

Contractor will coordinate this peer review and incorporate the findings into the EIR's Biological Resources impact analysis.

5. Section II (Scope of Work) of the Service Plan is hereby amended, adding subtask 3.1, to read as follows:

Subtask 3.1: Project Description Revisions

The Applicant submitted an application amendment following initiation of EIR preparation, which included revisions to some aspects of the proposed project and updated figures. Therefore, Contractor revised and reviewed the EIR Project Description and other environmental resource chapters (e.g., Land Use) for consistency to reflect the revisions to the application. This task accounts for additional time to revise the EIR and any related coordination.

6. Section II (Scope of Work) of the Service Plan is hereby amended, adding Subtask 4.12, to read as follows:

Subtask 4.12: Greenhouse Gas Emissions

Under the revised environmental checklist in Appendix G of the CEQA Guidelines, GHG now constitutes its own category under the checklist. To reflect this revisions, Contractor will prepare a distinct chapter for GHG emissions separate from the Air Quality chapter.

7. Section II (Scope of Work) of the Service Plan is hereby amended, adding Subtask 4A to Task 4 (Administrative Draft EIR Preparation), to read as follows:

Subtask 4A: Revisions to Administrative Draft EIR

Initials: _____
 Contractor County Dept.

AMENDMENT SPECIFICATIONS

In preparation of the hydrology section of the EIR, Contractor identified several potential impacts that were not addressed or were only partially addressed in the original hydrologic studies for the proposed project. These issues included:

- The potential of the quarry lake pipeline discharges to result in the overflow of the downstream DA71A stormwater drainage system.
- The long-term maintenance challenges associated with the development of a pipeline that would serve a lake that would take 158 years to form.
- The potential of water quality in the lake to exceed thresholds for the protection of wildlife species that could encounter the lake water.

In response to the new and more significant issues identified during Contractor's analysis, the Applicant prepared an *Evaluation of Runoff from Mitchell Canyon Road to DA71A Storm Drains* memorandum and a *Quarry Lake Water Quality and Aquatic Life Criteria* memorandum. Contractor peer-reviewed these technical memorandums and completed major revisions to both the Biological Resources and Hydrology sections of the EIR in to incorporate the findings. Contractor developed a mitigation measure requiring the long-term maintenance of the proposed quarry lake pipeline. Lastly, recognizing the atypical nature of a project that requires regulatory compliance and maintenance activities for over 150 years after the completion of reclamation, Contractor worked closely with the County and Applicant to develop a mitigation measure that would ensure the long-term funding of water quality monitoring at the quarry pit lake and maintenance of the quarry pit lake pipeline.

In addition, upon review of the administrative draft EIR, the County made the decision to include a Noise section in the EIR, instead of addressing noise only in the Initial Study. Consequently, at County's request, Contractor completed a noise analysis and prepared an EIR Noise section. Contractor incorporated the Noise section into the EIR including revisions to the Initial Study and revisions to the multiple sections of the EIR (Introduction, Alternatives, Cumulative analysis).

Lastly, Contractor assisted the Applicant in revising the original project objectives to better meet CEQA requirements and reflect the Applicant's goals in terms of flood prevention and the protection of air quality.

8. Section II (Scope of Work) of the Service Plan is hereby amended, adding Subtask 7A to Task 7 (General Activities Coordination), to read as follows:

Subtask 7A: Additional Activities Coordination

Initials: _____
 Contractor County Dept.

AMENDMENT SPECIFICATIONS

The additional tasks and effort described for peer review, initial study preparation, and administrative draft EIR preparation resulted in extensive coordination by Contractor with the County and the Applicant Team. This effort included the following:

- Additional coordination with Rincon regarding HRA peer review and incorporation of the findings into the ADEIR;
 - Extensive email coordination with the County and Applicant Team on project description revisions;
 - E-mail and telephone coordination with the County team regarding hydrology and noise section preparation, which included preparation of ADEIR and screen check noise section; and
 - E-mail and telephone coordination with the County team regarding Initial Study preparation, which included preparation of administrative and screen check versions of the Initial Study.
9. Section II (Scope of Work) of the Service Plan is hereby amended, adding Task 10, to read as follows:

Task 10: Initial Study Preparation

Contractor will prepare an initial study based on the environmental checklist contained in Appendix G of the CEQA Guidelines. The initial study will include an abbreviated version of the project description and contained sufficient discussion of the project, baseline conditions, and vested rights to inform reviewers of those important aspects of the project. A primary purpose of the initial study is to document for the record which issues were appropriately included and excluded from detailed consideration in the EIR, and then provide a rationale or explanation for why a particular issue was not evaluated in greater detail in the EIR. For each resource topic and each individual environmental checklist question that is not discussed in greater detail in the EIR, Contractor will prepare a discussion of the project's potential to result in a significant impact associated with the issue.

10. Section II (Scope of Work) of the Service Plan is hereby amended, adding Task 11, to read as follows:

Task 11: Contingency/Additional As-Needed Services.

Upon request by the County, Contractor will provide to the County additional as-needed services to complete the Project EIR. The County will make requests for additional services in writing to the Contractor after consulting with the Contractor. Written requests will

Initials: _____
 Contractor County Dept.

AMENDMENT SPECIFICATIONS

specify the work to be conducted, the budget for the work to be conducted, and an expected work completion date.

11. Section III (Payment Provisions), subsection A.c (Budget) of the Service Plan is hereby amended to read:

Budget. Contractor shall complete the work described in Section II Scope of Work for an amount not to exceed \$382,159.50, in accordance with the budget set forth in the Revised Attachment B (Budget), attached hereto and incorporated herein by reference.

12. Section III (Payment Provisions), subsection A.d (Payment Limit) of the Service Plan is hereby amended to read:

Payment Limit. The County's total payments to Contractor under this Contract shall not exceed the payment limit of \$382,159.50.

13. Attachment B to the Service Plan is hereby deleted in its entirety and replaced with the Revised Attachment B (Budget), attached hereto and incorporated herein by reference. This revised budget also reflects various budget reallocations based on remaining budget and budget needs throughout the year.

All other Contract terms remain unchanged and in full force and effect.

Initials: _____
Contractor County Dept.

CEMEX CLAYTON QUARRY EIR
REVISED ATTACHMENT B
BUDGET (11/21/2021)

APPROVED TASKS/BUDGET		CURRENT COSTS TO-DATE		BUDGET REALLOCATION		REVISED CONTRACT TOTALS	
TASK AND SUBTASK	ORIGINAL APPROVED BUDGET	ACTUAL INVOICING STATUS THROUGH SEPTEMBER 2021	REMAINING BALANCE	REALLOCATIONS Totals shown in the (negative) have been redistributed to Tasks shown to the left as over budget.	REVISED TOTAL REMAINING BALANCE	BUDGET AMENDMENT REQUEST	REVISED APPROVED BUDGET TOTAL Post reallocations and budget amendment request
TASK 1: ASSIST WITH EIR SCOPING MEETING - TASK COMPLETE	\$14,960	\$5,726.25	\$9,233.75	(\$9,233.75)	\$0.00	\$0.00	\$5,726.25
TASK 1 SUBTOTAL	\$14,960	\$5,726.25	\$9,233.75	(\$9,233.75)	\$0.00	\$0.00	\$5,726.25
TASK 2: PEER REVIEW - TASK COMPLETE	\$24,840	\$8,987.50	\$15,852.50	(\$15,852.50)	\$0.00	\$0.00	\$8,987.50
Subconsultant Peer Review Biological Resources Reports - Rincon	\$9,030	\$12,255.00	(\$3,225.00)	\$0.00	(\$3,225.00)	\$3,225.00	\$12,255.00
Subconsultant Peer Review Hydrology Reports - Brown and Caldwell	\$13,200	\$15,484.50	(\$2,284.50)	\$2,284.50	\$0.00	\$0.00	\$15,484.50
Subconsultant Peer Review Air Quality and GHG Analysis - Rincon	\$6,770	\$4,722.50	\$2,047.50	\$0.00	\$2,047.50	\$0.00	\$6,770.00
TASK 1 SUBTOTAL	\$53,840	\$41,449.50	\$12,390.50	(\$13,568.00)	(\$1,177.50)	\$3,225.00	\$43,497.00
TASK 3: DRAFT PROJECT DESCRIPTION - TASK COMPLETE	\$10,490	\$12,240.00	(\$1,750.00)	\$1,750.00	\$0.00	\$0.00	\$12,240.00
TASK 2 SUBTOTAL	\$10,490	\$12,240.00	(\$1,750.00)	\$1,750.00	\$0.00	\$0.00	\$12,240.00
TASK 4: ADMINISTRATIVE DRAFT EIR PREPARATION	\$68,240	\$111,465.00	(\$43,225.00)	\$0.00	(\$43,225.00)	\$0.00	\$68,240.00
Subconsultant Air Quality and Greenhouse Gas Emissions - Rincon	\$7,566	\$0.00	\$7,566.00	\$0.00	\$7,566.00	\$0.00	\$7,566.00
Subconsultant Biological Resources - Rincon	\$3,315	\$0.00	\$3,315.00	\$0.00	\$3,315.00	\$0.00	\$3,315.00
Subconsultant Hydrology and Water Quality - Brown and Caldwell	\$3,000	\$0.00	\$3,000.00	(\$2,284.50)	\$715.50	\$0.00	\$715.50
Project Description Revisions and Project Objectives (OUT OF SCOPE-ADDITIONAL WORK)	\$0	\$0.00	\$0.00	\$4,676.25	\$4,676.25	\$0.00	\$4,676.25
Air Quality Health Risk Assessment (OUT OF SCOPE-ADDITIONAL WORK)	\$0	\$0.00	\$0.00	\$0.00	\$0.00	\$4,100.00	\$4,100.00
Biological Resources (OUT OF SCOPE-ADDITIONAL WORK)	\$0	\$0.00	\$0.00	\$0.00	\$0.00	\$5,125.00	\$5,125.00
Hydrology and Water Quality (OUT OF SCOPE-ADDITIONAL WORK)	\$0	\$0.00	\$0.00	\$0.00	\$0.00	\$11,505.00	\$11,505.00
Noise (NEW TASK)	\$0	\$0.00	\$0.00	\$0.00	\$0.00	\$9,895.00	\$9,895.00
Greenhouse Gas Emissions (NEW TASK)	\$0	\$0.00	\$0.00	\$0.00	\$0.00	\$2,700.00	\$2,700.00
Incorporate Initial Study Analysis (NEW TASK)	\$0	\$0.00	\$0.00	\$0.00	\$0.00	\$7,923.75	\$7,923.75
TASK 4 SUBTOTAL	\$82,121	\$111,465.00	(\$29,344.00)	\$2,391.75	(\$26,952.25)	\$41,248.75	\$125,761.50
TASK 5: PREPARATION OF DRAFT EIR	\$18,480	\$37,140.00	(\$18,660.00)	\$18,660.00	\$0.00	\$0.00	\$37,140.00
TASK 5 SUBTOTAL	\$18,480	\$37,140.00	(\$18,660.00)	\$18,660.00	\$0.00	\$0.00	\$37,140.00
TASK 6: FINAL EIR PREPARATION	\$47,270	\$0.00	\$47,270.00	\$0.00	\$47,270.00	\$0.00	\$47,270.00
Subconsultant Draft Responses to Draft EIR Comments on Air Quality/GHG - Rincon	\$7,566	\$0.00	\$7,566.00	\$0.00	\$7,566.00	\$0.00	\$7,566.00
Subconsultant Draft Responses to Draft EIR Comments on Biological Resources - Rincon	\$3,315	\$0.00	\$3,315.00	\$0.00	\$3,315.00	\$0.00	\$3,315.00
Subconsultant Draft Responses to Draft EIR Comments on Hydrology/Water Quality - Brown and Caldwell	\$1,500	\$0.00	\$1,500.00	\$0.00	\$1,500.00	\$0.00	\$1,500.00
TASK 6 SUBTOTAL	\$59,651	\$0.00	\$59,651.00	\$0.00	\$59,651.00	\$0.00	\$59,651.00
TASK 7: GENERAL ACTIVITIES COORDINATION	\$29,940	\$27,292.50	\$2,647.50	\$0.00	\$2,647.50	\$8,000.00	\$37,940.00
TASK 7 SUBTOTAL	\$29,940	\$27,292.50	\$2,647.50	\$0.00	\$2,647.50	\$8,000.00	\$37,940.00
TASK 8: DRAFT FINDINGS AND OVERRIDING CONSIDERATIONS	\$9,640	\$0.00	\$9,640.00	\$0.00	\$9,640.00	\$0.00	\$9,640.00
TASK 8 SUBTOTAL	\$9,640	\$0.00	\$9,640.00	\$0.00	\$9,640.00	\$0.00	\$9,640.00
TASK 9: PRESENTATION PREPARATION AND HEARING ATTENDANCE	\$6,080	\$0.00	\$6,080.00	\$0.00	\$6,080.00	\$0.00	\$6,080.00
TASK 9 SUBTOTAL	\$6,080	\$0.00	\$6,080.00	\$0.00	\$6,080.00	\$0.00	\$6,080.00
TASK 10: INITIAL STUDY (NEW TASK)	\$0	\$13,733.75	(\$13,733.75)	\$0.00	(\$13,733.75)	\$13,733.75	\$13,733.75
TASK 10 SUBTOTAL	\$0	\$13,733.75	(\$13,733.75)	\$0.00	(\$13,733.75)	\$13,733.75	\$13,733.75
EXPENSES	\$10,750	\$42.15	\$10,707.85	\$0.00	\$10,707.85	\$0.00	\$10,750.00
EXPENSES SUBTOTAL	\$10,750	\$42.15	\$10,707.85	\$0.00	\$10,707.85	\$0.00	\$10,750.00
CONTINGENCY (NEW TASK)	\$0	\$0.00	\$0.00	\$0.00	\$0.00	\$20,000.00	\$20,000.00
CONTINGENCY SUBTOTAL	\$0	\$0.00	\$0.00	\$0.00	\$0.00	\$20,000.00	\$20,000.00
GRAND TOTAL	\$295,952	\$249,089.15	\$46,862.85	\$0.00	\$46,862.85	\$86,207.50	\$382,159.50



Contra
Costa
County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Interagency Agreement #74-638 with Contra Costa County Office of Education

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute on behalf of the County Interagency Agreement #74-638 with Contra Costa County Office of Education, an educational institution, in an amount not to exceed \$4,347,281, to implement and oversee the Contra Costa County Wellness in Schools Program (WISP) to provide support to Contra Costa school districts, including high-need and underserved school districts for students with behavioral health concerns, for the period from September 1, 2021 through August 30, 2025.

FISCAL IMPACT:

Approval of this agreement will result in budgeted expenditures of up to \$4,347,281 over a 4-year period funded 100% by California's Mental Health Services Oversight and Accountability Commission (MHSOAC).

BACKGROUND:

This contract is for the Contra Costa County WISP which will enhance existing County partnerships with school-based programs to expand access to mental health services for children and youth, including facilitating campus-based mental health services, linkage, and access to ongoing and sustained services.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Suzanne Tavano, Ph.D.,
925-957-5201

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: L Walker, M Wilhelm

BACKGROUND: (CONT'D)

Contra Costa Behavioral Health child and adolescent mental health services will act as the lead agency in partnership with the Contra Costa County Office of Education and local school districts to implement the program, which will include providing additional staff to support children's mental health needs and create a network of parent peer support providers.

Under Interagency Agreement #74-638, the contractor will implement and oversee WISP in Contra Costa County schools for the period September 1, 2021 through August 30, 2025.

CONSEQUENCE OF NEGATIVE ACTION:

If this contract is not approved, Contra Costa County schools will not have the WISP program for their students with behavioral health concerns.



**Contra
Costa
County**

To: Board of Supervisors
From: Marc Shorr, Chief Information Officer
Date: December 14, 2021

Subject: APPROVE and AUTHORIZE the Purchasing Agent, to execute, on behalf of the Chief Information Officer, a purchase order with AT&T Corporation

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Purchasing Agent to execute, on behalf of the Chief Information Officer, Department of Information Technology, a purchase order with AT&T Corporation, in an amount not to exceed \$1,700,000 to provide County-wide Cisco maintenance support for the period of December 1, 2021 through November 30, 2023.

FISCAL IMPACT:

The cost for this is recovered through charges to user departments.

BACKGROUND:

Over the past several years, the Department of Information Technology (DoIT), the Employment and Human Services Department, the Clerk-Recorder's Office, the Public Defender's Office as well as other departments have individually purchased Cisco networking equipment for DoIT to install and maintain through various different vendors. The Cisco maintenance contracts (Smart Net) established for these departments all have different start and renewal dates as well as a level of service that differs depending on the purchasing department and the specific vendor selected. This has caused a great deal of confusion for DoIT staff when providing service to these

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Marc Shorr,
925-608-4071

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Nancy Zandonella

BACKGROUND: (CONT'D)

departments and seeking support from Cisco. As Cisco equipment powers the County's core network services, telephone systems and is a major part of the internet security, the ability for DoIT's technical staff to interact with the Cisco Trouble Reporting Center is critical for timely resolution. The Smart Net renewal contract that are being sought for approval will bring all existing County-wide Cisco maintenance contracts under one umbrella, will co-term all expiration dates, will include the exact same level of service agreements, and will provide a cost savings to the County. Cisco, who is not a direct seller, is passing through a 7% pricing consolidation discount through the Purchase Order with AT&T.

CONSEQUENCE OF NEGATIVE ACTION:

If this is not approved, DoIT's ability to respond to customers' needs and to correct issues may be negatively impacted.



**Contra
Costa
County**

To: Board of Supervisors
From: Marc Shorr, Chief Information Officer
Date: December 14, 2021

Subject: APPROVE and AUTHORIZE the Chief Information Officer, to execute an order form with DocuSign in an amount not to exceed \$680,000.

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Chief Information Officer, Department of Information Technology, or designee, to execute an order form with DocuSign under the existing Master Services Agreement dated December 15, 2020 in an amount not to exceed \$680,000 to provide DocuSign Contract Lifecycle Management and eSignature Enterprise licenses for the electronic signature and contract lifecycle management services for the period of December 15, 2021 through December 14, 2022.

FISCAL IMPACT:

The cost for this will be recovered through charges to user departments.

BACKGROUND:

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Marc Shorr,
925-608-4071

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Nancy Zandonella

BACKGROUND: (CONT'D)

Over the past year, DocuSign has conducted weekly meetings with representatives from many County departments to gain an understanding of our needs so they can tailor the contract lifecycle management (CLM) software to meet the specific needs of Contra Costa County. DocuSign is currently in the process of completing the business requirement document for County sign-off and will begin configuration of the software. Within the next few months, the CLM solution is slated to go live. This Order Form is for renewal of the CLM subscription fees and related support services.

CONSEQUENCE OF NEGATIVE ACTION:

If this is not approved, the electronic signature and contract lifecycle management project will not move forward.



Contra
Costa
County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Novation Contract #24-213-60 with Desarrollo Familiar, Inc. (dba Familias Unidas)

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute on behalf of the County Novation Contract #24-213-60 with Desarrollo Familiar, Inc., (dba Familias Unidas), a non-profit corporation, in an amount not to exceed \$296,975, to provide referral, consultation and education, and outpatient mental health services in West Contra Costa County, for the period July 1, 2021 through June 30, 2022, which includes a six-month automatic extension through December 31, 2022, in an amount not to exceed \$148,488.

FISCAL IMPACT:

Approval of this contract will result in budgeted expenditures of up to \$296,975 and will be funded by 5% Federal Medi-Cal (\$15,019), 38% Substance Abuse/Mental Health Services Administration (SAMHSA) Grant (\$113,636) and 57% Mental Health Realignment (\$168,320) revenues. (No rate increase)

BACKGROUND:

The County has been contracting with Desarrollo Familiar, Inc. (dba Familias Unidas) since March 1981. This contract meets the social needs of the County's population by providing information and referrals, consultation and education, and outpatient mental health services for Spanish-speaking, mentally ill clients in West Contra Costa County at Familias Unidas Counseling Center.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Suzanne Tavano, Ph.D.,
925-957-5212

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: E Suisala , M Wilhelm

BACKGROUND: (CONT'D)

On March 30, 2021, the Board of Supervisors approved Contract #24-213-59 with Desarrollo Familiar, Inc. (dba Familias Unidas), in an amount not to exceed \$145,817, for the provision of referral, consultation and education, and outpatient mental health services in West Contra Costa County for the period from January 1, 2021 through June 30, 2021, which included a six-month automatic extension through December 31, 2021 in an amount not to exceed \$145,817.

Approval of Novation Contract #24-213-60 will replace the automatic extension under the prior contract and allow the contractor to continue providing services through June 30, 2022.

CONSEQUENCE OF NEGATIVE ACTION:

If this contract is not approved, a significant number of the County's mentally ill, Spanish-speaking adult clients in West Contra Costa County will experience reduced access to the information, referrals, consultation, education, and outpatient mental health services that they need.



Contra
Costa
County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Novation Contract #24-705-71 with We Care Services for Children

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute on behalf of the County Novation Contract #24-705-71 with We Care Services for Children, a non-profit corporation, in an amount not to exceed \$2,208,226, to provide mental health services for high risk, delayed or Seriously Emotionally Disturbed (SED) children in Central Contra Costa County, for the period July 1, 2021 through June 30, 2022, which includes a six-month automatic extension through December 31, 2022, in an amount not to exceed \$1,104,113.

FISCAL IMPACT:

Approval of this contract will result in budgeted expenditures of up to \$2,208,226 and will be funded by 50% Federal Medi-Cal (\$1,104,113) and 50% Mental Health Realignment (\$1,104,113) revenues. (No rate increase)

BACKGROUND:

The County has been contracting with We Care Services for Children, since July 1974 for their expertise in providing community based mental health services for SED children and youth. This contract meets the social needs of the County's population by providing mental health services to adolescents with emotional and behavioral problems to improve school performance, reduce unsafe behavioral practices, and reduce the need for out-of-home placements.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Suzanne Tavano, Ph.D.,
925-957-5212

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: E Suisala , M Wilhelm

BACKGROUND: (CONT'D)

On January 5, 2021, the Board of Supervisors approved Contract #24-705-69 with We Care Services for Children, in an amount not to exceed \$1,049,589, for the provision of wrap-around mental health services for high risk, delayed or SED children in Central Contra Costa County for the period from January 1, 2021 through June 30, 2021, which included a six-month automatic extension through December 31, 2021, in an amount not to exceed \$1,049,589.

On July 13, 2021, the Board of Supervisors approved Contract Amendment #24-705-70, effective April 1, 2021 to increase the per minute billing rates due to COVID-19, with no change in the original payment limit and term.

Approval of Novation Contract #24-705-71 will replace the automatic extension under the prior contract and allow the contractor to continue providing services through June 30, 2022.

CONSEQUENCE OF NEGATIVE ACTION:

If this contract is not approved, high risk, delayed or SED children in Central Contra Costa County will have reduced access to mental health services.

CHILDREN'S IMPACT STATEMENT:

This program supports the following Board of Supervisors' community outcomes: "Children Ready for and Succeeding in School"; "Families that are Safe, Stable, and Nurturing"; and "Communities that are Safe and Provide a High Quality of Life for Children and Families". Expected program outcomes include an increase in positive social and emotional development as measured by the Child and Adolescent Functional Assessment Scale (CAFAS).



Contra
Costa
County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Novation Contract #24-707-65 with Contra Costa ARC (dba VistAbility)

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute on behalf of the County Novation Contract #24-707-65 with Contra Costa ARC (DBA VistAbility), a non-profit corporation, in an amount not to exceed \$2,414,250, to provide wrap-around services including community-based mental health treatment, case management and crisis intervention for children who are Seriously Emotionally Disturbed (SED) in East Contra Costa County, for the period from July 1, 2021 through June 30, 2022, which includes a six-month automatic extension through December 31, 2022, in an amount not to exceed \$1,207,125.

FISCAL IMPACT:

Approval of this contract will result in budgeted expenditures of up to \$2,414,250 and will be funded by 50% Federal Medi-Cal (\$1,207,125) and 50% Mental Health Realignment (\$1,207,125) revenues. (No rate increase)

BACKGROUND:

This contract meets the social needs of the County's population by providing mental health services for preschoolers with measurable delays in interpersonal, social/emotional, language and cognitive development, and for children who are at risk for such delays, including abused,

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Suzanne Tavano, Ph.D.,
925-957-5212

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: E Suisala , M Wilhelm

BACKGROUND: (CONT'D)

developmentally delayed, SED and environmentally deprived children who do not meet the criteria for any categorical funding source for services. The County has been contracting with Contra Costa ARC (DBA VistAbility) since July 1974. On January 5, 2021, the Board of Supervisors approved Contract #24-707-63 with Contra Costa ARC (DBA VistAbility), in an amount not to exceed \$1,147,514 for the provision of wrap-around and mental health treatment services for SED children and their families in East Contra Costa County for the period from January 1, 2021 through June 30, 2021, which included a six-month automatic extension through December 31, 2021, in an amount not to exceed \$1,147,514. On July 13, 2021, the Board of Supervisors approved Contract Amendment #24-707-64, effective April 1, 2021 to increase the per minute billing rates due to COVID-19, with no change in the original payment limit and term. Approval of Novation Contract #24-707-65 will replace the automatic extension under the prior contract and allow the contractor to continue providing services through June 30, 2022.

CONSEQUENCE OF NEGATIVE ACTION:

If this contract is not approved, severely emotionally disturbed children within East Contra Costa County will have reduced access to mental health services as the County solicits and engages an alternative contractor.

CHILDREN'S IMPACT STATEMENT:

This program supports the following Board of Supervisors' community outcomes: "Children Ready for and Succeeding in School"; "Families that are Safe, Stable, and Nurturing"; and "Communities that are Safe and Provide a High Quality of Life for Children and Families". Expected program outcomes include an increase in positive social and emotional development as measured by the Child and Adolescent Functional Assessment Scale (CAFAS).



Contra Costa County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Novation Contract #24-925-38 with Lincoln

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute on behalf of the County Novation Contract #24-925-38 with Lincoln, a non-profit corporation, in an amount not to exceed \$5,554,556, to provide mental health services for Seriously Emotionally Disturbed (SED) students and their families including multi-dimensional family treatment program and school-based services, for the period from July 1, 2021 through June 30, 2022, which includes a six-month automatic extension through December 31, 2022, in an amount not to exceed \$2,777,278.

FISCAL IMPACT:

Approval of this contract will result in budgeted expenditures of up to \$5,554,556 and will be funded by 50% Federal Medi-Cal (\$2,777,278), 41% Mental Health Realignment (\$2,292,778), 9% Antioch/Pittsburg Unified School Grant (\$484,500) revenues. (No rate increase)

BACKGROUND:

This contract meets the social needs of the County's population by providing therapy, medication support, case management, outreach, and crisis intervention services to elementary and junior high aged students in East Contra Costa County in order to reduce the need for out-of-home placements.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Suzanne Tavano, Ph.D.,
925-957-5212

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: E Suisala , M Wilhelm

BACKGROUND: (CONT'D)

The County has been contracting with Lincoln since January 1998.

On December 8, 2020, the Board of Supervisors approved Novation Contract #24-925-36, with Lincoln, in an amount not to exceed \$5,018,518, for the provision of school-based mental health services and a multi-dimensional family treatment program for SED students and their families, for the period July 1, 2020 through June 30, 2021, which included a six-month automatic extension through December 31, 2021, in an amount not to exceed \$2,509,259.

On July 13, 2021, the Board of Supervisors approved Contract Amendment #24-925-37, effective April 1, 2021 to increase the per minute billing rates due to COVID-19, with no change in the original payment limit and term.

Approval of Novation Contract #24-925-38 replaces the automatic extension under the prior contract and allows the contractor to continue providing services through June 30, 2022.

CONSEQUENCE OF NEGATIVE ACTION:

If this contract is not approved, over 200 SED students, in ten East Contra Costa County schools would not have access to mental health services while the County solicited and engaged an alternative contractor. This delay could necessitate higher levels of care for those students.

CHILDREN'S IMPACT STATEMENT:

This program supports the following Board of Supervisors' community outcomes: "Children Ready For and Succeeding in School"; "Families that are Safe, Stable, and Nurturing"; and "Communities that are Safe and Provide a High Quality of Life for Children and Families". Expected program outcomes include an increase in positive social and emotional development as measured by the Child and Adolescent Functional Assessment Scale (CAFAS).



Contra Costa County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Novation Contract #74-315-22 with EMBRACE

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute on behalf of the County Novation Contract #74-315-22 with EMBRACE, a non-profit corporation, in an amount not to exceed \$1,550,044, to provide Therapeutic Behavioral Services (TBS) and outpatient mental health services to Seriously Emotionally Disturbed (SED) children and youth, and their families, for the period from July 1, 2021 through June 30, 2022, which includes a six-month automatic extension through December 31, 2022 in an amount not to exceed \$775,022.

FISCAL IMPACT:

Approval of this contract will result in budgeted expenditures of up to \$1,550,044 and will be funded by 50% Federal Medi-Cal (\$775,022) and 50% Mental Health Realignment (\$775,022) revenues. (No rate increase)

BACKGROUND:

The contract meets the social needs of the county by providing TBS to SED children who have been discharged from a hospital or have failed in other placements. This contractor shall also provide a Multisystemic Behavioral and Functional Family Therapy program for adolescents who are discharged from Juvenile Hall and the Orin Allen Youth Rehabilitation Facility. The County has been contracting with EMBRACE

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

Contact: Suzanne Tavano, Ph.D.,
925-957-5212

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: E Suisala , M Wilhelm

BACKGROUND: (CONT'D)

(formerly Community Options for Families and Youth, Inc.) since December 2007.

On January 5, 2021, the Board of Supervisors approved Contract #74-315-20 with Community Options for Families and Youth, Incorporated in an amount not to exceed \$736,749 to provide TBS, Multisystemic Behavioral Therapy and Counseling Enriched Classroom (CEC) school-based services, for the period from January 1, 2021 through June 30, 2021, which included a six-month automatic extension through December 31, 2021, in an amount not to exceed \$736,749.

On July 13, 2021, the Board of Supervisors approved Amendment Agreement #74-315-21 to increase the per minute billing rates for the contract and automatic extension due to COVID-19 with no change in the original payment limit and original term.

Approval of Novation Contract #74-315-22 will replace the automatic extension under the prior contract and allow the contractor to continue providing services, through June 30, 2022.

CONSEQUENCE OF NEGATIVE ACTION:

If this contract is not approved, SED children and youth involved in the juvenile justice system will not have access to this contractor's mental health services which may result in a reduction of services and placement in higher levels of care.

CHILDREN'S IMPACT STATEMENT:

This TBS program supports the following Board of Supervisors' community outcomes: "Children Ready For and Succeeding in School"; "Families that are Safe, Stable, and Nurturing"; and "Communities that are Safe and Provide a High Quality of Life for Children and Families". Expected program outcomes include an increase in positive social and emotional development as measured by the Child and Adolescent Functional Assessment Scale (CAFAS).



Contra Costa County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Novation Contract #74-321-20 with Bay Area Community Resources, Inc.

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute on behalf of the County Novation Contract #74-321-20 with Bay Area Community Resources, Inc., a non-profit corporation, in an amount not to exceed \$2,540,378, to provide school and community based mental health services to Seriously Emotionally Disturbed (SED) children and youth, for the period from July 1, 2021 through June 30, 2022, which includes a six-month automatic extension through December 31, 2022, in an amount not to exceed \$1,270,189.

FISCAL IMPACT:

Approval of this contract will result in budgeted expenditures of up to \$2,540,378 and will be funded 50% by Federal Medi-Cal (\$1,270,189) and 50% Mental Health Realignment (\$1,270,189) revenues. (No rate increase)

BACKGROUND:

This contract meets the social needs of the County's population by providing school based mental health services to county-designated SED elementary, middle school and high school students and their families on site at schools in the John Swett Unified and West Contra Costa Unified School Districts, and community based mental health services in West Contra Costa County. The County has been contracting with Bay Area Community Resources, Inc. since July 2007.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Suzanne Tavano, Ph.D,
925-957-5212

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: E Suisala , M Wilhelm

BACKGROUND: (CONT'D)

On December 18, 2020, the Board of Supervisors approved Novation Contract #74-321-18, with Bay Area Community Resources, Inc., in an amount not to exceed \$2,864,928 for the provision of school based and community based mental health services for SED children and youth for the period from July 1, 2020 through June 30, 2021, which included a six-month automatic extension through December 31, 2021, in an amount not to exceed \$1,357,464.

On July 13, 2021, the Board of Supervisors approved Contract Amendment #74-321-19, effective April 1, 2021 to increase the per minute billing rates due to COVID-19, with no change in the original payment limit and term.

Approval of Novation Contract #74-321-20 replaces the automatic extension under the prior contract, allowing the the contractor to continue providing services through June 30, 2022.

CONSEQUENCE OF NEGATIVE ACTION:

If this contract is not approved, there will be fewer school-based mental health services available to SED students and their families possibly resulting in the need for higher levels of care.

CHILDREN'S IMPACT STATEMENT:

This program supports the following Board of Supervisors' community outcomes: "Children Ready For and Succeeding in School"; "Families that are Safe, Stable, and Nurturing"; and "Communities that are Safe and Provide a High Quality of Life for Children and Families". Expected program outcomes include an increase in positive social and emotional development as measured by the Child and Adolescent Functional Assessment Scale (CAFAS).



Contra Costa County

To: Board of Supervisors
 From: Anna Roth, Health Services Director
 Date: December 14, 2021

Subject: Novation Interagency Agreement #74-371-14 with Mt. Diablo Unified School District

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute on behalf of the County Novation Interagency Agreement #74-371-14 with Mt. Diablo Unified School District, a government agency, in an amount not to exceed \$6,204,660, to provide school-based mental health services to Seriously Emotionally Disturbed (SED) students in the Mt. Diablo Unified School District, for the period from July 1, 2021 through June 30, 2022, which includes a six-month automatic extension through December 31, 2022, in an amount not to exceed \$3,102,330.

FISCAL IMPACT:

Approval of this contract will result in budgeted expenditures of up to \$6,204,660 and will be funded by 48% Federal Medi-Cal (\$2,967,933), 48% Mental Health Realignment (\$2,967,933) and 4% Mt. Diablo Unified School District (\$268,794) revenues. (No rate increase)

BACKGROUND:

This contract meets the social needs of the County's population by providing school and community based mental health services, including assessments; individual, group and family therapy; medication support; case management; outreach; and crisis intervention services for children at Sunrise School, Fair Oaks Elementary and Olympic and Mt. Diablo High School, and their families.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Suzanne Tavano, Ph.D.,
 925-957-5169

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: E Suisala , M Wilhelm

BACKGROUND: (CONT'D)

The County has been contracting with Mt. Diablo Unified School District since August 2009. On December 15, 2020, the Board of Supervisors approved Novation Interagency Agreement #74-371-13 with Mt. Diablo Unified School District, in an amount not to exceed \$6,029,567, for the provision of school-based mental health services to SED students for the period from July 1, 2020 through June 30, 2021, which included a six-month automatic extension through December 31, 2021, in an amount not to exceed \$2,880,387.

Approval of Novation Interagency Agreement #74-371-14 replaces the automatic extension under the prior contract and will allow the Agency to continue providing services through June 30, 2022.

CONSEQUENCE OF NEGATIVE ACTION:

If this contract is not approved, SED students will have reduced access to treatment services and may require placement at higher level of care, including hospitalization or residential care in Mt. Diablo Unified School District.

CHILDREN'S IMPACT STATEMENT:

This school-based program supports the following Board of Supervisors' community outcomes: "Children Ready For and Succeeding in School"; "Families that are Safe, Stable, and Nurturing"; and "Communities that are Safe and Provide a High Quality of Life for Children and Families". Expected program outcomes include an increase in positive social and emotional development as measured by the Child and Adolescent Functional Assessment Scale (CAFAS).



Contra Costa County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Contract #74-399-17 with Contra Costa Interfaith Transitional Housing, Inc. (DBA Hope Solutions)

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute on behalf of the County Novation Contract #74-399-17 with Contra Costa Interfaith Transitional Housing, Inc., (dba Hope Solutions), a non-profit corporation, in an amount not to exceed \$424,400, to provide community based mental health services for Seriously Emotionally Disturbed (SED) children and youth ages 0-21, for the period July 1, 2021 through June 30, 2022, which includes a six-month automatic extension through December 31, 2022, in an amount not to exceed \$212,200.

FISCAL IMPACT:

Approval of this contract will result in budgeted expenditures of up to \$424,400 and will be funded by 50% Federal Medi-Cal (\$212,200) and 50% Mental Health Realignment (\$212,200) revenues. (No rate increase)

BACKGROUND:

The County has been contracting with Contra Costa Interfaith Transitional Housing, Inc. (DBA Hope Solutions), since September 2010 for their expertise in providing community based mental health services for SED children and youth.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Suzanne Tavano, Ph.D.,
925-957-5212

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: E Suisala , M Wilhelm

BACKGROUND: (CONT'D)

This contract meets the social needs of the County's population by providing mental health services to adolescents with emotional and behavioral problems to improve school performance, reduce unsafe behavioral practices, and reduce the need for out-of-home placements.

On February 9, 2021, the Board of Supervisors approved Contract #74-399-15, with Contra Costa Interfaith Transitional Housing, Inc., (dba Hope Solutions), in an amount not to exceed \$182,831, for the provision of community based mental health services for SED children and youth ages 0-21, for the period from January 1, 2021 through June 30, 2021, which included a six-month automatic extension through December 31, 2021, in an amount not to exceed \$182,831.

In August 2021, the County Administrator approved and the Purchasing Services Manager executed and approved Contract Amendment #74-399-16, effective April 1, 2021, to increase the per minute billing rates due to COVID-19, with no change in the original payment limit and term.

Approval of Novation Contract #74-399-17 will replace the automatic extension under the prior contract and allow the contractor to continue providing services through June 30, 2022.

CONSEQUENCE OF NEGATIVE ACTION:

If this contract is not approved, emotionally disturbed youth will have reduced access to the mental health services provided by contractor, including individual, group and family therapy; case management; and crisis intervention services.

CHILDREN'S IMPACT STATEMENT:

This program supports the following Board of Supervisors' community outcomes: "Children Ready For and Succeeding in School"; "Families that are Safe, Stable, and Nurturing"; and "Communities that are Safe and Provide a High Quality of Life for Children and Families". Expected program outcomes include an increase in positive social and emotional development as measured by the Child and Adolescent Functional Assessment Scale (CAFAS).



Contra Costa County

To: Board of Supervisors
 From: Anna Roth, Health Services Director
 Date: December 14, 2021

Subject: Novation Contract #74-402-16 with Aspiranet

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute on behalf of the County Novation Contract #74-402-16 with Aspiranet, a non-profit corporation, in an amount not to exceed \$295,038, to provide Therapeutic Behavioral Services (TBS) for children and youth up to 21 years of age with high-risk behavior, for the period from July 1, 2021 through June 30, 2022, which includes a six-month automatic extension through December 31, 2022, in an amount not to exceed \$147,519.

FISCAL IMPACT:

Approval of this contract will result in budgeted expenditures of up to \$295,038 and will be funded by 50% Federal Medi-Cal (\$147,519) and 50% Mental Health Realignment (\$147,519) revenues. (No rate increase)

BACKGROUND:

The County has been contracting with Aspiranet, since July 2010 to provide TBS services to children and youth. This contract meets the social needs of the County's population by providing mental health services to adolescents with emotional and behavioral problems to improve school performance, reduce unsafe behavioral practices, and reduce the need for out-of-home placements.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Suzanne Tavano, PhD.,
 925-957-5212

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: E Suisala , M Wilhelm

BACKGROUND: (CONT'D)

On February 9, 2021, the Board of Supervisors approved Contract #74-402-13 with Aspiranet, in an amount not to exceed \$140,234, to provide TBS for children and young adults up to 21 years of age with high-risk behavior who have been placed in group homes in Stanislaus County and to clients residing in facilities in Contra Costa County, for the period from January 1, 2021 through June 30, 2021, which included a six-month automatic extension through December 31, 2021, in an amount not to exceed \$140,234.

On July 13, 2021, the Board of Supervisors approved Contract Amendment #74-402-15, effective April 1, 2021 to increase the per minute billing rates due to COVID-19, with no change in the original payment limit and term.

Approval of Novation Contract #74-402-16 will replace the automatic extension under the prior contract and allow the contractor to continue providing services through June 30, 2022.

CONSEQUENCE OF NEGATIVE ACTION:

If this contract is not approved, clients requiring TBS services will not have access to this contractor's services, which may result in a reduction in the levels of service to the community.

CHILDREN'S IMPACT STATEMENT:

This program supports the following Board of Supervisors' community outcomes: "Families that are Safe, Stable, and Nurturing"; and "Communities that are Safe and Provide a High Quality of Life for Children and Families". Expected program outcomes include an increase in positive social and emotional development as measured by the Child and Adolescent Functional Assessment Scale (CAFAS).



**Contra
Costa
County**

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Novation Contract #74-513-8 with Portia Bell Hume Behavioral Health and Training Center

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute on behalf of the County Novation Contract #74-513-8 with Portia Bell Hume Behavioral Health and Training Center, a non-profit corporation, in an amount not to exceed \$3,595,109, to provide mental health services, including case management and crisis intervention to adults diagnosed with Severe and Persistent Mental Illness (SPMI) in Contra Costa County, for the from period July 1, 2021 through June 30, 2022, which includes a six-month automatic extension through December 31, 2021, in an amount not to exceed \$1,797,554.

FISCAL IMPACT:

Approval of this contract will result in budgeted expenditures of up to \$3,595,109 and will be funded by 43% Federal Medi-Cal (\$1,553,276) and 57% Mental Health Realignment (\$2,041,833) revenues. (No rate increase)

BACKGROUND:

This contract meets the social needs of the County's population by providing Mental Health Services Act Community Services and Support Program, including outpatient mental health services, case management, crisis intervention, and other mental health services to eligible adult clients in Contra Costa County.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Suzanne Tavano, Ph.D.,
925-957-5212

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: E Suisala , M Wilhelm

BACKGROUND: (CONT'D)

The County has been contracting with Portia Bell Hume Behavioral Health and Training Center since March 2016.

On January 5, 2021, the Board of Supervisors approved Contract #74-513-7 with Portia Bell Hume Behavioral Health and Training Center, in an amount not to exceed \$1,745,199 for the provision of mental health services to SPMI adults for the period from January 1, 2021 through June 30, 2021, which included a six-month automatic extension through December 31, 2021, in an amount not to exceed \$1,745,199.

Approval of Novation Contract #74-513-8 will replace the automatic extension under the prior contract and allow the contractor to continue providing mental health services through June 30, 2022.

CONSEQUENCE OF NEGATIVE ACTION:

If this contract is not approved, the County's SPMI clients will not receive specialty mental health services from this contractor.



Contra
Costa
County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Novation Contract #74-525-9 with Center for Psychotherapy

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute on behalf of the County Novation Contract #74-525-9 with Center for Psychotherapy, a non-profit corporation, in an amount not to exceed \$796,800, to provide mental health, case management and crisis intervention services for Seriously Emotionally Disturbed (SED) adolescents and latency-aged children in East Contra Costa County, for the period from July 1, 2021 through June 30, 2022, which includes a six-month automatic extension through December 31, 2022, in an amount not to exceed \$398,400.

FISCAL IMPACT:

Approval of this contract will result in budgeted expenditures of up to \$796,800 and will be funded by 50% Federal Medi-Cal (\$398,400) and 50% Mental Health Realignment (\$398,400) revenues. (No rate increase)

BACKGROUND:

This contract meets the social needs of the County's population by providing mental health services for SED adolescents and latency-aged children. Goals for program participants include reduction of disruptive behavior, keeping children with biological/adoptive parents, or in the case of foster children, reducing the need for multiple changes in placement and/or placement in residential treatment.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

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ATTESTED: December 14, 2021

Contact: Suzanne Tavano, PhD.,
925-957-5212

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: E Suisala , M Wilhelm

BACKGROUND: (CONT'D)

Additional goals include stabilization in school settings and academic success. The County has been contracting with Center for Psychotherapy since October 2016. On January 5, 2021, the Board of Supervisors approved Contract #74-525-7 with Center for Psychotherapy, in an amount not to exceed \$344,740 for the provision of mental health services, case management and crisis intervention for SED adolescents and latency-aged children, for the period from January 1, 2021 through June 30, 2021, which included a six-month extension through December 31, 2021, in an amount not to exceed \$344,740. On July 13, 2021, the Board of Supervisors approved Contract Amendment #74-525-8, effective April 1, 2021 to increase the per minute billing rates due to COVID-19, with no change in the original payment limit and term. Approval of Novation Contract #74-525-9 will replace the automatic extension under the prior contract and allow the contractor to continue providing services through June 30, 2022.

CONSEQUENCE OF NEGATIVE ACTION:

If this contract is not approved, SED adolescents and latency-aged children will not receive mental health services from this contractor.

CHILDREN'S IMPACT STATEMENT:

This program supports the following Board of Supervisors' community outcomes: "Children Ready For and Succeeding in School"; "Families that are Safe, Stable, and Nurturing"; and "Communities that are Safe and Provide a High Quality of Life for Children and Families". Expected program outcomes include an increase in positive social and emotional development as measured by the Child and Adolescent Functional Assessment Scale (CAFAS).



Contra Costa County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Novation Contract #74-543-8 with YWCA of Contra Costa/Sacramento

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute on behalf of the County Novation Contract #74-543-8 with YWCA of Contra Costa/Sacramento, a non-profit corporation, in an amount not to exceed \$594,970, to provide mental health services for Seriously Emotionally Disturbed (SED) children and adolescents, for the period from July 1, 2021 through June 30, 2022, which includes a six-month automatic extension through December 31, 2022, in an amount not to exceed \$297,485.

FISCAL IMPACT:

Approval of this contract will result in budgeted expenditures of up to \$594,970 and will be funded by 50% Federal Medi-Cal (\$297,485) and 50% Mental Health Realignment funds (\$297,485) revenues. (No rate increase)

BACKGROUND:

This contract meets the social needs of the County's population by providing mental health services to adolescents with emotional and behavioral problems to improve school performance, reduce unsafe behavioral practices, and reduce the need for out-of-home placements. The County has been contracting with YWCA of Contra Costa/Sacramento since April 2017.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

Contact: Suzanne Tavano, Ph.D.,
925-957-5212

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: E Suisala , M Wilhelm

BACKGROUND: (CONT'D)

On January 19, 2021, the Board of Supervisors approved Contract #74-543-6 with YWCA of Contra Costa/Sacramento, in an amount not to exceed \$282,794, to provide mental health services for SED children and adolescents for the period January 1, 2021 through June 30, 2021, which included a six-month automatic extension through December 31, 2021, in an amount not to exceed \$282,794.

On July 13, 2021, the Board of Supervisors approved Contract Amendment #74-543-7, effective April 1, 2021 to increase the per minute billing rates due to COVID-19, with no change in the original payment limit and term.

Approval of Novation Contract #74-543-8 will replace the automatic extension under the prior contract and allow the contractor to continue providing services through June 30, 2022.

CONSEQUENCE OF NEGATIVE ACTION:

If this contract is not approved, SED children and adolescents will not have access to mental health services provided by this contractor.

CHILDREN'S IMPACT STATEMENT:

This program supports the following Board of Supervisors' community outcomes: "Children Ready For and Succeeding in School"; "Families that are Safe, Stable, and Nurturing"; and "Communities that are Safe and Provide a High Quality of Life for Children and Families". Expected program outcomes include an increase in positive social and emotional development as measured by the Child and Adolescent Functional Assessment Scale (CAFAS).



Contra Costa County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Novation Contract #74-577-3 with Seneca Family of Agencies

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute on behalf of the County Novation Contract #74-577-3 with Seneca Family of Agencies, a non-profit corporation, in an amount not to exceed \$3,324,851, to provide mobile crisis response and community-based mental health services for Seriously Emotionally Disturbed (SED) children, for the period from July 1, 2021 through June 30, 2022, which includes a six-month automatic extension through December 31, 2022, in an amount not to exceed \$1,662,425.

FISCAL IMPACT:

Approval of this contract will result in annual budgeted expenditures of up to \$3,324,851 and will be funded by 39% Mental Health Services Act (\$1,287,107), 34% Federal Medi-Cal (\$1,138,668), and 27% County Realignment (\$899,076) revenues. (No rate increase)

BACKGROUND:

This contract meets the social needs of the County's population by providing mental health services to adolescents with emotional and behavioral problems to improve school performance, reduce unsafe behavioral practices, and reduce the need for out-of-home placements.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

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ATTESTED: December 14, 2021

Contact: Suzanne Tavano, Ph.D.,
925-957-5212

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: E Suisala , M Wilhelm

BACKGROUND: (CONT'D)

The County has been contracting with Seneca Family of Agencies since July 2018.

On January 19, 2021, the Board of Supervisors approved Contract #74-577-2 with Seneca Family of Agencies, in an amount not to exceed \$1,656,432 to provide mobile crisis response and children's specialty mental health services for SED children, for the period January 1, 2021 through June 30, 2021, which included a six-month automatic extension through December 31, 2021, in an amount not to exceed \$1,656,432.

Approval of Contract #74-577-3 will replace the automatic extension and allow the contractor to continue providing mobile crisis response and children's specialty mental health services through June 30, 2022.

CONSEQUENCE OF NEGATIVE ACTION:

If this contract is not approved, SED children throughout the County will not have access to this contractor's mobile crisis, and community-based mental health services, possibly resulting in the need for higher levels of care.

CHILDREN'S IMPACT STATEMENT:

This program supports the following Board of Supervisors' community outcomes: "Children Ready For and Succeeding in School"; "Families that are Safe, Stable, and Nurturing"; and "Communities that are Safe and Provide a High Quality of Life for Children and Families". Expected program outcomes include an increase in positive social and emotional development as measured by the Child and Adolescent Functional Assessment Scale (CAFAS).



**Contra
Costa
County**

To: Board of Supervisors
From: Ann Elliott, Human Resources Director
Date: December 14, 2021

Subject: Contract Extension of ASA with Navia Benefit Solutions, Inc. to provide County employees benefit programs allowing pre-tax dollar contributions

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Human Resources Director, or designee, to execute a contract amendment with Navia Benefit Solutions, Inc., to extend the term from January 1, 2022 through December 31, 2022, and increase the payment limit by \$100,000 to a new payment limit of \$500,000, to provide administrative services for employee benefit programs .

FISCAL IMPACT:

The administrative costs for COBRA are funded through the Benefits Administrative Fee which is charged out to departments.

The administrative costs for the two County Flex savings Accounts (Health Care Spending Account and Dependent Care Assistance Program) are funded through forfeitures so there is no cost to the County.

The \$3 per-employee-per month fee paid to the vendor for the Commuter benefit will be paid by the participating employees for the months that they place an order.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Salma Sadiq,
925-655-2176

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:

BACKGROUND:

In 2017, the County approved a contract with Navia Benefit Solutions, Inc. to allow employees to contribute pre-tax dollars to cover qualified transportation expenses such as train, bus or ferry costs. Under the contract, Navia Benefit Solutions, Inc. also handles the administration services for the COBRA process and the two County Flex Savings Accounts: Health Care Spending Account and the Dependent care Assistance Program. The contract contains a limitation on the contractor's liability and modified indemnification language.

CONSEQUENCE OF NEGATIVE ACTION:

If this extension is not approved, the County will be unable to offer the Commuter Benefit program, as authorized by MOU and Management Resolution, and employees will not gain access to increased functionality provided by Navia Benefit Solutions, Inc. including the two County Flex Saving accounts (HCSA&DCAP).



**Contra
Costa
County**

To: Board of Supervisors
From: Brian M. Balbas, Public Works Director/Chief Engineer
Date: December 14, 2021

Subject: Contract Amendment with CLEANSTREET, LLC, Countywide. Project No. 0672-6U2319

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Public Works Director, or designee, to execute a contract amendment with Cleanstreet, LLC, to increase the payment limit by \$271,000 to a new payment limit of \$1,521,000 to provide routine street sweeping services for curbed streets in unincorporated Contra Costa County, and to extend the term from December 31, 2021 to December 31, 2022, Countywide.

FISCAL IMPACT:

The project is funded by 100% Local Road Funds.

BACKGROUND:

The County Watershed Program is responsible for ensuring the County's compliance with the current and reissued National Pollutant Discharge Elimination System (NPDES) stormwater permit issued by the San Francisco Bay Region of the California Regional Water Quality Control Board (RWQCB). Permit provisions are met through various pollution prevention programs, including municipal maintenance and reduction of pollutants of concern, in order to reduce water-quality impacts from urban runoff.

Routine street sweeping helps satisfy the mandated reduction of pollutants to the County's storm drain system. Street sweeping removes sediment, debris, and other contaminants that might normally enter

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Melinda Harris, (925)
313-2037

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Allison Knapp, Deputy Public Works Director, Tim Jensen, Flood Control, Michele Mancuso, County Watershed Program, Melinda Harris, County Watershed Program, Beth Balita, Finance, Catherine Windham, Flood Control

BACKGROUND: (CONT'D)

the storm drain system and flow untreated to creeks and other natural waterways. Adoption of this contract amendment allows monthly street sweeping of curbed streets in unincorporated areas of the County to continue in the following four service areas and unincorporated communities:

- West County (El Sobrante, East Richmond Heights, North Richmond, SW Kensington, Rodeo, Crockett, Rollingwood, Montalvin/Montara Bay, and Tara Hills)
- Central County (Pacheco, Clyde, Vine Hill, North Concord, Pleasant Hill, and Saranap)
- East County (Discovery Bay)
- South County (Alamo and Camino Tassajara)

The Public Works Department, Watershed Program administers this street sweeping contract for clean water compliance. The County Watershed Program is not responsible for nonroutine street sweeping related to road improvements and maintenance (chip seal cleanup) and/or construction projects.

CONSEQUENCE OF NEGATIVE ACTION:

Without the approval of the Board of Supervisors, no routine street sweeping service will be provided to residents of unincorporated Contra Costa County. The County will be out of compliance with its Municipal Stormwater NPDES Permit with the RWQCB, which could result in enforcement action and fines.

Neighborhoods will suffer from the unsightly accumulation of trash collecting within gutters. They may experience localized flooding from excess leaves collecting within drainage inlets during the rainy season, and they may encounter safety issues from the buildup of road-associated debris, i.e., rocks and aggregate.



**Contra
Costa
County**

To: Board of Supervisors

From: Brian M. Balbas, Public Works Director/Chief Engineer

Date: December 14, 2021

Subject: APPROVE and AUTHORIZE Advertisement for the Replacement of Two (2) aging Generators at 1960 and 1980 Muir Road, Martinez (WH348D)

RECOMMENDATION(S):

(1) APPROVE the design and bid documents, including the plans and specifications, for the replacement of two (2) aging outdoor generators and associated two (2) automatic transfer switches with in-kind units. The existing chain link fence enclosure will also be replaced and existing concrete pad extended at 1960 and 1980 Muir Road, Martinez; and

(2) AUTHORIZE the Public Works Director, or designee, to solicit bids to be received on or about January 20, 2022, and issue bid addenda, as needed, for clarification of the bid documents, provided the involved changes do not significantly increase the construction cost estimate; and

(3) DIRECT the Clerk of the Board to publish, at least 14 calendar days before the bid opening date, the Notice to Contractors in accordance with Public Contract Code Section 22037, inviting bids for this project.

(4) DIRECT the Public Works Director, or designee, to send notices by mail or fax and by U.S. Mail to the construction trade journals specified in Public Contract Code Section 22036 at least 15 calendar days before the bid opening.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR ☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Ramesh Kanzaria
925-957-2480

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:

FISCAL IMPACT:

100% Budget for this project is from Org# 3623 (Power Resilience Allocation Funds through California Governor's Office of Emergency Services - Cal OES).

BACKGROUND:

The Generator Replacement Project is located at the Contra Costa County Sheriff's Office in Martinez, California. These buildings occupy critical services to the citizens of Contra Costa County that include the Sheriff's Patrol Division, Investigations Unit, SWAT Team, Crime Suppression Unit, Homicide, and the Coroner's Office. The project consist of the replacement of the two (2) existing aging outdoor generators that are no longer reliable nor energy-efficient and their associated two (2) automatic transfer switches. The equipment will be replaced with in-kind modern units which will provide the assurance of having safe, reliable, and energy-efficient back-up power for the county buildings located at 1960 and 1980 Muir Road.

The existing generator chain link fence enclosure will also be replaced, and concrete pad extended. To avoid any disruption to both facilities, two (2) portable generators will also be included as back-ups during the project duration.

CONSEQUENCE OF NEGATIVE ACTION:

If the advertisement is not approved, the project will not be constructed, losing the Power Resilience Allocation funds received through Cal OES by the Sheriff's department, and also losing the assurance of having safe, reliable and energy-efficient backup power for decades to come.



Contra Costa County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Contract #77-130-3 with Erik Grasso (dba Analytical Behavior Consultants)

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute on behalf of the County Contract #77-130-3 with Eric Grasso (dba Analytical Behavior Consultants), a sole proprietor, in an amount not to exceed \$1,800,000, to provide applied behavioral analysis (ABA) services for Contra Costa Health Plan (CCHP) members, for the period from October 1, 2021 through September 30, 2024.

FISCAL IMPACT:

This contract will result in contractual service expenditures of up to \$1,800,000 over a three-year period and will be funded 100% by CCHP Enterprise Fund II revenues. (No rate increase)

BACKGROUND:

CCHP has an obligation to provide certain specialized ABA services for its members under the terms of their Individual and Group Health Plan membership contracts with the County, providing services for members with pervasive developmental disorders or autism including, but not limited to, treatment plans and staff to providing services in the following licensed categories: licensed family therapy, social work, speech and language pathology, educational psychology, and audiology to improve the functioning of members. This contractor has been a part of the CCHP Provider Network providing ABA services to CCHP members

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Sharron Mackey,
925-313-6104

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: K Cyr, M Wilhelm

BACKGROUND: (CONT'D)

since October 1, 2017.

On September 10, 2019, the Board of Supervisors approved Contract #77-130-2 with Eric Grasso (dba Analytical Behavior Consultants), in an amount not to exceed \$1,800,000, to provide ABA services for CCHP members, for the period October 1, 2020 through September 30, 2021.

Approval of Contract #77-130-3 will allow the contractor to continue to provide ABA services for CCHP members through September 30, 2024.

CONSEQUENCE OF NEGATIVE ACTION:

If this contract is not approved, certain specialized ABA health care services for CCHP members under the terms of their Individual and Group Health Plan membership contracts with the County will not be provided.

ATTACHMENTS



**Contra
Costa
County**

To: Board of Supervisors
From: Brian M. Balbas, Public Works Director/Chief Engineer
Date: December 14, 2021

Subject: APPROVE and AUTHORIZE Amendment No. 1 with Dewberry Engineers d/b/a Dewberry Drake Haglan, for Architectural Services, Countywide.

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Public Works Director, or designee, to execute an amendment with Dewberry Engineers Inc. (dba Dewberry | Drake Haglan), acknowledging the Assignment and Assumption Agreement between Drake, Haglan & Associates, Inc. and Dewberry Engineers Inc., effective September 28, 2019, and increasing the payment limit by \$100,000 to a new payment limit of \$350,000 and increasing the term from May 7, 2022 to December 31, 2023 for on-call structural engineering services, Countywide. (Project No. Various) (All Districts).

FISCAL IMPACT:

Work performed under this on-call contract is funded by developer fees, local, state and federal funds for road, flood control and airport projects.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Neil Leary,
925-313-2278

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:

BACKGROUND:

The Public Works Department is involved in various projects in the County that require structural engineering services for road, flood control, and airport projects. After a solicitation process, the County contracted with Drake Haglan & Associates, Inc. on May 14, 2019 as one of seven firms to provide structural engineering services on an “on-call” basis. The Consultant augments Public Works staff on an as-needed basis. They are used as an extension of Public Works staff during busy times when extra help is needed or when in-house expertise is not available. This on-call contract is currently in effect for thirty-six months.

On September 28, 2019, Dewberry Engineers Inc. (dba Dewberry | Drake Haglan) was assigned the Project’s agreement from Drake, Haglan & Associates, Inc. through an Assignment and Assumption Agreement. This amendment provides for the acknowledgement of the assignment of the County agreement from Drake, Haglan & Associates, Inc. to Dewberry Engineers Inc. (dba Dewberry | Drake Haglan), which is necessary for the continuation of on-call structural engineering services support through the remainder of the original period the contract is in effect. This amendment also increases the payment limit to \$350,000 and increases the termination date of the contract from May 7, 2022 to December 31, 2023, which is necessary for the continuation of structural engineering services through completion of the Pleasant Hill Road Bridge over Taylor Boulevard Rehabilitation Project, which Dewberry Engineers Inc. (dba Dewberry | Drake Haglan) is currently providing services for under Task Order 3.

Government Code Section 31000 and 4525 authorizes the County to contract for services including the type of structural engineering that Dewberry Engineers Inc. (dba Dewberry | Drake Haglan) provides.

CONSEQUENCE OF NEGATIVE ACTION:

If the contract amendment is not approved, the Pleasant Hill Road Bridge over Taylor Boulevard Rehabilitation Project will experience delays and added costs as the County solicits for new professional services which will duplicate previous work.



Contra
Costa
County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Contract #77-396 with KYO Autism Therapy, LLC

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute on behalf of the County Contract #77-396 with KYO Autism Therapy, LLC, a limited liability company, in an amount not to exceed \$600,000, to provide applied behavioral analysis (ABA) services for Contra Costa Health Plan (CCHP) members, for the period from December 1, 2021 through November 30, 2024.

FISCAL IMPACT:

This contract will result in contractual service expenditures of up to \$600,000 over a three-year period and will be funded 100% by CCHP Enterprise Fund II allocations. (No rate increase)

BACKGROUND:

CCHP has an obligation to provide certain specialized ABA services for its members under the terms of their Individual and Group Health Plan membership contracts with the County, providing services for members with pervasive developmental disorders or autism including, but not limited to, treatment plans and staff to provide services in the following licensed categories: licensed family therapy, social work, speech and language pathology, educational psychology, and audiology to improve the functioning of members.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Sharron Mackey,
925-313-6104

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: K Cyr, M Wilhelm

BACKGROUND: (CONT'D)

Under new Contract #77-396, the contractor will provide ABA services for CCHP members for the period December 1, 2021 through November 30, 2024.

CONSEQUENCE OF NEGATIVE ACTION:

If this contract is not approved, certain specialized ABA health care services for CCHP members under the terms of their Individual and Group Health Plan membership contracts with the County will not be provided.



Contra
Costa
County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Contract #77-400 with Antioch Dunes Healthcare LLC (dba Delta View Post Acute)

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute on behalf of the County Contract #77-400 with Antioch Dunes Healthcare LLC (dba Delta View Post Acute), a limited liability company, in an amount not to exceed \$600,000 to provide skilled nursing facility (SNF) services for Contra Costa Health Plan (CCHP) members, for the period from December 1, 2021 through November 30, 2024.

FISCAL IMPACT:

This contract will result in contractual service expenditures of up to \$600,000 over a three-year period and will be funded 100% by CCHP Enterprise Fund II revenues.

BACKGROUND:

CCHP has an obligation to provide certain specialized SNF health care services for its members under the terms of their Individual and Group Health Plan membership contracts with the County. Members are released from the hospital to recover at an SNF until they are well enough to be sent home. These services include, but are not limited to: twenty-four (24) hour medical care, social service and case management coordination, wound care, respiratory therapy, nasogastric and gastric tube feeding, physical and speech therapy services.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Sharron Mackey,
925-313-6104

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: K Cyr, M Wilhelm

BACKGROUND: (CONT'D)

Under new Contract #77-400, the contractor will provide SNF services for CCHP members for the period December 1, 2021 through November 30, 2024.

CONSEQUENCE OF NEGATIVE ACTION:

If this contract is not approved, certain specialized SNF health care services for CCHP members under the terms of their Individual and Group Health Plan membership contracts with the County will not be provided.



**Contra
Costa
County**

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Contract #77-399 with Trumpet Behavioral Health, LLC

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute on behalf of the County Contract #77-399 with Trumpet Behavioral Health, LLC, a limited liability company, in an amount not to exceed \$900,000, to provide applied behavioral analysis (ABA) services for Contra Costa Health Plan (CCHP) members, for the period from December 1, 2021 through November 30, 2024.

FISCAL IMPACT:

This contract will result in contractual service expenditures of up to \$900,000 over a three-year period and will be funded 100% by CCHP Enterprise Fund II allocations. (No rate increase)

BACKGROUND:

CCHP has an obligation to provide certain specialized ABA services for its members under the terms of their Individual and Group Health Plan membership contracts with the County, providing services for members with pervasive developmental disorders or autism including, but not limited to, treatment plans and staff to provide services in the following licensed categories: licensed family therapy, social work, speech and language pathology, educational psychology, and audiology to improve the functioning of members.

Under new Contract #77-399, the contractor will provide ABA services for CCHP members for the period December 1, 2021 through November 30, 2024.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR ☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Sharron Mackey,
925-313-6104

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: K Cyr, M Wilhelm

CONSEQUENCE OF NEGATIVE ACTION:

If this contract is not approved, certain specialized ABA health care services for CCHP members under the terms of their Individual and Group Health Plan membership contracts with the County will not be provided.



**Contra
Costa
County**

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Novation Contract #74-375-12 with Rainbow Community Center of Contra Costa County

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute on behalf of the County Novation Contract #74-375-12 with Rainbow Community Center of Contra Costa County, a non-profit corporation, in an amount not to exceed \$804,186, to provide Mental Health Services Act (MHSA) Prevention and Early Intervention (PEI) services to the Lesbian, Gay, Bisexual, Transgender, Queer, Questioning and Intersex+ (LGBTQI+) population in Contra Costa County for the period from July 1, 2021 through June 30, 2022, which includes a six-month automatic extension through December 31, 2022, in an amount not to exceed \$402,093.

FISCAL IMPACT:

Approval of this contract will result in budgeted expenditures of up to \$804,186 for Fiscal Year 2021-2022 and will be funded 100% by Mental Health Services Act revenues. (No rate increase)

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Suzanne Tavano, Ph.D.,
925-957-5169

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Noel Garcia, Marcy Wilhelm

BACKGROUND:

This contract meets the social needs of the County's population by providing a community-based social support program designed to decrease isolation, depression and other risk factors among members of the LGBTQI+ community residing in Contra Costa County. The contractor has been providing these services since July 1, 2009.

On January 19, 2021, the Board of Supervisors approved Contract #74-375-11 with Rainbow Community Center of Contra Costa County, in an amount not to exceed \$391,007, for the provision of MHSA PEI services for the LGBTQI+ population in Contra Costa County for the period from January 1, 2021 through June 30, 2021, which included a six-month automatic extension through December 31, 2021.

Approval of Novation Contract #74-375-12 replaces the automatic extension under the prior contract and allows the contractor to continue providing MHSA PEI services through June 30, 2022.

CONSEQUENCE OF NEGATIVE ACTION:

If this contract is not approved, this contractor will not provide MHSA PEI services to the LGBTQI+ community and their families.

CHILDREN'S IMPACT STATEMENT:

This program supports the following Board of Supervisors' community outcomes: "Children Ready For and Succeeding in School"; "Families that are Safe, Stable, and Nurturing"; and "Communities that are Safe and Provide a High Quality of Life for Children and Families". Expected program outcomes include an increase in positive social and emotional development as measured by the Child and Adolescent Functional Assessment Scale (CAFAS).



**Contra
Costa
County**

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Novation Contract #74-058-34 with Seneca Family of Agencies

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute on behalf of the County Novation Contract #74-058-34 with Seneca Family of Agencies, a non-profit corporation, in an amount not to exceed \$6,709,094, to provide school and community-based wraparound specialty mental health services and Therapeutic Behavioral Services (TBS) for Seriously Emotionally Disturbed (SED) children and their families in East, West and Central Contra Costa County for the period from July 1, 2021 through June 30, 2022, which includes a six-month automatic extension through December 31, 2022, in an amount not to exceed \$3,354,547.

FISCAL IMPACT:

Approval of this contract will result in budgeted expenditures of up to \$6,709,094 for Fiscal Year 2021-2022 and will be funded by 50% Federal Medi-Cal (\$3,354,547), 45% Mental Health Realignment (\$3,063,632), 2% Martinez/West Contra Costa Unified School District grants (\$112,165), and 3% Probation Department Wrap Match (\$178,750). (No rate increase)

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Suzanne Tavano, Ph.D.,
925-957-5169

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Noel Garcia, Marcy Wilhelm

BACKGROUND:

This contract meets the social needs of the County's population by providing community-based mental health services focusing on SED children, adolescents and their families which will result in positive social and emotional development at home, in the community and greater school success. The contractor has been providing these services since April 2000.

On December 8, 2020, the Board of Supervisors approved Novation Contract #74-058-32 with Seneca Family of Agencies, in an amount not to exceed \$5,920,758 for the provision of school and community-based wraparound specialty mental health services and TBS for SED children and their families in East, West and Central Contra Costa County, for the period July 1, 2020 through June 30, 2021, which included a six-month automatic extension through December 31, 2021 in an amount not to exceed \$2,962,879.

On July 13, 2021, the Board of Supervisors approved Contract Amendment Agreement #74-058-33 to increase the per minute billing rates due to COVID-19, with no change to the original payment limit of \$5,920,758 or term of July 1, 2020 through June 30, 2021 and no change in the automatic extension through December 31, 2021 in an amount not to exceed \$2,962,879.

Approval of Novation Contract #74-058-34 replaces the automatic extension and allows the Contractor to continue providing these specialty mental health services for SED children and families through June 30, 2022.

CONSEQUENCE OF NEGATIVE ACTION:

If this contract is not approved, there will be fewer mental health services available for SED children in East, West and Central Contra Costa County as the County solicits and engages an alternative contractor

CHILDREN'S IMPACT STATEMENT:

This Early and Periodic Screening, Diagnostic, and Treatment (EPSDT) program supports the following Board of Supervisors' community outcomes: "Children Ready For and Succeeding in School"; "Families that are Safe, Stable, and Nurturing"; and "Communities that are Safe and Provide a High Quality of Life for Children and Families". Expected program outcomes include an increase in positive social and emotional development as measured by the Child and Adolescent Functional Assessment Scale (CAFAS).



Contra
Costa
County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Contract #77-264-3 with Amara Hospice, LLC (dba Bridge Hospice Bay Area)

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute on behalf of the County Contract #77-264-3 with Amara Hospice, LLC (dba Bridge Hospice Bay Area), a limited liability company, in an amount not to exceed \$6,000,000, to provide hospice services for Contra Costa Health Plan (CCHP) members, for the period from January 1, 2022 through December 31, 2024.

FISCAL IMPACT:

This action will result in contractual service expenditures of up to \$6,000,000 over three-years and will be funded 100% by CCHP Enterprise Fund II allocations. (No rate increase)

BACKGROUND:

CCHP has an obligation to provide certain specialized hospice services including, but not limited to: certified home health aide, medical social worker and registered nurse visits, counseling and volunteer support according to the terms of their Individual and Group Health Plan membership contracts with the County. This contractor has been providing hospice services to CCHP members as part of the CCHP Provider Network since January 1, 2020.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR ☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Sharron Mackey,
925-313-6104

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: K Cyr, M Wilhelm

BACKGROUND: (CONT'D)

On January 5, 2021, the Board of Supervisors approved Contract # Contract #77-264-2 in an amount not to exceed \$1,000,000, for the provision of hospice services for CCHP members for the period January 1, 2021 through December 31, 2021.

Approval of Contract #77-264-3 will allow the contractor to continue to provide hospice services for CCHP members through December 31, 2024.

CONSEQUENCE OF NEGATIVE ACTION:

If this contract is not approved, certain specialized hospice services for CCHP members under the terms of their Individual and Group Health Plan membership contracts with the County will not be provided.



Contra Costa County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Amendment to Purchase Order with Central Admixture Pharmacy Services, Inc.

RECOMMENDATION(S):

Approve and authorize the Purchasing Agent to execute, on behalf of the Health Services Department, an amendment to Purchase Order #21052 with Central Admixture Pharmacy Services, Inc. to increase the payment limit by \$61,000 for a new payment limit of \$260,000 for the compounding of Total Parenteral Nutrition (TPN) and Peripheral Parenteral Nutrition (PPN) intravenous (IV) solutions, with no change in the original term of December 1, 2020 through November 30, 2021.

FISCAL IMPACT:

Approval of this amendment will result in expenditures of up to \$260,000 for IV TPN and PPN solutions and is 100% funded in the Hospital Enterprise Fund I budget.

BACKGROUND:

Contra Costa Regional Medical Center's Inpatient Pharmacy has been using Central Admixture Pharmacy Services, Inc. for IV services since May 2005. TPN and PPN, as well as certain IV medications are outsourced. These critical medications products are not made in the Inpatient Pharmacy due to the volume needed. Central Admixture Pharmacy Services, Inc. follows all federal and state sterility laws.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Jaspreet Benepal,
925-370-5101

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Irene Segovia, Marcy Wilhelm

CONSEQUENCE OF NEGATIVE ACTION:

If this amendment is not approved, the lack of products such as TPN's and PPN's as well as various IV solution compounds, needed for treating patients will be unavailable, causing a negative impact in the health of our patients at Contra Costa Regional Medical Center.



**Contra
Costa
County**

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Contract #77-402 with Contra Loma Healthcare LLC (dba Lone Tree Post Acute)

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute on behalf of the County Contract #77-402 with Contra Loma Healthcare LLC (dba Lone Tree Post Acute), a limited liability company, in an amount not to exceed \$600,000 to provide skilled nursing facility (SNF) services for Contra Costa Health Plan (CCHP) members, for the period from December 1, 2021 through November 30, 2024.

FISCAL IMPACT:

This contract will result in contractual service expenditures of up to \$600,000 over a three-year period and will be funded 100% by CCHP Enterprise Fund II.

BACKGROUND:

CCHP has an obligation to provide certain specialized SNF health care services for its members under the terms of their Individual and Group Health Plan membership contracts with the County. Members are released from the hospital to recover at an SNF until they are well enough to be sent home. These services include, but are not limited to: twenty-four (24) hour medical care, social service and case management coordination, wound care, respiratory therapy, nasogastric and gastric tube feeding, physical and speech therapy services.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Sharron Mackey,
925-313-6104

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: K Cyr, M Wilhelm

BACKGROUND: (CONT'D)

Under new Contract #77-402, the contractor will provide SNF services for CCHP members for the period December 1, 2021 through November 30, 2024.

CONSEQUENCE OF NEGATIVE ACTION:

If this contract is not approved, certain specialized SNF health care services for CCHP members under the terms of their Individual and Group Health Plan membership contracts with the county will not be provided.



Contra Costa County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Novation Contract #74-249-22 with Catholic Charities CYO of the Archdiocese of San Francisco

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute on behalf of the County Novation Contract #74-249-22 with Catholic Charities CYO of the Archdiocese of San Francisco, a non-profit corporation, in an amount not to exceed \$462,460, to provide Therapeutic Behavioral Services (TBS) for Seriously Emotionally Disturbed (SED) youth at its St. Vincent's School for Boys residential facility for the period from July 1, 2021 through June 30, 2022, which includes a six-month automatic extension through December 31, 2022, in an amount not to exceed \$231,230.

FISCAL IMPACT:

Approval of this contract will result in budgeted expenditures of up to \$462,460 for FY 2021-2022 and will be funded by 50% Federal Medi-Cal (\$231,230) and 50% Mental Health Realignment (\$231,230) revenues.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Suzanne Tavano, Ph.D.,
925-957-5169

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Noel Garcia, Marcy Wilhelm

BACKGROUND:

This Novation Contract meets the social needs of County's population by providing Mental Health TBS services to SED Youth, including Short Term Residential Therapeutic Program (STRTP) services, medication support, crisis intervention, and other mental health services to eligible to high-risk youth who Contra Costa County Behavioral Health authorizes. The contractor has been providing these services since April 2005.

On December 15, 2020, the Board of Supervisors approved Novation Contract #74-249-21 with Catholic Charities CYO of the Archdiocese of San Francisco, in an amount not to exceed \$527,493, to provide TBS services for SED youth at the St. Vincent School for Boys residential facility for the period from July 1, 2020 through June 30, 2021.

Approval of Novation Contract #74-249-22 replaces the automatic extension under the prior contract and allows the contractor to continue providing services through December 31, 2022.

CONSEQUENCE OF NEGATIVE ACTION:

If this contract is not approved, effective implementation of TBS services and support programs will be delayed leading to reduced level of services for the County's mental health clients.

CHILDREN'S IMPACT STATEMENT:

This program supports the following Board of Supervisors' community outcomes: "Children Ready For and Succeeding in School"; "Families that are Safe, Stable, and Nurturing"; and "Communities that are Safe and Provide a High Quality of Life for Children and Families". Expected program outcomes include an increase in positive social and emotional development as measured by the Child and Adolescent Functional Assessment Scale (CAFAS).



Contra
Costa
County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Novation Contract #74-317-22 with Alternative Family Services, Inc.

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute on behalf of the County Novation Contract #74-317-22 with Alternative Family Services, Inc., a non-profit corporation, in an amount not to exceed \$1,374,404, to provide Multidimensional Treatment Foster Care (MTFC) services for Seriously Emotionally Disturbed (SED) youth and their families throughout Contra Costa County for the period July 1, 2021 through June 30, 2022, which includes a six-month automatic extension through December 31, 2022, in an amount not to exceed \$687,202.

FISCAL IMPACT:

Approval of this contract will result in budgeted expenditures of up to \$1,374,404 for FY 2021-2022 and will be funded by 50% Federal Medi-Cal (\$687,202) and 50% Mental Health Realignment (\$687,202) revenues.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

Contact: Suzanne Tavano, Ph.D.,
925-957-5169

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Noel Garcia, Marcy Wilhelm

BACKGROUND:

This contract meets the social needs of the County's population by providing MTFC services focusing on SED youth who are in foster care or in intensive treatment foster care homes, and their families, including mental health services, case management, crisis intervention, and medication support. The contractor has been providing these services since December 2007.

On January 5, 2021, the Board of Supervisors approved Contract #74-317-20 with Alternative Family Services, Inc., in an amount not to exceed \$653,267 for the provision of MTFC services for SED youth and their families throughout Contra Costa County, for the period January 1, 2021 through June 30, 2021, which included a six-month automatic extension through December 31, 2021 in an amount not to exceed \$326,634.

On July 13, 2021, the Board of Supervisors approved Contract Amendment Agreement #74-317-21 to increase the per minute billing rates due to COVID-19, with no change to the original payment limit of \$653,267 or term of January 1, 2021 through June 30, 2021 and no change in the automatic extension through December 31, 2021 in an amount not to exceed \$326,633.

Approval of Novation Contract #74-317-22 replaces the automatic extension in the prior contract and will allow the contractor to continue providing services through June 30, 2022.

CONSEQUENCE OF NEGATIVE ACTION:

If this contract is not approved, there will be fewer mental health services available for MTFC SED youth and families in Contra Costa County as the County solicits and engages an alternative contractor.

CHILDREN'S IMPACT STATEMENT:

This Early and Periodic Screening, Diagnostic, and Treatment (EPSDT) program supports the following Board of Supervisors' community outcomes: "Children Ready For and Succeeding in School"; "Families that are Safe, Stable, and Nurturing"; and "Communities that are Safe and Provide a High Quality of Life for Children and Families". Expected program outcomes include an increase in positive social and emotional development as measured by the Child and Adolescent Functional Assessment Scale (CAFAS).



Contra Costa County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Novation Contract #74-452-12 with La Clinica De La Raza, Inc.

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute on behalf of the County Novation Contract #74-452-12 with La Clinica De La Raza, Inc., a non-profit corporation, in an amount not to exceed \$683,904, to provide mental health services for Seriously Emotionally Disturbed (SED) minority children and their families in East Contra Costa County for the period from July 1, 2021 through June 30, 2022, which includes a six-month automatic extension through December 31, 2022, in an amount not to exceed \$341,952.

FISCAL IMPACT:

Approval of this contract will result in budgeted expenditures of up to \$683,904 for FY 2021-2022 and will be funded by 50% Federal Medi-Cal (\$341,952) and 50% Mental Health Realignment (\$341,952) revenues. (No rate increase)

BACKGROUND:

This contract meets the social needs of the County's population

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

Contact: Suzanne Tavano, Ph.D.,
925-957-5169

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Noel Garcia, Marcy Wilhelm

BACKGROUND: (CONT'D)

by providing community-based mental health services focusing on minority, SED children and their families which will result in positive social and emotional development at home, in the community and greater school success. The contractor has been providing these services since October 2012.

On January 5, 2021, the Board of Supervisors approved Contract #74-452-10 with La Clinica De La Raza, Inc., in an amount not to exceed \$677,688 for the provision of mental health services for SED minority children and their families in East Contra Costa County, for the period from January 1, 2021 through June 30, 2021, which included a six-month automatic extension through December 31, 2021 in an amount not to exceed \$338,844.

On July 13, 2021, the Board of Supervisors approved Contract Amendment Agreement #74-452-11 to increase the per minute billing rates due to COVID-19, with no change to the original payment limit of \$677,688 or term of January 1, 2021 through June 30, 2021 and no change in the automatic extension through December 31, 2021 in an amount not to exceed \$338,844.

Approval of County Novation Contract #74-452-12 replaces the automatic extension and will allow the contractor to continue providing mental health services for SED minority children and families through June 30, 2022.

CONSEQUENCE OF NEGATIVE ACTION:

If this contract is not approved, there will be fewer mental health services available for minority SED children in East Contra Costa County as the County solicits and engages an alternative contractor.

CHILDREN'S IMPACT STATEMENT:

This Early and Periodic Screening, Diagnostic, and Treatment (EPSDT) program supports the following Board of Supervisors' community outcomes: "Children Ready For and Succeeding in School"; "Families that are Safe, Stable, and Nurturing"; and "Communities that are Safe and Provide a High Quality of Life for Children and Families". Expected program outcomes include an increase in positive social and emotional development as measured by the Child and Adolescent Functional Assessment Scale (CAFAS).



Contra
Costa
County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Novation Contract #74-517-10 with Child Therapy Institute of Marin

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute on behalf of the County Novation Contract #74-517-10 with Child Therapy Institute of Marin, a non-profit corporation, in an amount not to exceed \$950,000, to provide mental health services for Seriously Emotionally Disturbed (SED) children and their families in East and West Contra Costa County for the period from July 1, 2021 through June 30, 2022, which includes a six-month automatic extension through December 31, 2022, in an amount not to exceed \$475,000.

FISCAL IMPACT:

Approval of this contract will result in budgeted expenditures of up to \$950,000 for FY 2021-2022 and will be funded by 50% Federal Medi-Cal (\$475,000) and 50% Mental Health Realignment (\$475,000) revenues.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Suzanne Tavano, Ph.D.,
925-957-5169

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Noel Garcia, Marcy Wilhelm

BACKGROUND:

This contract meets the social needs of the County's population by providing community-based mental health services focusing on SED children, adolescents and their families which will result in positive social and emotional development at home, in the community and greater school success. The contractor has been providing these services since July 2016.

On January 5, 2021, the Board of Supervisors approved Contract #74-517-8 (as amended by Contract Amendment Agreement #74-517-9) with Child Therapy Institute of Marin, in an amount not to exceed \$419,871 for the provision of mental health services for SED children and their families in East and West Contra Costa County, for the period from January 1, 2021 through June 30, 2021, which included a six-month automatic extension through December 31, 2021 in an amount not to exceed \$209,935.

On July 13, 2021, the Board of Supervisors approved Contract Amendment Agreement #74-517-9 to increase the per minute billing rates due to COVID-19, with no change to the original payment limit of \$419,871 or term of January 1, 2021 through June 30, 2021 and no change in the automatic extension through December 31, 2021 in an amount not to exceed \$209,935.

Approval of County Novation Contract #74-517-10 replaces the automatic extension in the prior contract and will allow the contractor to continue providing mental health services for SED children and families through June 30, 2022.

CONSEQUENCE OF NEGATIVE ACTION:

If this contract is not approved, there will be fewer mental health services available for SED children in East and West Contra Costa County as the County solicits and engages an alternative contractor.

CHILDREN'S IMPACT STATEMENT:

This Early and Periodic Screening, Diagnostic, and Treatment (EPSDT) program supports the following Board of Supervisors' community outcomes: "Children Ready For and Succeeding in School"; "Families that are Safe, Stable, and Nurturing"; and "Communities that are Safe and Provide a High Quality of Life for Children and Families". Expected program outcomes include an increase in positive social and emotional development as measured by the Child and Adolescent Functional Assessment Scale (CAFAS).



Contra
Costa
County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Novation Contract #24-133-77 with La Cheim School, Inc.

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute on behalf of the County Novation Contract #74-133-77 with La Cheim School, Inc., a non-profit corporation, in an amount not to exceed \$2,769,860, to provide school-based and Short-Term Residential Therapeutic Program (STRIP) services which includes mental health and Therapeutic Behavioral Services (TBS) for Seriously Emotionally Disturbed (SED) youth and their families from Contra Costa County at their facilities in West County for the period from July 1, 2021 through June 30, 2022, which includes a six-month automatic extension through December 31, 2022, in an amount not to exceed \$1,384,930.

FISCAL IMPACT:

Approval of this contract will result in budgeted expenditures of up to \$2,769,860 for FY 2021-2022 and will be funded by 50% Federal Medi-Cal (\$1,384,930) and 50% Mental Health Realignment (\$1,384,930) revenues.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Suzanne Tavano, Ph.D.,
925-957-5169

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Noel Garcia, Marcy Wilhelm

BACKGROUND:

This contract meets the social needs of the County's population by providing school-based and STRIP services including mental health and TBS services focusing on SED youth and their families. Eligible individuals are determined by the Federal Individuals with Disabilities Education Act (IDEA), wards or dependents of the Contra Costa County Juvenile Court and or are County-referred. Expected program outcomes will result in positive social and emotional development at home, in the community and greater school success. The contractor has been providing these services since 1979.

On January 5, 2021, the Board of Supervisors approved Contract #24-133-74 (as amended by Contract Amendment Agreements #24-133-75 through #24-133-76) with La Cheim School, Inc., in an amount not to exceed \$1,316,538 for the provision of school-based and STRIP services which included mental health and TBS services for SED youth and their families in West Contra Costa County, for the period from January 1, 2021 through June 30, 2021, which included a six-month automatic extension through December 31, 2021 in an amount not to exceed \$658,269.

On July 13, 2021, the Board of Supervisors approved Contract Amendment Agreement #74-133-75 to increase the per minute billing rates due to COVID-19, with no change to the original payment limit of \$1,316,538 or term of January 1, 2021 through June 30, 2021 and no change in the automatic extension through December 31, 2021 in an amount not to exceed \$658,269.

In November, 2021, the County Administrator approved and the Purchasing Services Manager executed Administrative Amendment Agreement #24-133-76 to correct a typo in the order of Service Functions set forth in the Rate Table to make consistent with the intentions of the Contractor and County, with no change to the original payment limit of \$1,316,538 or term of January 1, 2021 through June 30, 2021 and no change in the automatic extension through December 31, 2021 in an amount not to exceed \$658,269.

Approval of County Novation Contract #74-133-77 replaces the automatic extension in the prior contract #24-133-74 and will allow the contractor to continue providing mental health services for SED youth and families through June 30, 2022.

CONSEQUENCE OF NEGATIVE ACTION:

If this novation contract is not approved, there will be fewer treatment options for wards of Contra Costa County Juvenile Court and fewer mental health services available for SED youth in West Contra Costa County as the County solicits and engages an alternative contractor.

CHILDREN'S IMPACT STATEMENT:

This Early and Periodic Screening, Diagnostic, and Treatment (EPSDT) program supports the following Board of Supervisors' community outcomes: "Children Ready For and Succeeding in School"; "Children and Youth Healthy and Preparing for Productive Adulthood"; "Families that are Safe, Stable, and Nurturing"; and "Communities that are Safe and Provide a High Quality of Life for Children and Families". Expected program outcomes include an increase in positive social and emotional development as measured by the Child and Adolescent Functional Assessment Scale (CAFAS).



**Contra
Costa
County**

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Novation Contract #24-308-53 with Early Childhood Mental Health Program

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute on behalf of the County Novation Contract #24-308-53 with Early Childhood Mental Health Program, a non-profit corporation, in an amount not to exceed \$3,687,202, to provide mental health services including wraparound and outpatient treatment to children in West County for the period from July 1, 2021 through June 30, 2022, which includes a six-month automatic extension through December 31, 2022, in an amount not to exceed \$1,843,601.

FISCAL IMPACT:

Approval of this contract will result in an annual budgeted expenditure of up to \$3,687,202 fiscal year 2021/2022 and will be funded by 50% by Federal Medi-Cal and 50% Mental Health Realignment. (Rate increase)

BACKGROUND:

This contract meets the social needs of the County's population by providing school and community based mental health services, including: assessments, individual, group and family therapy; medication support, case management, outreach, and crisis intervention services, to an underserved population and will result in greater home, community, and school success. Early Childhood Mental Health Program has been providing mental health services to the County since July 1, 1983.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Suzanne Tavano, Ph.D.,
925-957-5212

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Alaina Floyd, marcy.wilham

BACKGROUND: (CONT'D)

On December 8, 2020, the Board of Supervisors approved Contract #24-308-51 with Early Childhood Mental Health Program, in an amount not to exceed \$3,522,402 for the provision of specialized mental health services including in-home behavioral health services to children and their families in West Contra Costa County for the period from July 1, 2020 through June 30, 2021, which included a six-month automatic extension through December 31, 2021, in an amount not to exceed \$1,761,201.

On July 13, 2021, the Board of Supervisors approved Amendment Agreement #24-308-52 with Early Childhood Mental Health Program to increase the per minute billing rates due to COVID-19, with no change to the payment limit of \$3,522,402 or term July 1, 2021 through June 30, 2021.

Approval of Novation Contract #24-308-53 replaces the automatic extension under the prior contract and allows the contractor to continue providing services through June 30, 2022.

CONSEQUENCE OF NEGATIVE ACTION:

If this contract is not approved, Early Childhood Mental Health Program and other ethnic groups receiving services at four programs in West County would have reduced access to mental health services in school, drug court and clinic settings.

CHILDREN'S IMPACT STATEMENT:

This Early and Periodic Screening Diagnostic and Treatment Program supports the following Board of Supervisors' community outcomes: "Children Ready for and Succeeding in School"; "Families that are Safe, Stable, and Nurturing"; and "Communities that are Safe and Provide a High Quality of Life for Children and Families". Expected program outcomes include an increase in positive social and emotional development as measured by the Child and Adolescent Functional Assessment Scale (CAFAS) and a decrease in juvenile offender recidivism as measured by probation database information.



Contra
Costa
County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Novation Contract #74-369-12 with Native American Health Center, Inc.

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute on behalf of the County Novation Contract #74-369-12 with Native American Health Center, Inc., in an amount not to exceed \$257,753, to provide Mental Health Services Act (MHSA) Prevention and Early Intervention (PEI) services for the period July 1, 2021 through June 30, 2022, which includes a six-month automatic extension through December 31, 2022, in an amount not to exceed \$128,876.

FISCAL IMPACT:

Approval of this contract will result in an annual expenditure of up to \$257,753 for FY 2021-2022 and will be funded 100% by Mental Health Services Act. (Rate increase)

BACKGROUND:

This contract meets the social needs of the County's population by providing MHSA PEI services to the County since July 1, 2009.

On December 15, 2020, the Board of Supervisors approved Novation Contract #74 369-11 with Native American Health Center, Inc., in an amount not to exceed \$250,257, to provide MHSA PEI services for the period from July 1, 2020 through June 30, 2021, which included a six-month automatic extension through December 31, 2021.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Suzanne Tavano, Ph.D.,
925-957-5169

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Alaina Floyd, marcy.wilham

BACKGROUND: (CONT'D)

Approval of Novation Contract #74-369-12 replaces the automatic extension under the prior contract and allows the contractor to continue providing services through June 30, 2022.

CONSEQUENCE OF NEGATIVE ACTION:

If this contract is not approved, the County's mental health clients will not have access to this contractor's PEI program.

CHILDREN'S IMPACT STATEMENT:

This program supports the following Board of Supervisors' community outcomes: "Children Ready For and Succeeding in School"; "Families that are Safe, Stable, and Nurturing"; and "Communities that are Safe and Provide a High Quality of Life for Children and Families". Expected program outcomes include an increase in positive social and emotional development as measured by the Child and Adolescent Functional Assessment Scale (CAFAS).



Contra
Costa
County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Contract #77-278-1 with Silky Touch, LLC

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute, on behalf of the County Contract #77-278-1, with Silky Touch, LLC, a limited liability company, in an amount not to exceed \$300,000 to provide electrolysis services to Contra Costa Health Plan (CCHP) members, for the period from January 1, 2022 through December 31, 2024.

FISCAL IMPACT:

This contract will result in contractual service expenditures of up to \$300,000 over a 3-year period and will be funded 100% by CCHP Enterprise Fund II revenues. (No rate increase)

BACKGROUND:

CCHP has an obligation to provide certain specialized electrolysis health care services for its members under the terms of their Individual and Group Health Plan membership contracts with the County. This contractor has been in the CCHP Provider Network and has been providing electrolysis services since January 1, 2020.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Sharron Mackey,
925-313-6104

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Noel Garcia, Marcy Wilhelm

BACKGROUND: (CONT'D)

In January 2020, the County Administrator approved and the Purchasing Services Manager executed Contract #77-278 with Silky Touch, LLC, in an amount not to exceed \$50,000 for the provision of electrolysis services to CCHP members, for the period January 1, 2020 through December 31, 2021.

Approval of Contract #77-278-1 will allow the contractor to continue providing electrolysis services through December 31, 2024.

CONSEQUENCE OF NEGATIVE ACTION:

If this contract is not approved, certain specialized electrolysis health care services for CCHP members under the terms of their Individual and Group Health Plan membership contracts with the County will not be provided.



Contra
Costa
County

To: Board of Supervisors
From: Brian M. Balbas, Public Works Director/Chief Engineer
Date: December 14, 2021

Subject: Master Software and Cloud Services Agreement with AssetWorks, Inc., Countywide.

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Public Works Director, or designee, to execute an Order Form and Master Agreement with AssetWorks, Inc. in an amount not to exceed \$606,282.47 for hosted fleet management software, upgrade services, and maintenance and support for the term January 1, 2022 through December 31, 2026, Countywide.

FISCAL IMPACT:

100% Fleet Internal Services Fund.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Monica Nino, County Administrator and Clerk of the Board of Supervisors

Contact: Barry Schamach,
925.313.2185

By: , Deputy

cc:

BACKGROUND:

The Fleet Services Division first implemented AssetWorks/M5 software in 2012 in order to improve efficiency in the County's fleet management processes. The execution of the Master SaaS and Services Agreement will allow the Fleet Services Division to upgrade to the most current version of AssetWorks/M5; the move to cloud-hosted services insures the software will always be kept current. Cloud-hosted services will reduce staff time and hardware resources for Public Works and Department of Information Technology staff who currently maintain the AssetWorks hardware. During the five-year period, AssetWorks will be responsible for future upgrades and software support. The Agreement for these services contains an indemnification provision, whereby the County agrees to indemnify the Contractor against claims made by any third party against the Contractor. Annual software, support, and hosting fees average \$110,200.49 for a five-year total of \$551,002.47. The upgrade/migration to cloud hosting is a one-time fee that will not exceed \$39,480. AssetWorks will train County staff on the upgraded version of M5 for a one-time fee of \$15,800.

CONSEQUENCE OF NEGATIVE ACTION:

The Fleet Services Division will not upgrade to the current version of AssetWorks/M5, and these services will not be migrated to the cloud, resulting in reduced efficiencies due to outdated, on-premise software.



**Contra
Costa
County**

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Novation Contract #74-378-15 with Contra Costa Interfaith Transitional Housing, Inc. (dba Hope Solutions)

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute on behalf of the County Novation Contract #74-378-15 with Contra Costa Interfaith Transitional Housing, Inc. (dba Hope Solutions), a non-profit corporation, in an amount not to exceed \$397,041 to provide an on-site, on-demand and culturally appropriate Prevention and Early Intervention (PEI) program to help formerly homeless families, for the period from July 1, 2021 through June 30, 2022, which includes a six-month automatic extension through December 31, 2022, in an amount not to exceed \$198,520.

FISCAL IMPACT:

Approval of this contract will result in an annual expenditure of up to \$397,041 for FY 2021-2022 and will be funded 100% by Mental Health Services Act funding. (No rate increase)

BACKGROUND:

This contract meets the social needs of the County's population by providing an on-site, on-demand and culturally appropriate Prevention and Early Intervention (PEI) program to help formerly homeless families. Contra Costa Interfaith Transitional Housing, Inc. (dba Hope Solutions) has been providing MHSA PEI services to the County since July 1, 2009.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☒ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Suzanne Tavano, Ph.D.,
925-957-5169

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Alaina Floyd, marcy.wilham

BACKGROUND: (CONT'D)

On December 15, 2020, the Board of Supervisors approved Novation Contract #74 378-14 with Contra Costa Interfaith Transitional Housing, Inc. (dba Hope Solutions), in an amount not to exceed \$385,477 to provide an on-site, on-demand and culturally appropriate Prevention and Early Intervention program to help formerly homeless families for the period from July 1, 2020 through June 30, 2021, which included a six-month automatic extension through December 31, 2021.

Approval of Novation Contract #74–378-15 replaces the automatic extension under the prior contract and allows the contractor to continue providing services through June 30, 2022.

CONSEQUENCE OF NEGATIVE ACTION:

If this contract is not approved, the County will not have access to this contractor's on-site, on-demand and culturally appropriate PEI program.



Contra
Costa
County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Purchase Order with GE Precision Healthcare, LLC

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Purchasing Agent, to execute, on behalf of the Health Services Director, a purchase order with GE Precision Healthcare, LLC, in an amount not to exceed \$409,626.54, to authorize payments to GE during the period from July 1, 2021, through March 30, 2023, in connection with the lease of a mobile computed tomography (CT) scanner.

FISCAL IMPACT:

Approval of this purchase order will result in expenditures of up to \$409,627 for the period July 1, 2021 through March 31, 2023 and is 100% funded in the Hospital Enterprise Fund I budget.

BACKGROUND:

Prior to the COVID pandemic, the Contra Costa Regional Medical Center (CCRMC) had a single computed tomography (CT) scanner. To meet the increased demand for CT scans at the beginning of the pandemic, using the COVID Purchase Order, the Contra Costa Regional Medical Center (CCRMC) entered into a 60-month lease agreement for a mobile CT scanner to augment the existing scanner.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Jaspreet Benepal,
925-370-5101

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Marcy Wilhelm, Marilyn Bybee

BACKGROUND: (CONT'D)

During this time, there was a shortage of mobile CTs in the US marketplace. As a long-term provider of services to the hospital, GE extended an offer to include the rental of a mobile CT scanner while our scanner was being built. This afforded CCRMC the immediate ability to provide continuity of care to our patients. Other vendors were contacted, and none were prepared to provide CCRMC similar services in a timeframe to meet CCRMC's needs.

On May 26, 2020, the Board of Supervisors authorized and ratified a 60-month lease, with payments not to exceed \$1,255,136, for the lease of a mobile CT scanner (see Item C.43; the lease began on the delivery of the equipment in or about March 2020.) Payments under the lease were initially covered under the COVID-19 blanket purchase order, to ensure the County could seek reimbursement from the federal government for any eligible expenses. However, that blanket purchase order expired June 30, 2021, and, due to an administrative oversight, a subsequent purchase order was not requested at that time.

To ensure that GE will continue to be paid under the lease, the department requires authorization to issue a separate purchase order. The funds covered by the purchase order are included in the lease payments previously approved by the Board. To ensure uninterrupted use of the mobile CT scanner, and to comply with lease terms, Health Services recommends that the Board authorize issuing this purchase order.

CONSEQUENCE OF NEGATIVE ACTION:

If this purchase order is not approved, CCRMC will have to rely on the single scanner and not be able to treat patients requiring CT scans in a timely manner.



Contra
Costa
County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Extension Agreement #23-708-1 with Lifelong Medical Care

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute on behalf of the County Contract Extension Agreement #23-708-1 with Lifelong Medical Care, a non-profit corporation, to extend the termination date from December 31, 2021 to June 30, 2022 with no change in the original payment limit of \$1,559,142, to continue to provide COVID-19 testing and vaccination support in underserved areas of the County.

FISCAL IMPACT:

There is no fiscal impact since there is no change in the original payment limit of \$1,559,142 and is funded 100% by the Federal American Rescue Plan Act.

BACKGROUND:

On March 10, 2020, the Board of Supervisors requested that the Governor proclaim a State of Emergency in Contra Costa County (Gov. Code Section 8625) due to COVID-19. The Health Department must use all available preventative measures to combat the spread of COVID-19 which includes outreach, testing and vaccine administration. The Department must enter into contracts for these services and competitive bidding requirements are suspended to the extent necessary to address the effects of COVID-19.

This contractor

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR ☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Anna Roth,
925-957-2670

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Marcy Wilhelm

BACKGROUND: (CONT'D)

provides testing and vaccinations including two to three drive/walk-through sites at LifeLong William Jenkins Health Center, LifeLong Brookside San Pablo Health Center, and LifeLong Pinole Health Center, for patients and community members who are uninsured, and a portable testing program that will identify several consistent weekly locations to effectively reach populations typically lacking access to testing and vaccination services. In addition to site expansion, the contractor will add Point of Care (POC) test capability at all current and proposed testing and vaccination locations. Services at all testing and vaccination sites will include COVID-19 POC and polymerase chain reaction (PCR), or nasal swab, testing and communication of results, education, outreach, and linkage to community resources and insurance coverage for high risk, under-represented communities including the Medi-Cal patients, uninsured individuals and the general public. To expedite access to expanded testing services with timely results (24-48 hours), the contractor will continue its partnership with UC Berkeley's Innovative Genomics Institute (IGI) for lab services (test kits, results, and platform).

On March 2021, the Board of Supervisors approved Contract #23-708 with Lifelong Medical Care, in an amount not to exceed \$1,559,142, for the provision of COVID-19 testing and vaccination support in underserved areas of the County, for the period from January 1, 2021 through December 31, 2021.

Approval of Contract Extension Agreement #23-708-1 will allow the contractor to continue providing services through June 30, 2022.

CONSEQUENCE OF NEGATIVE ACTION:

If this extension is not approved, the contractor will not continue to provide services and the most vulnerable Contra Costa County residents will continue to be at risk for COVID-19.



Contra
Costa
County

To: Board of Supervisors
From: John Kopchik, Director, Conservation & Development Department
Date: December 14, 2021

Subject: Contract Amendment with Fehr & Peers for the "Marsh Creek Corridor Multi-Use Trail Study"

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Conservation and Development Director, or designee, to execute a contract amendment with Fehr & Peers to extend the term from December 31, 2021 through June 30, 2022 with no change to the payment limit, to continue analyzing the feasibility of multi-use trail concepts for the Marsh Creek Corridor.

FISCAL IMPACT:

No impact to the County's General Fund. Staff time and proposed County funding are included in existing work plans and budgets. Previously approved or reviewed allocations fund the project: Livable Communities Trust Fund District III portion (\$250,000, Board approved 12/20/16), East Contra Costa County Habitat Conservancy Restoration Planning Funds (\$25,000, 7/20/16) and Road Fund – Advance Planning (gas tax) (\$24,735).

BACKGROUND:

In November 2018, the Department of Conservation and Development ("DCD") entered into a contract with Fehr & Peers ("Contractor"), in an amount not to exceed \$299,735 for the period November 15, 2018 through December 31, 2020, to assist DCD in developing and studying the feasibility of a multi-use trail in the Marsh Creek Corridor. Two contract extensions have been approved. The first contract extension was

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Jamar Stamps (925)
655-2917

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:

BACKGROUND: (CONT'D)

approved in November 2020 due to project delays from COVID-19 with an end date of June 30, 2021, and the second through December 31, 2021 to develop the Draft Study document. Additional project development work and public outreach are still underway and staff has determined it is necessary to extend this contract a third time to allow the Contractor to continue providing their services. Additional public outreach and publication of the Draft Study will occur in the first quarter of 2022 and a Final Study will be completed no later than Spring/Summer 2022. There will be no change to the existing payment limit of \$299,735.

CONSEQUENCE OF NEGATIVE ACTION:

If unapproved, Fehr & Peers would not be able to continue to provide their services, which may result in delayed delivery of the Final Study.



Contra Costa County

To: Board of Supervisors
 From: Anna Roth, Health Services Director
 Date: December 14, 2021

Subject: Extension Agreement #23-706-2 with La Clinica De La Raza, Inc.

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute on behalf of the County Contract Extension Agreement #23-706-2 with La Clinica De La Raza, Inc., a non-profit corporation, to extend the termination date from December 31, 2021 to June 30, 2022 with no change in the original payment limit of \$780,280, to continue to provide COVID-19 outreach, mobile testing and vaccine administration in underserved areas of the County.

FISCAL IMPACT:

None, there is no change in the original payment limit of \$780,280 and is funded 100% by the Federal American Rescue Plan Act.

BACKGROUND:

On March 10, 2020, the Board of Supervisors requested that the Governor proclaim a State of Emergency in Contra Costa County (Gov. Code Section 8625) due to COVID-19. The Health Department must use all available preventative measures to combat the spread of COVID-19 which includes outreach, testing and vaccine administration. The Department must enter into contracts for these services and competitive bidding requirements are suspended to the extent necessary to address the effects of COVID-19.

This contract establishes a relationship between Contra

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR ☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Anna Roth,
925-957-2670

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Marcy Wilhelm

BACKGROUND: (CONT'D)

Costa County Health Services Department (HSD) and La Clinica De La Raza that will enable COVID-19 mobile testing and vaccine administration as well as outreach program support to provide services to underserved and/or uninsured Contra Costa County community members.

On February 9, 2021, the Board of Supervisors approved Contract #23-706 with La Clinica De La Raza, Inc.. in an amount not to exceed \$780,280, for the provision of COVID-19 outreach, mobile testing and vaccine administration for residents of Contra Costa County, for the period from January 1, 2021 through December 31, 2021. In August 2021, the County Administrator approved Administrative Amendment #23-706-1 to correct a typo in the dosage rate.

Approval of Contract Extension Agreement #23-706-2 will allow the contractor to continue providing services through June 30, 2022.

CONSEQUENCE OF NEGATIVE ACTION:

If this extension is not approved, the contractor will not continue to provide services and the most vulnerable Contra Costa County residents will continue to be at risk for COVID-19.



Contra
Costa
County

To: Board of Supervisors
From: David O. Livingston, Sheriff-Coroner
Date: December 14, 2021

Subject: Purchase Order - Victory Supply

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Purchasing Agent, or designee, to execute, on behalf of the Sheriff-Coroner, a purchase order amendment with Victory Supply to increase the payment limit by \$125,001 to a new payment limit of \$325,000 to purchase clothing, bedding & linen items as required for inmates for the West County (WCDF), Martinez (MDF) and Marsh Creek (MCDF) detention facilities through March 31, 2022.

FISCAL IMPACT:

\$125,001. 100% General Fund; Budgeted.

BACKGROUND:

The Office of the Sheriff is required to provide inmates with bedding, well-fitting clothing and personal hygiene items in accordance with the Title 15 CCR Minimum Standards for Local Detention Facilities. Victory Supply is being used as a secondary vendor for inmate clothing to ensure uninterrupted operation of the Office of the Sheriff facilities. This vendor provides better economical pricing on specific items in comparison to the Sheriff's primary supplier. Their clothing, bedding and linen items do meet the standards and specifications for use in inmate housing facilities.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Heike Anderson, (925)
655-0023

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Heike Anderson, Alycia Rubio, Paul Reyes

CONSEQUENCE OF NEGATIVE ACTION:

The Sheriff's Office would not be able to purchase required items to operate its detention facilities at an economical price.



Contra
Costa
County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Extension Agreement #23-723-1 with Public Health Foundation Enterprises, Inc.

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute on behalf of the County Contract Extension Agreement #23-723-1 with Public Health Foundation Enterprises, Inc. (dba Heluna Health), a corporation, to extend the termination date from December 31, 2021 to June 30, 2022 with no change in the original payment limit of \$2,947,041, to continue to provide temporary public health microbiologist, licensed vocational nurses and registered nurses for coverage at COVID-19 testing, vaccination and person under investigation sites.

FISCAL IMPACT:

There is no change to the original payment limit of \$2,947,041, which is funded 100% by the Federal American Rescue Act.

BACKGROUND:

On March 10, 2020, the Board of Supervisors requested that the Governor proclaim a State of Emergency in Contra Costa County (Gov. Code Section 8625) due to COVID-19. The Health Department must use all available preventative measures to combat the spread of COVID-19 which includes outreach, testing and vaccine administration. The Department must enter into contracts for these services and competitive bidding requirements are suspended to the extent necessary

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR ☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

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ATTESTED: December 14, 2021

Contact: Anna Roth,
925-957-2670

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Marcy Wilhelm

BACKGROUND: (CONT'D)

to address the effects of COVID-19.

On August 3, 2021, the Board of Supervisors approved Contract #23-723 with Public Health Foundation Enterprises, Inc. (dba Heluna Health), in an amount not to exceed \$2,947,041 to provide temporary public health microbiologist, licensed vocational nurses and registered nurses for coverage at COVID-19 testing, vaccination and person under investigation sites to provide temporary relief for County employees during peak loads, temporary absences, vacations or emergency situations, as needed through December 31, 2021.

Approval of Contract Extension Agreement #23-723-1 will allow the contractor to continue providing through June 30, 2022.

CONSEQUENCE OF NEGATIVE ACTION:

If this contract is not approved, patients at COVID-19 testing, vaccination and person under investigation sites would not have adequate care.



Contra
Costa
County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Purchase Order with Forward Advantage

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Purchasing Agent, on behalf of the Health Services Director, to execute a purchase order with Forward Advantage, Inc., a corporation, in an amount not to exceed \$1,055,292 for the renewal of Imprivata SSO Software and Confirm ID software for electronic prescribing of controlled substances, and iGel Workspace software, for the period December 14, 2021 through February 7, 2025.

FISCAL IMPACT:

This purchase order will result in expenditures of up to \$1,055,292 over a 4-year period and will be funded 100% by Hospital Enterprise Fund I revenues.

BACKGROUND:

Forward Advantage is the authorized reseller of Imprivata, Inc. single sign-on (SSO) software and Confirm ID for EPCS. Imprivata SSO Software meets the needs of the Health Services Department by offering a solution that addresses access challenges. This sign-on solution significantly reduces the number of clicks required to log on to various systems and eliminates the need to remember or enter application usernames and passwords.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Patrick Wilson,
925-335-8777

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: T Scott, M Wilhelm

BACKGROUND: (CONT'D)

E-Prescribing (EPCS) allows doctors to prescribe medicine using a Token ID & a Windows ID in Epic and provides robust identification capabilities required by law when electronically prescribing controlled substances. Forward Advantage is also the authorized reseller of iGel Workspace Edition (OS 11 & UMS) Solution which serves as a troubleshooting service within the County's environment. IGEL Workspace Edition OS 11 is a foundation for secure endpoint control over cloud workspaces. This solution turns any compatible device or thin client into a secure IGEL-managed endpoint serving as a virtualized environment for dumb terminals.

CONSEQUENCE OF NEGATIVE ACTION:

If this action is not approved, Contra Costa Health Services will miss out on a strict pricing deadline resulting in an increase of \$200,000 in additional charges for Imprivata's SSO Software, Confirm ID for EPCS, and iGel's Workspace Edition Solution.



**Contra
Costa
County**

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Contract #27-420-9 with Pinnacle Mental Wellness Group, A Family Counseling Community, Inc.

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute, on behalf of the County Contract #27-420-9 with Pinnacle Mental Wellness Group, A Family Counseling Community, Inc., a corporation, in an amount not to exceed \$480,000, to provide outpatient psychotherapy services to Contra Costa Health Plan (CCHP) members, for the period from January 1, 2022 through December 31, 2024.

FISCAL IMPACT:

This contract will result in contractual service expenditures of up to \$480,000 over a 3-year period and will be funded 100% by CCHP Enterprise Fund II revenues. (Rate increase)

BACKGROUND:

CCHP has an obligation to provide certain specialized health care services for its members under the terms of their Individual and Group Health Plan membership contracts with the County. This contractor is part of the CCHP Provider Network and has been providing outpatient psychotherapy services since January of 2000.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Sharron Mackey,
925-313-6104

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Noel Garcia, Marcy Wilhelm

BACKGROUND: (CONT'D)

On December 17, 2019, the Board of Supervisors approved Contract #27-420-8 with Pinnacle Mental Wellness Group, A Family Counseling Community, Inc., in an amount not to exceed \$250,000 for the provision of outpatient psychotherapy services for CCHP members, for the period January 1, 2020 through December 31, 2021.

Approval of Contract #27-420-9 will allow the contractor to continue providing outpatient psychotherapy services through December 31, 2024.

CONSEQUENCE OF NEGATIVE ACTION:

If this contract is not approved, certain specialized outpatient psychotherapy health care services for CCHP members under the terms of their Individual and Group Health Plan membership contracts with the County will not be provided.



Contra
Costa
County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Contract #77-008-4 with Mission Hills Eye Center Medical Associates, Inc.

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute, on behalf of the County Contract #77-008-4, with Mission Hills Eye Center Medical Associates, Inc., a corporation, in an amount not to exceed \$2,400,000, to provide ophthalmology and optometry services to Contra Costa Health Plan (CCHP) members and county recipients, for the period from January 1, 2022 through December 31, 2024.

FISCAL IMPACT:

This contract will result in contractual service expenditures of up to \$2,400,000 over a 3-year period and will be funded 100% by CCHP Enterprise Fund II revenues. (No rate increase)

BACKGROUND:

CCHP has an obligation to provide certain specialized health care services for its members under the terms of their Individual and Group Health Plan membership contracts with the County. This contractor is part of the CCHP Provider Network and has been providing ophthalmology and optometry services since January of 2016.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Sharron Mackey,
925-313-6104

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Noel Garcia, Marcy Wilhelm

BACKGROUND: (CONT'D)

On December 10, 2019, the Board of Supervisors approved Contract #77-008-3 with Mission Hills Eye Center Medical Associates, Inc., in an amount not to exceed \$1,250,000 for the provision of ophthalmology and optometry services for CCHP members and County recipients, for the period January 1, 2020 through December 31, 2021.

Approval of Contract #77-008-4 will allow the contractor to continue providing ophthalmology and optometry services through December 31, 2024.

CONSEQUENCE OF NEGATIVE ACTION:

If this contract is not approved, certain specialized ophthalmology and optometry health care services for CCHP members under the terms of their Individual and Group Health Plan membership contract with the County will not be provided.



Contra Costa County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Amendment #25-077-10 with Contra Costa Interfaith Transitional Housing, Inc. (DBA Hope Solutions)

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute on behalf of the County Contract Amendment Agreement #25-077-10 with Contra Costa Interfaith Transitional Housing, Inc. (dba Hope Solutions), a non-profit corporation, effective October 1, 2021, to amend Contract #25-077-9, to increase the payment limit by \$155,282, from \$460,000 to a new total payment limit of \$615,282, with no change in the term of July 1, 2021 through June 30, 2022.

FISCAL IMPACT:

This amendment will result in additional expenditures of up to \$155,282 for FY 2021/2022 and is funded 100% by State Housing Security funding. (No rate increase)

BACKGROUND:

This contract meets the social needs of the County's population by providing support services to Contra Costa County families that are homeless, including case management, day shelter services, transportation needs, mental health assessment and crisis intervention. Contra Costa Interfaith Transitional Housing, Inc. (dba Hope Solutions) has been providing case management and housing navigation services for the County's Coordinated Entry System since November 2016.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Lavonna Martin,
925-608-6701

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: L Walker, M Wilhelm

BACKGROUND: (CONT'D)

On July 27, 2021, the Board of Supervisors approved Contract #25-077-9 with Contra Costa Interfaith Transitional Housing, Inc. (dba Hope Solutions), in an amount not to exceed \$460,000 to provide housing navigation services for the Coordinated Assessment Referral and Engagement (CARE) Centers and CARE Capable Centers for the Homeless Coordinated Entry System, for the period from July 1, 2021 through June 30, 2022.

Approval of Amendment Agreement #25-077-10 will allow the contractor to provide additional housing support services to transitional aged youth (TAY) who are part of the foster care system through June 30, 2022.

CONSEQUENCE OF NEGATIVE ACTION:

If this amendment is not approved, TAY who are part of the foster care system will not have additional access to this contractor's services.

CHILDREN'S IMPACT STATEMENT:

This program supports the following Board of Supervisors' community outcomes: "Families that are Safe, Stable, and Nurturing"; and "Communities that are Safe and Provide a High Quality of Life for Children and Families". Expected program outcomes include an increase in positive social and emotional development as measured by the Child and Adolescent Functional Assessment Scale (CAFAS).

ATTACHMENTS



**Contra
Costa
County**

To: Board of Supervisors
From: Ann Elliott, Human Resources Director
Date: December 14, 2021

Subject: Contract Extension with Biometrics4ALL, Inc. to provide the County with technology platform that facilitates social distancing fingerprinting services.

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Human Resources Director, or designee, to execute a contract amendment with Biometrics4ALL, Inc. to extend the term from July 1, 2021 through June 30, 2022, and increase the payment limit by \$160,000 to a new payment limit of \$325,000, to provide technology services to facilitate social distance fingerprinting.

FISCAL IMPACT:

The fiscal impact of this contract is borne by the hiring departments that utilize the services. (100% User Fees)

BACKGROUND:

In 2020, the County approved a contract with Biometrics4ALL, Inc. to provide a technology service platform via ApplicantServices.com that facilitates and streamlines social distancing fingerprinting services to new hire candidates. The platform allows candidates to directly schedule appointments at various locations throughout the State of California. Biometrics4All, Inc. collects and retains all completed live scan applications on behalf of the County per the Department of Justice (DOJ) legal requirements for a period of one (1) year.

CONSEQUENCE OF NEGATIVE ACTION:

If this extension is not approved, the County will be unable to offer the fingerprinting and related services offered by Biometrics4All, Inc. to new hires candidates.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Salma Sadiq,
925-655-2176

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:



**Contra
Costa
County**

To: Board of Supervisors
From: Kathy Gallagher, Employment & Human Services Director
Date: December 14, 2021

Subject: 2022 Head Start Delegate Agency Contract Renewal

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Employment and Human Services Director, or designee, to execute a contract with First Baptist Church of Pittsburg, California, in an amount not to exceed \$1,160,877 for Head Start Delegate Agency childcare services for the period January 1, 2022 through June 30, 2022.

FISCAL IMPACT:

100% federally funded by the U.S. Department of Health and Human Services, Administration for Children and Families (ACF). The Delegate Agency is contractually responsible for local, non-cash, in-kind match in an amount of \$290,219 (Non-federal share). Non-federal share is 20% of total federal and non-federal grant amount, calculated as follows:

\$1,160,877 – Federal grant
\$290,219 – Non-federal share (20% of \$1,451,096)
\$1,451,096 – Total federal and non-federal grant amount

AL# 93.600
Contract 33-499-56

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Monica Nino, County Administrator and Clerk of the Board of Supervisors

Contact: Ryan Hoy,
925-608-4968

By: , Deputy

cc: Theodore Trinh, Nasim Eghlima

BACKGROUND:

On September 7, 2021, the Board of Supervisors approved and authorized the submission of the 2022 Head Start grant application to the U.S. Department of Health and Human Services, ACF, to continue the provision of Head Start services in Contra Costa County. The grant application includes the plan submitted by the County's Head Start Delegate Agency, First Baptist Church of Pittsburg, California. This Board Order approves service contract for the Delegate Agency for the 2022 program year.

The Employment and Human Services Department (EHSD) has identified compliance concerns pertaining to child health and safety as well as compliance concerns regarding First Baptist Head Start's (FBHS) fiscal and program services delivery. Investigative findings prompted the decision to submit a short-term Delegate contract for the term of January 1, 2022 through June 30, 2022. EHSD will continue to engage FBHS in the corrective action process during the contract period and has increased monitoring, including additional oversight to safeguard federal funds, on-site reviews, the acquisition of a monitoring consultant and unannounced visits to childcare centers. Compliance with corrective actions as established to meet Head Start Program Performance Standards, the Head Start Act, Uniform Guidance and the California Child Care Licensing regulations is a condition of the Delegate contract. In January 2022, EHSD will publish a Request for Proposals for Head Start Program Services in the eastern portion of Contra Costa County.

CONSEQUENCE OF NEGATIVE ACTION:

If not approved, the County will not be able to provide Head Start services through First Baptist Church of Pittsburg, California.

CHILDREN'S IMPACT STATEMENT:

The Employment and Human Services Department Community Services Bureau supports three of Contra Costa County's community outcomes - Outcome 1: Children Ready for and Succeeding in School, Outcome 3: Families that are Economically Self-sufficient, and Outcome 4: Families that are Safe, Stable, and Nurturing. These outcomes are achieved by offering comprehensive services, including high quality early childhood education, nutrition, and health services to low-income children throughout Contra Costa County.



Contra
Costa
County

To: Board of Supervisors
From: David O. Livingston, Sheriff-Coroner
Date: December 14, 2021

Subject: West Advanced Technologies

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Sheriff-Coroner, or designee, to execute a contract amendment with West Advanced Technologies, Inc. to increase the payment limit by \$150,000 to a new payment limit of \$298,363 to provide additional design, development, programming, and maintenance and support services for the Automated Regional Information Exchange System (ARIES), for the remaining period of the contract ending October 31, 2022.

FISCAL IMPACT:

\$298,363; 100% General Fund Sheriff Budgeted.

BACKGROUND:

The Automated Regional Information Exchange System (ARIES) is a software application owned by Contra Costa County to manage arrest and parolee data collected from law enforcement agencies. It is used by the County and other local law enforcement agencies. ARIES manages arrest and parole data provided by local law enforcement agencies and is stored on a County server.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☒ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Chrystine Robbins,
925-655-0008

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:

BACKGROUND: (CONT'D)

The purpose of this Contract is for the Contractor to provide on-going consultation, application maintenance, support, development, programming, and design services to the Office of the Sheriff, including without limitation, data warehouse enhancements configuration, data source integrations, and integration with the ARIES Total Booking and County Jail Management System (JMS). There are currently more than 9,000 users from over 104 different agencies participating in the system.

CONSEQUENCE OF NEGATIVE ACTION:

ARIES continues to improve business everyday by providing reliable important information to local law enforcement agencies. If unapproved, ARIES will not be able to continue to improve, upgrade and implement necessary configuration and integration changes. Integrated programs may be affected, and the functionality which makes ARIES the sophisticated data sharing system for more than 9,000 users will not be maintained.



Contra
Costa
County

To: Board of Supervisors
From: David O. Livingston, Sheriff-Coroner
Date: December 14, 2021

Subject: Total Firearms Training

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Sheriff-Coroner, or designee, to execute a contract with Total Firearms Training in an amount not to exceed \$293,460 to provide firearms range safety management for Sheriff's personnel and range visitors for the period January 1, 2022 through December 31, 2023.

FISCAL IMPACT:

\$293,460.00. (70% General Fund Sheriff Budgeted, 30% participant fees)

BACKGROUND:

Total Firearms Training will provide Rangemaster, Armorer, and Instructor services at the Sheriff's Range for the Office of the Sheriff. Contractor will provide firearms range safety management for Sheriff's personnel and range visitors to include, observation of Sheriff's personnel and visitors while they are handling firearms, advise of any safety concerns observed, and take immediate action to stop any activity viewed as presenting a danger to life or property. Contractor will perform range maintenance and improvement supervision, perform tasks related to armorer repair, and provide firearms instruction.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: 12/14/2021 ☒ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Chrystine Robbins,
925-655-0008

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:

CONSEQUENCE OF NEGATIVE ACTION:

Negative Action by the Board of Supervisors will result in the Sheriff's Office having no contract with Total Firearms Training to provide Rangemaster, Armorer, and Instructor services, likely reducing the availability of the Sheriff's Range and subsequent income from participant fees.



Contra
Costa
County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Cancellation Agreement #26-614-17 and Contract #26-614-18 with Sodexo, Inc.

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute on behalf of the County, as follows: (1) Cancellation Agreement #26-614-17 with Sodexo, Inc., a corporation, effective on the close of business on October 31, 2021; and (2) Contract #26-614-18 with Sodexo, Inc., a corporation, in an amount not to exceed \$1,053,451, to provide management and oversight of the Environmental Services Unit at Contra Costa Regional Medical Center (CCRMC) and Contra Costa Health Centers, for the period from November 1, 2021 through October 31, 2023.

FISCAL IMPACT:

This contract will result in contractual service expenditures of up to \$1,053,451 over a 2-year period and will be funded 100% by Hospital Enterprise Fund I revenues. (Rate increase)

BACKGROUND:

CCRMC has been contracting with Sodexo, Inc. since January 2008 to provide management and oversight of the Environmental Services Unit at CCRMC and Contra Costa Health Centers.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Monica Nino, County Administrator and Clerk of the Board of Supervisors

Contact: Japreet Benepal,
925-370-5101

By: , Deputy

cc: E Suisala , M Wilhelm

BACKGROUND: (CONT'D)

On March 10, 2020, the Board of Supervisors approved Contract #26-614-14 with Sodexo America, LLC, in an amount not to exceed \$899,000 for the provision of management and oversight of the Environmental Services Unit at CCRMC and Contra Costa Health Centers, for the period from January 1, 2020 through December 31, 2021.

On February 2, 2021, the Board of Supervisors approved Contract Amendment Agreement #26-614-16, effective December 1, 2020, to increase the payment limit by \$200,000 to a new payment limit of \$1,099,000 for additional cleaning and sanitizing services due to COVID-19 with no change in the term of January 1, 2020 through December 31, 2021.

In consideration of contractor's agreement to continue providing services, both parties have agreed to re-negotiate the contract payment provisions and the term to reflect the intent of the parties. Therefore, in accordance with General Conditions Paragraph 5 (Termination), of the contract, the department and contractor have agreed to a mutual cancellation of this contract. Approval of Cancellation Agreement #26-614-17 will accomplish this termination.

Approval of Contract #26-614-18 will allow the contractor to continue providing services through October 31, 2023.

CONSEQUENCE OF NEGATIVE ACTION:

If this contract is not approved, CCRMC and Contra Costa Health Centers will not receive management and oversight of the Environmental Services Unit from this contractor.



Contra
Costa
County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Amendment #72-124-3 with Ride Roundtrip, Inc.

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute on behalf of the County Contract Amendment Agreement #72-124-3 with Ride Roundtrip, Inc., a corporation, effective December 1, 2021, to amend Contract #72-124 (as amended by Amendment/Extension Agreement #72-124-1 and Amendment Agreement #72-124-2), to increase the payment limit by \$150,000, from \$2,900,000 to a new payment limit of \$3,050,000 with no change in the term of January 1, 2019 through December 31, 2021, for increased usage of hosted software portal services for transportation coordination, scheduling, and dispatch for Medi-Cal patients.

FISCAL IMPACT:

Approval of this amendment will result in additional budgeted expenditures of up to \$150,000 and is funded 100% by State Department of Health Care Services allocations. (No rate increase)

BACKGROUND:

The Health Services Department's Public Health Division provides social service case management to Medi-Cal patients who are identified as high utilizers who need additional services to improve their health outcomes. The County began contracting with this vendor in 2019 because transportation is a significant need for these patients.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Ori Tzvieli, M.D.,
925-608-5267

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: L Walker, M Wilhelm

BACKGROUND: (CONT'D)

These services allow County personnel access to arrange rides for these patients via a web-based transportation booking portal. Usage of these services has increased exponentially due to COVID-19 testing and vaccination efforts.

On March 19, 2019, the Board of Supervisors approved Contract #72-124, with Ride Roundtrip in the amount of \$800,000 for the provision of electronic services to schedule and provide transportation to patients including interfacing with the County's Electronic Health Record System for the period January 1, 2019 through December 31, 2020.

On December 8, 2020, the Board of Supervisors approved Contract Amendment/Extension Agreement #72-124-1 to increase the payment limit by \$1,000,000 to a new payment limit of \$1,800,000 and to extend the term from December 31, 2020 to December 31, 2021 to reflect the continued provision of the Monthly Subscription System Access services.

On April 27, 2021, the Board of Supervisors approved Contract Amendment Agreement #72-124-2 to increase the payment limit by \$1,100,000 to a new payment limit of \$2,900,000 for additional hosted software portal services for transportation coordination, scheduling, and dispatch for Medi-Cal patients with no change in the term through December 31, 2021.

Approval of Contract Amendment Agreement #72-124-3 will allow the contractor to provide additional software portal services through December 31, 2021.

CONSEQUENCE OF NEGATIVE ACTION:

If this amendment is not approved, the Health Services Department's Public Health Division will not have access to these services, which would have a negative impact on the health outcomes of these patients.



**Contra
Costa
County**

To: Board of Supervisors
From: Kathy Gallagher, Employment & Human Services Director
Date: December 14, 2021

Subject: Contract with Seneca Family of Agencies for Child Welfare Family Finding Services for Foster Youth

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Employment and Human Services Director, or designee, to execute a contract with Seneca Family of Agencies, a non-profit corporation, in an amount not to exceed \$250,020 to provide family finding services for foster youth for the period January 1, 2022 through December 31, 2022.

FISCAL IMPACT:

This will increase department expenditures by \$250,020 funded by 77% State and 23% Federal funds. (CFDA #93.658)

BACKGROUND:

Family Finding is an intensive research and engagement process for the Children and Family Services (CFS) youth in support of the California Continuum of Care Reform (AB403). The purpose of the Family Finding services is to offer lifelong connections to foster youth by locating the most appropriate stable family or non-related extended family members, supporting the resource family approval process, identifying a placement, or discovering relatives of the children in care. Seneca Family of Agencies (Contractor) was selected from a competitive bid process in Fiscal Year 2019-2020. The Contractor works closely with CFS staff to deliver Family Finding services to ensure Contra Costa County foster youth reside in a safe and nurturing environment.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Laura Pacheco, (925)
608-4963

, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:

CONSEQUENCE OF NEGATIVE ACTION:

Contra Costa County foster youth will have less access to family finding and supportive services to locate and transition into appropriate stable permanent placements.

CHILDREN'S IMPACT STATEMENT:

This contract supports four of the five community outcomes established in the Children's Report Card: 1) Children Ready for and Succeeding in School; 2) Children and Youth Healthy and Preparing for Productive Adulthood; 3) Families that are Safe, Stable and Nurturing; and 4) Communities that are Safe and Provide a High Quality of Life for Children and Families by placing foster youth into appropriate, stable and permanent placements.



**Contra
Costa
County**

To: Board of Supervisors
From: Karen Caoile, Director of Risk Management
Date: December 14, 2021

Subject: Risk Management Legal Defense Contracts

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Director of Risk Management to execute contracts with selected legal firms for defense of the County in workers' compensation, medical malpractice and liability tort claims effective January, 2022 through December 31, 2022 in accordance with a specified fee schedule for the following firms: Bold, Polisner, Maddow, Nelson & Judson; Craddick, Candland & Conti; D'Andre, Peterson, Bobus & Rosenberg; Edrington, Schirmer & Murphy; Hanna, Brophy; McClellan and Corren; MacLean, McAleer & Jensen; McNamara, Ney, Beatty, Slattery, Borges & Ambacher; Mullen & Filippi; and Thomas, Lyding, Cartier & Gaus.

FISCAL IMPACT:

Legal costs are funded through the Workers' Compensation, Liability and Medical Malpractice Internal Service Funds.

BACKGROUND:

Legal Firms are selected for their experience and expertise in particular areas of legal defense. Risk Management assigns workers compensation cases to the various firms. The following legal firms selected for defense of claims with one-year contracts from January 1,

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Karen Caoile
925-335-1400

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:

BACKGROUND: (CONT'D)

2022 to December 31, 2022 are: Bold, Polisner, Maddow, Nelson & Judson; Craddick, Candland & Conti; D'Andre, Peterson, Bobus & Rosenberg; Edrington, Schirmer & Murphy; Hanna, Brophy, MacLean, McAleer & Jensen; McClellan and Corren; McNamara, Ney, Beatty, Slattery, Borges & Ambacher; Mullen & Filippi; and Thomas, Lyding, Cartier & Gaus.

CONSEQUENCE OF NEGATIVE ACTION:

The County will not have the benefit of aforementioned firms' legal expertise.



**Contra
Costa
County**

To: Contra Costa County Fire Protection District Board of Directors
 From: Lewis T. Broschard III, Chief, Contra Costa Fire Protection District
 Date: December 14, 2021

Subject: Contract for Ground Emergency Medical Transport and Medicare Ground Ambulance Data Collection Reporting

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Fire Chief, or designee, to execute a contract with Public Consulting Group, LLC, in an amount not to exceed \$335,000, for the period January 1, 2022 to December 31, 2024, to provide data collection and cost reporting services related to the District's participation in the Public Provider Ground Emergency Medical Transport Program and Medicare Ground Ambulance Data Collection Survey.

FISCAL IMPACT:

100% CCCFPD EMS Transport Fund. For PP-GEMT cost reporting, contractor will be compensated six percent (6%) of the federal share portion of payment received by the District. The contractor payment is capped at \$100,000 per fiscal year cost report submitted. For MGADC data collection and reporting over a 12-month period, contractor will be compensated a flat fee of \$35,000 following submission of the final report.

BACKGROUND:

The Centers for Medicare and Medicaid Services ("CMS") allows states to establish alternative payment methodologies for certain classes of providers, including ambulance providers. The Contra Costa County Fire Protection District ("District") is the exclusive emergency ambulance service provider in emergency response areas 1, 2, and 5 of Contra Costa County.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☒ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Jackie Lorrekovich, Chief of Admin
 Services 925-941-3300

, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:

BACKGROUND: (CONT'D)

The District provides emergency medical transports to Medi-Cal patients, some of which may qualify the District for supplemental payments under the Public Provider Ground Emergency Medical Transport (“PP-GEMT”) program. Contractor possesses professional skills that can assist the District in data collection and cost reporting to secure supplemental payments under the PP-GEMT program. Contractor will also provide audit support for the cost reports completed by Contractor under this Contract in the event of an audit by the State, CMS, the Office of Inspector General (OIG), or other governmental or regulatory agency. Additionally, CMS is now requiring ground ambulance service providers to participate in the Medicare Ground Ambulance Data Collection (“MGADC”) Survey beginning in calendar year 2022. The Survey requires individual providers to submit data to CMS that relates to organizational characteristics, utilization, costs, and revenue. The data may be used by CMS to evaluate the adequacy of Medicare payment rates for ground ambulance services, to inform future Medicare rate changes, and possible payment system reforms. Contractor can assist District in data collection and survey reporting as required by CMS.

The Contract limits Contractor’s financial obligations related to any audit exceptions to the compensation paid to Contractor under the Contract.

CONSEQUENCE OF NEGATIVE ACTION:

If unapproved, The District may be unable to submit the GEMT cost report to receive revenue. Additionally, The District will have difficulty completing the Medicare survey, as it does not have sufficient in-house knowledge to complete the data collection required and related reports. If the Medicare survey is not completed, Medicare will pay a lower rate for transports.



**Contra
Costa
County**

To: Board of Supervisors
From: Alison McKee, County Librarian
Date: December 14, 2021

Subject: Contra Costa County Library Commission 2021 Annual Report and 2022 Work Plan

RECOMMENDATION(S):

ACCEPT the Contra Costa County Library Commission 2021 Annual Report and 2022 Work Plan.

FISCAL IMPACT:

None.

BACKGROUND:

On June 18, 2002, the Board of Supervisors adopted Resolution No. 2002/377, which requires that each regular and ongoing board, commission or committee shall annually report to the Board on its activities, accomplishments, membership attendance, required training/certification (if any), and proposed work plan or objectives for the following year on the second Tuesday in December. The attached report fulfills this requirement for the Library Commission.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Walt Beveridge
925-608-7730

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:

ATTACHMENTS

2021 Annual
Report

Contra Costa County Library Commission 2021 Annual Report

Executive Summary

Like the previous year, 2021 was a time of unprecedented challenges and opportunities for the Contra Costa County Library system. Throughout, the Commission continued to provide support and guidance in varying capacities, including but not limited to: attendance and/or written comment provided to City Council, Board of Supervisors, and other relevant public meetings; advocacy to advance federal and state legislation pertinent to libraries and encouragement of elected officials to cosponsor and/or promote relevant bills; support of the County Librarian's Measure X proposal to expand library hours and provide funds for repair and facility upgrades; advisory conversations with elected officials who represent Commissioners' communities; and formation of an operating committee to establish start-up funding and protocols for a county-wide foundation. These and other actions are detailed in the following report.

Introduction

The annual report represents the various activities engaged in by individual Commissioners and Alternates as well as the Commission as a whole in furtherance of the Commission's 2021 Work Plan. For public health and safety reasons, their actions were mostly relegated to virtual or remote participation. The Commission, and all associated working and operating committees, met virtually, via Zoom, throughout the entire calendar year.

In a departure from previous reports, this iteration delineates *the totality of Commissioner activities* rather than designating specific activities by individual Commissioners. This modification aligns with the collegial nature of the Commission.

The time period for the annual report has been modified. Since the annual report is presented in draft form to the Commission at its September meeting with final action taken at the November meeting, the cutoff time for reporting on events should properly be August 31. For this report only, the time period covered is January 1, 2021 through August 31, 2021. Future reports' coverage will span September 1 of the previous year through August 31 of the current year.

The 2021 Work Plan was significantly expanded from those of prior years in response to issues of equity and public health that drew heightened attention in 2020. It should be noted that the County Library's administrative and operational staff has also significantly addressed these issues.

Full Report

Goal 1: Help establish sustainable funding and support for previously existing library programs and services and new needs raised by the economic downturn associated with the coronavirus pandemic.

In order to accomplish this goal, we will:

- *(Goal 1-A) Support the creation of a centrally organized private, not for profit, fundraising approach for funding countywide and local community library needs, complementary to locally organized friends and foundation efforts, for the purpose of meeting service standards and objectives of the Library's strategic plan.*

A working group of the Commission has continued to explore the creation of this entity. Significant progress has been made with regard to the foundation's start-up and operational aspects and its relationship to locally-organized friends and foundation groups. While the Commission is actively working to create this entity, it should be noted that it will be an independent not-for-profit group that is not under the operation or control of either the Commission or the Library Administration.

- *(Goal 1-B) Encourage collaboration between community library friends and foundation groups and interchange with commissioners through the Friends Council and the annual forum.*

Because of the global pandemic, the friends' council and annual friends and foundation forum was not held this year. Nonetheless, formal dialogue among Commissioners fostered important information sharing with the local friends and foundation groups about book sales, fundraising initiatives, and general activities.

- *(Goal 1-C) Explore ways of ensuring stable, equitable and adequate public and private funding for the county library and its various branches.*

and

- *(Goal 1-D) Work cooperatively with branch libraries to seek sustainable funding in service of their local communities.*

Many individual Commissioners are active members of their local friends and foundation groups and often serve on their boards of directors. In addition, Commissioners attend meetings of these local groups to keep them informed of county, state, and national

library issues. Some Commissioners also generously provide resources that support library activities either directly or through the friends and foundation groups. Lastly, Commissioners communicate regularly with Senior Community Library Managers to discuss emergent funding opportunities.

- *(Goal 1-E) Review and if in agreement with it, support the annual budget proposal prepared by the County Library for submission to the Board of Supervisors.*

The Commission worked with Library Administration and discussed their decision to increase county-supported library hours from 35 to 40 hours per week for the 2021-2022 and future fiscal years.

Goal 2: Liaise with elected officials, community groups, and residents to engender broad support for the Library system.

In order to accomplish this goal, we will:

- *(Goal 2-A) Increase legislative outreach at the local, state and federal levels to advocate for libraries, the services they provide, and the allocation of appropriate resources to them.*

The Commission, both directly and through its Legislative Committee, supported federal and state library funding initiatives, including S. 127 (the Build Americas Libraries Act). The Commission formally recommended that the Board of Supervisors support several of these measures. Individually, Commissioners urged support for adequate state and federal funding for libraries through our United States Senators and local Congress Members, State Senators, and Assembly Members. Progress regarding these various measures was reported on at Commission meetings.

- *(Goal 2-B) Have the Commission take an increasingly active role in the ALA and CLA lobbying efforts.*

In carrying out the activities in Goal 2-A, the Commission and individual Commissioners kept informed of the state- and federal-level lobbying efforts of the American Library Association and the California Library Association. Various Commissioners work directly with members of both groups.

- *(Goal 2-C) Report back to the appropriate appointing authority (city/town council, Supervisor, board or agency) on a periodic basis to bring it abreast of Commission activities, initiatives, and identified library needs.*

Individual Commissioners either met with their appointing authority (in the case of members of the Board of Supervisors) or reported publicly during meetings of their appointing City Councils. Some Commissioners also met with individual City Council members and helped to orient newly-elected council members on library issues.

- *(Goal 2-D) Develop a system of sharing appropriate stories about our library with public officials at the federal, state, and local level.*

This project (currently under development) will create impactful stories about our libraries' function and importance to present to various public officials. The project is intended to build stronger support for public funding for our libraries' needs.

- *(Goal 2-E) Seek support from the appropriate appointing authority when appropriate to meeting needs of the library system.*

Both the Commission and individual Commissioners advocated to the Board of Supervisors or local appointing authority for support of federal or state funding measures to increase library support.

- *(Goal 2-F) Bring information back to the Commission at its regular meetings on local needs, issues and support.*

and

- *(Goal 2-G) Make every effort to solicit feedback on our respective libraries, become familiar with their operations, successes and challenges, and advocate for them in their communities and at the county level.*

The countywide library system consists of municipality-provided libraries in 18 of the 19 cities and towns in the county (with two libraries in two of the cities) and county-provided libraries in 6 other locations. The county's large number of libraries makes information sharing a paramount aspect of Commissioner responsibilities. Thus, a portion of every Commission meeting is devoted to individual Commissioner reports regarding their library or district's needs, issues, and activities.

The information shared is gleaned through Commissioners' dialogue with library managers and staff, friends groups and foundations, local appointing authority and city staff, and other members of their local communities. By participating in local activities

and meetings, Commissioners are better positioned to inform members of their local communities of the programs, events, and resources available through their local library.

Finally, through their public participation in community events, Commissioners bring a visibility to the library which in turn not only informs members of the public about the library but helps build support for the library.

- *(Goal 2-H) Continue, consistent with public health requirements engendered by the coronavirus pandemic, to conduct Commission meetings at the branches, and seek to involve the local communities in these meetings.*

Due to the pandemic, the Commission was not permitted to meet in person this year.

- *(Goal 2-I) Reach out to organizations in the County (e.g. First 5, schools, PTAs, etc.) with common interests for the purpose of building supporting networks and programs.*

Commissioners conduct outreach to educate community organizations about the library's resources. The broad intent is to show these organizations how they can enhance the value and depth of their services by drawing upon the library's resources as appropriate. Such outreach often occurs through Commissioner involvement with outreach by their local friends or foundation group and/or appearance at public events, e.g., farmers markets, parades. This outreach was especially valuable during the pandemic as the means of accessing and availability of library resources had to be modified in response to healthy issues.

Goal 3: Work on those important global and national issues that affect the library system or that can be assisted by the resources that the library system can provide to the community.

In order to accomplish this goal, we will:

- *(Goal 3-A) Work with the Equity, Diversity, and Inclusion Committee of the Library Administration to address those issues.*

The Library Administration reported to the Commission on activities of the Equity, Diversity and Inclusion Committee, and the Commission provided feedback to the Administration.

• *(Goal 3-B) Seek, with appropriate private, county, and state partners, methods to help overcome the digital divide, including providing space to students needing undisturbed access to distance learning or reserved space for homework.*

This goal will be expanded beyond the scope of addressing the digital divide to that of providing assistance to underserved populations more broadly. One of the critical pivots in implementing this goal is library hours. The current funding model provides only enough staffing to permit each library to be open 40 hours a week, resulting in a barrier to access for those who need it most, both for its internet connectivity and [for] computer usage, private study space, and retrieval of information and resources.

Commissioners were successful, in conjunction with other members of their local library communities, in persuading some cities to provide funding to keep their respective local libraries open more than 40 hours a week. But, as County Librarian Alison McKee's Measure X presentation showed, the cities most in need of these expanded hours (i.e., those cities with the lowest per capita income) do not possess the resources to implement this additional funding. Further, county-provided libraries are limited to 40 open hours per week.

Commissioners were asked to support—through various means—the County Librarian's proposal to the Measure X Community Advisory Committee to provide funds to permit county libraries to be open 56 hours a week and for one-time repairs and upgrades to county facilities. The outcome of these efforts is still unknown. The Measure X Community Advisory Committee has presented its findings to the Board of Supervisors, who will subsequently determine final funding priorities and targets.

Library hours and the digital divide are not the only areas of inequity in terms of libraries and the services they supply. The importance of books in the home to the education of our children is well known. In addition, incarcerated populations whether adult or juvenile also have few if any book resources. As a result, some of the local library friends groups provide some of the books donated to them to these underserved populations. Commissioners have learned of these efforts and, as a result, other friends groups are likely to join these efforts.

• *(Goal 3-C) Work to foster civic discussion in our body politic.*

The pursuit of this goal has been significantly affected by the pandemic. Nonetheless, some Commissioners have engaged members of their communities in supporting efforts for the construction of new libraries and/or renovation of existing facilities.

- *(Goal 3-D) Work to highlight the role of libraries in disseminating factual information.*

Work on this issue is expected to begin shortly.

Goal 4: Serve as an advisory committee to the County on library issues.

In order to accomplish this goal, we will:

- *(Goal 4-A) Serve, as appropriate, in the selection process for a new County Librarian.*

One member of the Commission served on the advisory group that recommended the appointment of the County Librarian this year.

- *(Goal 4-B) Work with library staff, to the extent needed, in orienting the new County Librarian when that person is selected.*

Because of the new County Librarian's extensive record of experience in the Contra Costa County Library system, such orientation was not necessary.

- *(Goal 4-C) Provide thoughtful, consistent, sound and prompt advice and counsel to the County Librarian in regard to the annual budget, the strategic plan, changes in policy impacting service and programs, and any other matters raised.*

At various times throughout the year, the County Librarian presented issues to the Commission for discussion and solicitation of feedback.

Contra Costa County Library Commission 2022 Work Plan

The goals and Objectives listed below comprise the work plan for Contra Costa County Library Commission for calendar year 2022. They contain what the commission and its members will work to accomplish during that year.

Goal 1: Help establish sustainable funding and support for previously existing library programs and services and new needs raised by the economic downturn associated with the coronavirus pandemic.

In order to accomplish this goal, we will:

- Support the creation of a centrally organized private, not for profit, fund raising approach for funding countywide and local community library needs, complimentary to locally organized friends and foundation efforts, for the purpose of meeting service standards and objectives of the Library's strategic plan.
- Encourage collaboration between community library friends and foundation groups and interchange with commissioners through the Friends Council and the annual forum.
- Explore ways of ensuring stable, equitable and adequate public and private funding for the county library and its various branches.
- Work cooperatively with branch libraries to seek sustainable funding in service of their local communities.

Goal 2: Liaise with elected officials, community groups, and residents to engender broad support for the Library system.

In order to accomplish this goal, we will:

- Increase Legislative outreach at the local, state and federal levels to advocate for libraries, the services they provide and the allocation of appropriate resources to them.
- Have the Commission take an increasingly active role in the ALA and

CLA lobbying efforts.

- Report back to the appropriate appointing authority (city/town council, Supervisor, board or agency) on a periodic basis to bring it abreast of Commission activities, initiatives, and identified library needs.
- Develop a system of sharing appropriate stories about our library with public officials at the federal, state, and local level.
- Seek support from the appropriate appointing authority when appropriate to meeting needs of the library system.
- Bring information back to the Commission at its regular meetings on local needs, issues and support.
- Make every effort to solicit feedback on our respective libraries, become familiar with their operations, successes and challenges, and advocate for them in their communities and at the county level.
- Continue, consistent with public health requirements engendered by the coronavirus pandemic, to conduct Commission meetings at the branches, and seek to involve the local communities in these meetings.
- Reach out to organizations in the County (e.g. First 5, schools, PTAs, etc.) with common interests for the purpose of building supporting networks and programs.

Goal 3: Work on those important global and national issues that affect the library system or that can be assisted by the resources that the library system can provide to the community.

In order to accomplish this goal, we will:

- Work with the Equity, Diversity and Inclusivity Committee of the Library Administration to address those issues.
- Seek, with appropriate private, county and state partners, methods to help overcome the digital divide including providing space to students needing undisturbed access to distance learning or reserved space for homework.

- Work to foster civic discussion in our body politic.
- Work to highlight the role of libraries in disseminating factual information.

Goal 4: Serve as an advisory committee to the County on library issues.

In order to accomplish this goal, we will:

- Provide thoughtful, consistent, sound and prompt advice and counsel to the County Librarian in regard to the annual budget, the strategic plan, changes in policy impacting service and programs, and any other matters raised.

Library Commission Attendance: January 2021– December 2021

Library Commission Attendance January 2021 – December 2021		Total	Total	Total	Total	signed BROWN ACT & Ethics Orientation video viewing certification
COMMISSIONERS	REPRESENTING	Meetings	Absent	Present	Excused	Received
Huh, John M., Ph.D.	City of Antioch	6	0	6	0	x
Vacant	City of Antioch (Alternate)					
Sendig, Linda	City of Brentwood	3	0	3	0	x
Faye, Vivian	City of Brentwood (Alternate)	6	0	6	0	x
Feree, Jacalyn	City of Clayton	6	0	6	0	x
Vacant	City of Clayton (Alternate)					
Smith, Tommy	City of Concord	6	0	6	0	Pending
Vacant	City of Concord (Alternate)					
Gemmer, Nicole	Town of Danville	6	0	6	0	x
Vacant	Town of Danville (Alternate)					
Fischer, Michael	City of El Cerrito	6	0	6	0	x
J. Barry Koops	City of El Cerrito (Alternate)	6	1	5	0	x
Campbell-Miller, Brian	City of Hercules	5	0	5	0	x
	City of Hercules (Alternate)					
Hoisington, Mary Ann	City of Lafayette	6	0	6	0	x
Dorothy Walker	City of Lafayette (Alternate)	3	0	3	0	
DeFraga, Matthew	City of Martinez	5	0	5	0	x
Vacant	City of Martinez (Alternate)					
Morgan, Sarah	Town of Moraga	3	0	3	0	x
Janette Maher	Town of Moraga (Alternate)	6	2	2	2	x
Peña-Mendrek, Yolanda	City of Oakley	6	2	4	0	x
Fitzpatrick, Arnold	City of Oakley (Alternate)	6	0	6	0	x
Garde, Shrikant	City of Orinda	3	0	3	0	x
Vacant	City of Orinda (Alternate)	4	1	3	0	x
Pursley, George	City of Pinole	6	0	6	0	x
Vacant	City of Pinole (Alternate)					
LeFrak-Bellici, Zelda	City of Pittsburg	6	1	5	0	x
Vacant	City of Pittsburg (Alternate)					
Bracken, Katherine	City of Pleasant Hill	6	0	6	0	x
Dozier, Julia	City of Pleasant Hill (Alternate)	6	0	6	0	x
Medrano, Antonio	City of San Pablo	6	1	5	0	x
Harlan-Ogbeidi, Charlene, Ph.D.	City of San Pablo (Alternate)	6	6	0	0	Pending
Mac, Ly	City of San Ramon	3	0	3	0	x
Vacant	City of San Ramon (Alternate)	3	1	2	0	x
Molinelli, Jasun	City of Walnut Creek	6	3	3	0	x
Vacant	City of Walnut Creek (Alternate)	4	3	1	0	x
Rosekind, Rachel, Ph.D.	District 1	4	0	4	0	x
Vacant	District 1 (Alternate)					
Hildreth, Susan	District 2	6	0	2	4	x
Swernoff, Michael	District 2 (Alternate)	6	0	5	1	x
Vacant	District 3					
Vacant	District 3 (Alternate)					
Smith, Alan B.	District 4	6	1	2	3	x
Vacant	District 4 (Alternate)					
Wilson, Peter, Ph.D.	District 5	6	0	6	0	Pending
Vacant	District 5 (Alternate)					
Mackey, Lynn	Office of Education	6	0	4	2	x
Thomas, Bryan	Contra Costa Central Labor Council	4	1	3	0	x
Hinton, Stacie	Contra Costa Central Labor (Alternate)	4	2	1	1	
Robison, Rich	Contra Costa Community College District	6	6	0	0	x



**Contra
Costa
County**

To: Board of Supervisors
From: Alison McKee, County Librarian
Date: December 14, 2021

Subject: Library Closure List for 2022

RECOMMENDATION(S):

APPROVE and AUTHORIZE the County Librarian, or designee, to close all branches of the County Library according to the holiday and training schedule outlined in the attached "2022 Library Closures" list.

FISCAL IMPACT:

None.

BACKGROUND:

Every year in the Fall, the County Administrator's Office sends out a list to all department heads of the holidays that will be observed during the following calendar year. Using this information, an annual Library Closures list is created and submitted (attached) to the Board of Supervisors for approval.

CONSEQUENCE OF NEGATIVE ACTION:

The libraries will remain open and library employees will be unable to observe the holidays most other county employees do.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Walt Beveridge
925-608-7730

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:

ATTACHMENTS

2022 Holiday List

2022 Library Closure
List

County of Contra Costa
OFFICE OF THE COUNTY ADMINISTRATOR
MEMORANDUM

DATE: November 3, 2021
TO: Board of Supervisors
Department Heads
FROM: Monica Nino, County Administrator
SUBJECT: 2022 Holidays



For planning purposes, the following are the holidays that will occur in 2022:

December 31, 2021	Friday	New Years Day 2022 (observed)
January 17	Monday	Dr. Martin Luther King, Jr. Day
February 21	Monday	Presidents Day
May 30	Monday	Memorial Day
July 4	Monday	Independence Day
September 5	Monday	Labor Day
November 11	Friday	Veterans Day
November 24	Thursday	Thanksgiving
November 25*	Friday	Day After Thanksgiving
December 26	Monday	Christmas (observed)

*For all County Library employees, the Day Before Christmas (Christmas Eve), December 24, is designated as a holiday in lieu of the Friday After Thanksgiving Day. In 2022, Saturday, December 24 will be designated a holiday for Library employees in lieu of Friday, November 25.

cc: CAO Staff



Closures for January 1, 2022 through December 31, 2022:

Saturday, January 1, 2022	New Year's Day	All libraries closed (holiday)
Monday, January 17, 2022	Dr. Martin Luther King Jr. Day	All libraries closed (holiday)
Monday, February 21, 2022	Presidents' Day	All libraries closed (holiday)
Wednesday, March 30, 2022	All Staff Training Day	All libraries closed
Monday, May 30, 2022	Memorial Day	All libraries closed (holiday)
Monday, July 4, 2022	Independence Day	All libraries closed (holiday)
Monday, September 5, 2022	Labor Day	All libraries closed (holiday)
Friday, November 11, 2022	Veterans Day	All libraries closed (holiday)
Wednesday, November 23, 2022 (day before Thanksgiving)		All libraries close at 6:00 p.m.
Thursday, November 24, 2022	Thanksgiving Day	All libraries closed (holiday)
Friday, December 23, 2022		All libraries closed
Saturday, December 24, 2022	Christmas Eve	All libraries closed (holiday)
Monday, December 26, 2022	Christmas (observed)	All libraries closed (holiday)
Saturday, December 31, 2022	New Year's Eve	All libraries close at 5:00 p.m.



Contra
Costa
County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Agreement #28-976 with William Marsh Rice University

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute on behalf of the County Agreement #28-976 with William Marsh Rice University, a non-profit, public benefit corporation, to perform certain research activities, on a designated record set, to better understand what the impact of providing telehealth medical services had on patient satisfaction during the public health emergency, on behalf of Contra Costa Regional Medical Center (CCRMC) and Contra Costa Health Centers, for the period from February 23, 2021 through June 24, 2024.

FISCAL IMPACT:

There is no fiscal impact, this is a nonfinancial agreement.

BACKGROUND:

Contra Costa County Health Services (CCHS) Department has agreed to share data with William Marsh Rice University to improve the patient experience at CCRMC and Contra Costa Health Centers. This agreement intends to allow the University access

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Jaspreet Benepal,
925-370-5741

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: f Carroll, M Wilhelm

BACKGROUND: (CONT'D)

to certain Protected Health Information maintained in a designated set of records allowing the exploration of racial and ethnic differences in experiences with telemedicine to the effect of the pandemic on patient satisfaction at CCHS. The Division is requesting retrospective authorization due to pandemic related constraints on administrative approvals during the public health emergency.

Approval of Agreement #28-976 will allow the University to continue to perform research activities through June 24, 2024.

CONSEQUENCE OF NEGATIVE ACTION:

If this agreement is not approved, the parties will not have an agreement that governs the University's access to the data causing any further research activities to halt.



**Contra
Costa
County**

To: Board of Supervisors
From: Alison McKee, County Librarian
Date: December 14, 2021

Subject: City of Walnut Creek for Community Development Block Grant (CDBG) – Grant Extension

RECOMMENDATION(S):

APPROVE and AUTHORIZE the County Librarian, or designee, to execute a contract amendment with City of Walnut Creek, to extend the term from November 30, 2021 through March 31, 2022 with no change in the Community Development Block Grant (CDBG) award to the County of \$95,000, to provide Americans with Disabilities Act (ADA) upgrades to the Ygnacio Valley Library parking lot.

FISCAL IMPACT:

There is no change to the fiscal impact. The Community Development Block Grant will cover the necessary ADA upgrades to the Library parking lot. The Library Fund will cover the subsequent paving work in the amount of approximately \$375,000.

BACKGROUND:

The CDBG program is funded by the federal government through the Department of Housing and Urban Development. The primary objective of this program is to help develop viable urban communities through the provision of decent housing, a suitable living environment, and economic opportunity, principally for low and moderate income persons. The cities of Antioch, Concord, Pittsburg, Walnut Creek, and Contra Costa County, on behalf of all the other cities and the county unincorporated area (the Urban County), joined to form the Contra Costa HOME and CDBG Consortium. Together these jurisdictions cover all of

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Walt Beveridge
925-608-7730

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:

BACKGROUND: (CONT'D)

Contra Costa County and have a joint, integrated funding application for these funds.

Public libraries in the U.S. are long-established as the cornerstone of a healthy community that offer free services and materials to people who would otherwise not be able to pay for these materials and services. The Ygnacio Valley Library provides free reading and research materials for all ages as well as free story times and events for adults, teens, children and adults with developmental disabilities. Programs range from book clubs to financial planning seminars, and computer docent sessions. The Library also offers an adult literacy program that teaches adults to read and write. The Ygnacio Valley Library has operated in its current location since 1975 and is visited by residents approximately 120,000 times each year. It holds 62,000 volumes that were checked out more than 267,000 times last year and offers 13 Internet computers and free wireless access.

The Ygnacio Valley Library parking lot was assessed and it was determined that the parking lot required extensive repair and necessary American Disabilities Act (ADA) improvements. The City of Walnut Creek awarded CDBG grant funding for the Ygnacio Valley Library parking lot repair project. Implementation of the project was delayed due to the COVID-19 pandemic. This Board Order will extend term of the grant funding agreement from November 30, 2021 through March 31, 2022.

CONSEQUENCE OF NEGATIVE ACTION:

If the grant revenue contract extension is not approved, the County will not be able to repair the parking lot and provide the necessary ADA improvements for patrons of the library.



Contra
Costa
County

To: Board of Supervisors
From: John Kopchik, Director, Conservation & Development Department
Date: December 14, 2021

Subject: Historical Landmarks Advisory Committee (HLAC) 2021 Advisory Body Annual Report

RECOMMENDATION(S):

ACCEPT the Contra Costa County Historical Landmarks Advisory Committee (HLAC) 2021 Annual Report.

FISCAL IMPACT:

Approval of the Historical Landmarks Advisory Committee (HLAC) 2021 Annual Report will not have a fiscal impact. However, HLAC is an unfunded committee and the cost of providing staff support is absorbed by the Department of Conservation and Development.

BACKGROUND:

On January 7, 2020, the Board of Supervisors adopted Resolution No. 2020/1, which requires that each regular and ongoing board, commission, or committee annually report to the Board of Supervisors on its activities, accomplishments, membership attendance, required training/certification (if any), and proposed work plan or objectives for the following year. Attached, please find the HLAC's annual report for 2020.

CONSEQUENCE OF NEGATIVE ACTION:

If unapproved, HLAC will not be in compliance with Resolution No. 2020/1.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Dominique Vogelpohl,
(925) 655-2880

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:

ATTACHMENTS

HLAC 2021 Annual
Report



ADVISORY BODY ANNUAL REPORT

Advisory Body Name: Historical Landmarks Advisory Committee (HLAC)

Advisory Body Meeting Time/Location: 2nd Thursday at 2PM quarterly: Feb, May, Aug, Nov

Chair (during the reporting period): Carol Jensen

Staff Person (during the reporting period): Dominique Vogelpohl, Department of Conservation and Development

Reporting Period: January 1, 2021 - December 31, 2021

I. Activities

(estimated response length: 1/2 page)

Describe the activities for the past year including areas of study, work, special events, collaborations, etc.

HLAC has continued efforts in updating the Historic Resources Inventory (HRI).

HLAC continues to stay involved in the in-progress County Envision 2040 General Plan update.

HLAC continues to draft a potential County Historic Preservation Ordinance to be included with the in-progress County Zoning Ordinance update.

HLAC continues to advertise the current HLAC vacancy to assist the County Historical Society in obtaining nominees to fill the vacant seat.

HLAC Chair, Carol Jensen, continues to be represent the HLAC in being an active member of the National Heritage Area Management Plan Advisory Committee for the Delta Protection Commission.

II. Accomplishments

(estimated response length: 1/2 page)

Describe the accomplishments for the past year, particularly in reference to your work plan and objectives.

HLAC provided feedback to Envision 2040 on the draft Historical and Cultural Resources Section of the Conservation, Open Space, and Managed Lands Element at their November meeting.

HLAC presented draft No. 4 of their draft County Historic Preservation Ordinance at their August meeting.

III. Attendance/Representation

(estimated response length: 1/4 page)

Describe your membership in terms of seat vacancies, diversity, level of participation, and frequency of achieving a quorum at meetings.

The five-member HLAC is comprised of four Contra Costa County Historical Society (CCCHS) members and the Deputy Director of the Department of Conservation and Development, Community Development Division.

Meetings held in 2021: February 11, June 17 (May 13 meeting pushed to June due to lack of quorum), August 12, and November 18 (November 11 meeting pushed to 18th due to Veterans day holiday)

Melissa Jacobson, Seat 1: Present, Present, Absent, Present
Melinda McCrary, Seat 2: Present, Present, Present, Present
Seat 3: Vacant
Carol Jensen, Seat 4: Present, Present, Present, Present
Aruna Bhat, Deputy Director: Present, Present, Present, Present

IV. Training/Certification

(estimated response length: 1/4 page)

Describe any training that was provided or conducted, and any certifications received, either as a requirement or done on an elective basis by members. NOTE: Please forward copies of any training certifications to the Clerk of the Board.

All HLAC members are up to date with their Training Certification for Member of County Advisory Body and Public Service Ethics Education Certification.

HLAC staff attended a Webinar "Historic Preservation Overview for Open Space Districts and Trusts" presented by Page & Turnbull, and presented a summary review for the HLAC members at their February 11 meeting.

V. Proposed Work Plan/Objectives for Next Year

(estimated response length: 1/2 page)

Describe the advisory body's workplan, including specific objectives to be achieved in the upcoming year.

Continue participating in the in-progress Envision 2040 draft Historical and Cultural Resources Section of the Conservation, Open Space, and Managed Lands Element.

Request direction from the Board of Supervisors with respect to including a County Historic Preservation Ordinance with the in-progress County Zoning Ordinance update.

Continue to assist the County Historical Society in filling the HLAC vacancy.

Investigate the potential impact of SB 9 on properties where historical resources and historic districts are located in unincorporated county, and to also understand the parameters of the exception for historical resources, could a resolution that established the historical resource or historic district satisfy the exemption criteria.

Discuss the pros and cons of amending how members are selected to the HLAC and consider expanding the eligibility for membership to the HLAC beyond exclusive membership of the Contra Costa County Historical Society to all historical societies in the County.

Continue efforts in updating the Historic Resources Inventory (HRI).

HLAC Chair to continue participating in the National Heritage Area Management Plan Advisory Committee.



**Contra
Costa
County**

To: Board of Supervisors
From: John Kopchik, Director, Conservation & Development Department
Date: December 14, 2021

Subject: 2021 Advisory Body Annual Report for North Richmond Mitigation Fee Joint Expenditure Planning Committee

RECOMMENDATION(S):

ACCEPT the North Richmond Waste & Recovery Mitigation Fee Joint Expenditure Planning Committee Annual Report for 2021 (Exhibit A).

FISCAL IMPACT:

There is no fiscal impact associated with the recommended action.

BACKGROUND:

On January 7, 2020, the Board of Supervisors adopted Resolution No. 2020/1, which requires each advisory board, commission, or committee to report annually to the Board of Supervisors on its activities, accomplishments, membership attendance, required training/certification, and proposed workplan or objectives for the following year. The annual report is due to the Board of Supervisors in December.

The 2021 Annual Report for the North Richmond Waste & Recovery Mitigation Fee Joint Expenditure Planning Committee (Committee) is attached as Exhibit A. This Committee was formed in 2006, pursuant to the terms of a Memorandum of Understanding between the County and the City of Richmond. This Committee was formed to develop recommendations for the use of funding derived from the collection of the North Richmond Waste & Recovery Mitigation Fee, which is subject to the joint-control of the City and County.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Justin Sullivan, (925)
655-2914

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:

BACKGROUND: (CONT'D)

The Waste & Recovery Mitigation Fee was established by the City and County as permitting conditions of approval to mitigate potential impacts on North Richmond from the proposed expansion of waste processing and resource recovery operations located at the foot of Parr Boulevard in North Richmond ("Project"). One of the mitigation measures in the 2003 Environmental Impact Report (EIR) for this Project called for the establishment of a Mitigation Fee to defray annual costs associated with collection and disposal of illegally dumped waste and associated impacts in North Richmond and adjacent areas.

This Committee is charged with preparing an Expenditure Plan to facilitate joint administration of this funding for the benefit of unincorporated and incorporated North Richmond. Each Expenditure Plan recommended by the Committee is subject to the final approval of the Richmond City Council and the Contra Costa County Board of Supervisors. A copy of the current Expenditure Plan for 2021/2022 (covering July 2021 thru June 2022), is attached as Exhibit B. A recommendation by the Committee on a new Expenditure Plan for the 2022/2023 fiscal year is expected to be made in May 2022.

CONSEQUENCE OF NEGATIVE ACTION:

The 2021 Advisory Body Annual Report submitted on behalf of the North Richmond Waste & Recovery Mitigation Fee Joint Expenditure Planning Committee in accordance with Resolution No. 2020/1 would not be formally accepted.

ATTACHMENTS

Exhibit A - 2021 Annual Report

Exhibit B - 2021/22 Expenditure Plan

2021 Advisory Body Annual Report

Advisory Body Name:

North Richmond Waste & Recovery Mitigation Fee Joint Expenditure Planning Committee (NRMFC)

Advisory Body Meeting Time/Location:

Meetings are regularly scheduled for twice a year, with special meetings scheduled from time to time at the discretion of the Committee. The meeting dates and times for the 2021 calendar year are identified in Section 3 of this document (page 2). This year, all meetings were held via Tele-Conference due to impacts from COVID-19.

Chair (during the reporting period):

Demnlus Johnson, Richmond City Councilmember

Staff persons (during the reporting period):

Contra Costa County Department of Conservation & Development:

- Deidra Dingman, & Justin Sullivan

Richmond City Manager's Office:

- Lori Reese-Brown, & LaShonda Wilson

Reporting Period: January 1, 2021 – December 31, 2021

1. Activities

The NRMFC made recommendations to the County Board of Supervisors and Richmond City Council on the use of money collected through a Waste & Recovery Mitigation Fee established as result of an Environmental Impact Report to mitigate impacts from the expansion of the West Contra Costa Sanitary Landfill (WCCSL) Bulk Materials Processing Center (BMPC) located in the North Richmond area. The Committee provided feedback to City/County Committee staff about recommended uses of the mitigation fee for the purpose of defraying the annual costs associated with the collection and disposal of illegally dumped waste in the North Richmond area as a result of the BMPC expansion.

2. Accomplishments

In 2021, the NRMFC received a Tonnage & Revenue update along with informational reports on all expenditure plan strategies. Projected tonnage revenue reports indicated more revenue for the 2021/2022 fiscal year than was provided in 2020/2021. Staff provided a recommended 2021/2022 budget based in part on actual 2020/2021 costs. The 2021/2022 Expenditure Plan budget also incorporated recommendations from the Committee to remove the Love North Richmond strategy and reallocate funding to the Mobile Tool Library strategy. Based on staff's suggestions, the committee recommended adoption of the 2021/22 Expenditure Plan (Attached as Exhibit B), which includes the changes shown in the table below:

Expenditure Plan Strategy	Budget Changes in the 2021/22 Expenditure Plan
Strategy 1 – Bulky Item Pick-ups	No Change
Strategy 2 – Neighborhood Clean-ups	No Change
Strategy 3 – Prevention Service Coordinator	No Change
Strategy 4 – City/County Right-of-Way Pick-up & Tagging Abatement	No Change
Strategy 5 – Code Enforcement (County)	No Change

Expenditure Plan Strategy	Budget Changes in the 2021/22 Expenditure Plan
Strategy 6 – Illegal Dumping Law Enforcement	No Change
Strategy 7 – Surveillance Cameras	Decreased by \$1,500
Strategy 8 – City Code Enforcement	No Change
Strategy 9 – Community Services Coordinator	No Change
Strategy 10 – Community-Based Projects	Increased by \$26,938.47
Strategy 11 – North Richmond Green Community Service Programs	No Change
Strategy 12 – North Richmond Green Campaign	No Change
Strategy 13 – Garden Projects	No Change
Strategy 14 – Love North Richmond	Unfunded*
Strategy 15 – Mobile Tool Lending Library	No Change
Contingency	No Change

*Strategy was eliminated from the 2021-22 Expenditure Plan

The 2021-2022 Expenditure Plan was approved by the Board of Supervisors and the Richmond City Council.

3. Attendance/Representation

The seven-member Committee is comprised of three Richmond City Council members, one member of the Board of Supervisors, two North Richmond Municipal Advisory Council (MAC) members that are residents of unincorporated North Richmond, and one incorporated North Richmond (NR) resident. The Committee's Amended Bylaws provide for designation of alternates and procedures for removal of members based upon number of absences without prior notification. The level of participation for each Committee member is outlined in the table below as well as the status of a quorum being achieved for each meeting date.

2021 Meeting Dates & Attendance

Committee Members & Alternates	May 28 2-5 pm	Oct 15 2-4 pm	Appointed By
Dr. Henry Clark, VICE CHAIR – North Richmond MAC	Yes	No	County
John Gioia, Supervisor – Board of Supervisors	No	No	County
Beverly Scott – North Richmond MAC	Yes	No	County
Nathaniel Bates – Richmond City Councilmember	Yes	No	City
Demnlus Johnson, CHAIR – Richmond City Councilmember	Yes	Yes	City
Annie King-Meredith – Incorporated N. Richmond Resident	Yes	Yes	City
Eduardo Martinez – Richmond City Councilmember	No	Yes	City
VACANT - North Richmond MAC Member, Alternate	No	No	County
Robert Rogers – Board of Supervisors, Alternate	Yes	Yes	County
Melvin Willis - Richmond City Councilmember, Alternate	No	No	City
Marena Brown, Alternate	No	No	City
Quorum achieved	Yes	Yes	

4. Training/Certification

The County appointed Committee Members/Alternates have completed and submitted the required training certificates.

5. Proposed Work Plan/Objectives for Next Year

The Committee plans to have its next meeting on May 27, 2022. Anticipated topics to be discussed at this meeting include budget planning for the next Expenditure Plan cycle (FY 2022/2023), including future revenue projections, proposed funding allocations for existing and potential new strategies. The committee will also consider recommending approval of a new 2022/2023 Expenditure Plan to the County Board of Supervisors and Richmond City Council.

North Richmond Waste & Recovery Mitigation Fee 2021/22 Expenditure Plan

The Waste & Recovery Mitigation Fee was established as a result of the Draft Environmental Impact Report (EIR) dated November 2003 for the WCCSL Bulk Materials Processing Center (BMPC) and Related Actions (Project). The Project involved new and expanded processing and resource recovery operations on both the incorporated and unincorporated area of the Project site, which the EIR concluded would impact the host community. To mitigate this impact Mitigation Measure 4-5 called for a Mitigation Fee to benefit the host community, described as follows:

“Mitigation Fee. The facility operator shall pay a Mitigation Fee of an amount to be determined by the applicable permitting authority(ies) ***to defray annual costs associated with collection and disposal of illegally dumped waste and associated impacts in North Richmond and adjacent areas.*** The mitigation fee should be subject to the joint-control of the City and County and should be collected on all solid waste and processible materials received at the facility consistent with the existing mitigation fee collected at the Central IRRF.”

In July 2004, the City of Richmond and Contra Costa County entered into a Memorandum of Understanding (MOU) agreeing to jointly administer Mitigation Fee monies collected from the BMPC for the benefit of the incorporated and unincorporated North Richmond area. This North Richmond Waste & Recovery Mitigation Fee Joint Expenditure Planning Committee (Committee) was formed pursuant to the terms of the MOU for the specific purpose of preparing a recommended Expenditure Plan. This Expenditure Plan provides a means to jointly administer the Mitigation Fee funding for the benefit of the host community, as described in the EIR. The Expenditure Plan is subject to final approval of the Richmond City Council and the Contra Costa County Board of Supervisors.

By approving this Expenditure Plan, the City Council and Board of Supervisors authorize the use of Mitigation Fee funding for only the purposes and in the amounts specified herein. The City and County have each designated their respective staff persons responsible for administering the development and implementation of the approved Expenditure Plan, which includes responsibility for drafting and interpreting Expenditure Plan language. However, the City and County have not delegated to the Committee or to staff the authority to expend funding for purposes not clearly identified in the Expenditure Plan document officially approved by their respective decision-making bodies.

Activities which can be funded in this Expenditure Plan period with the Mitigation Fee amounts specified within this Expenditure Plan are described herein as “Strategies” or “Staff Costs”. Strategies are categorized as either “Core Services” or “Supplemental Enhancements”. Core Services includes the higher funding priority strategies that most directly address the intended purpose of this City/County approved Mitigation Fee, *“to defray annual costs associated with collection and disposal of illegally dumped waste and associated impacts in North Richmond”*.

All references to the “Mitigation Fee Primary Funding Area” or “Mitigation Fee Funding Area” pertain to the geographic area shown in the attached map (Attachment 4).

Expenditure Plan Period:	July 1, 2021 - June 30, 2022 <i>(unless otherwise specified herein)</i>
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BUDGET

The funding allocation amounts included in this document apply to the Expenditure Plan Period specified on the first page unless otherwise specified herein. The total amount of funding allocated in the Expenditure Plan Budget is based on revenue projections provided by the BMPC operator, Republic Service, which are dependent upon multiple variables (e.g. number of tons of recovered materials vs. solid waste, per ton gate rate charged and amount of CPI-adjusted per ton Mitigation Fee). Actual Mitigation Fee revenue may deviate from revenue projections provided by Republic and used to prepare this Budget. A “Contingency” line item is included in the Budget to help accommodate variations between projected and actual revenue. Excess funding allocated to strategies and not expended by the end of each Expenditure Plan period is treated as “roll-over” funding for reallocation in a subsequent Expenditure Plan period.

The Budget includes some line items that are based on fixed costs, however there are other line items which are scalable and/or dependent on utilization thereby providing flexibility to reallocate amounts if and when a significant need is identified. Allocated funding may remain unspent due to under-utilization of a particular program. If the amount allocated to a particular line item is determined to exceed needs based upon usage, the remaining funding can only be reallocated by officially amending the Expenditure Plan. This Expenditure Plan may only be adjusted upon official action taken by both the City and County. Although there has been some interest in allowing flexibility for staff to adjust funding allocations under specific circumstances, the authority to approve or modify the Expenditure Plan rests solely with the City Council and Board of Supervisors.

Annual fiscal year Expenditure Plan cycle is expected to reduce margin of error of Mitigation Fee revenue projects, streamline financial reconciliation/budgeting process and minimize need to amend Expenditure Plans mid-cycle. Amending Expenditure Plans involve administrative burden and costs due to the joint approval needed from both the Richmond City Council and County Board of Supervisors. In order to minimize the amount of funding needed to cover staff costs incurred to amend the Expenditure Plan, staff will only recommend changes to the Expenditure Plan when necessary to address a significant and time-sensitive need.

NORTH RICHMOND MITIGATION FEE EXPENDITURE PLAN BUDGET

	#	Expenditure Plan (EP) Strategy	Budget Allocations for 2021/2022
Core Services	1	Bulky Item Pick-ups & Disposal Vouchers	\$ 1,000.00
	2	Neighborhood Clean-ups	\$ 30,000.00
	3	Prevention Services Coordinator	\$ 50,726.75
	4	City/County Right-of-Way Pick-ups	\$ 30,000.00
	5	Code Enforcement - County	\$ 91,850.60
	6	Illegal Dumping Law Enforcement	\$ 175,814.30
	7	Surveillance Cameras	\$ -
	8	Code Enforcement - City	\$ 26,666.67
Supplemental Enhancements	9	Community Services Coordinator	\$ 90,909.09
	10	Community Clean-Up Projects (See Attachment 2)	\$ 75,750.00
	11	North Richmond Green Community Service Programs	\$ 20,042.00
	12	North Richmond Green Campaign	\$ 10,500.00
	13	Garden Projects (See Attachment 4)	\$ 48,179.79
	14	Mobile Tool Lending Library	\$ 35,540.00
		Contingency (9% of Projected Revenue)	\$ 68,105.45
Subtotal (without Committee Staffing)			\$ 755,084.65
	x	Committee Administration/Staffing	\$ 100,000.00
Total Projected Revenue in 2021/22 (July 1, 2021 thru June 30, 2022)			\$ 756,440.00
Roll-over Funding from Prior EP Cycle(s)			\$ 98,644.65
Total 2021/22 Expenditure Plan Budget			\$ 855,084.65

DESCRIPTION OF STRATEGIES RECOMMENDED FOR FUNDING

Funding allocation amounts for each strategy are specified in the Budget table on page 3. The following Strategies describe the activities allowed to be funded with the amounts allocated to each in the Budget (associated allowable agency staff costs are described in the Staff Costs section). Strategies are grouped based on relative funding priority levels and the “Core Services” category contains higher priority Strategies than the “Supplemental Enhancements” category. Higher funding priority Strategies are those which best address the Fee’s intended purpose, ***“to defray annual costs associated with collection and disposal of illegally dumped waste and associated impacts in North Richmond”*** and “Supplemental Enhancements”.

Level 1 Priority - PRIMARY CORE SERVICES STRATEGIES

- 1 - Bulky Item Pick-ups & Disposal Vouchers
- 2 - Neighborhood Clean-up Events
- 4 - City/County Right-of-Way Trash & Tagging Removal
- 5 - Code Enforcement - County
- 6 - Illegal Dumping Law Enforcement
- 8 - Code Enforcement – City

Level 2 Priority - SECONDARY CORE SERVICES STRATEGIES

- 3 - Prevention Services Coordinator
- 7 - Surveillance Cameras

Level 3 Priority - PRIMARY SUPPLEMENTAL ENHANCEMENTS STRATEGIES

- 9 - Community Services Coordinator
- 11 - North Richmond Green Community Services Program
- 12 - North Richmond Green Campaign
- 13 - Garden Project
- 14 - Mobile Tool Lending Library

Level 4 Priority - SECONDARY SUPPLEMENTAL ENHANCEMENTS STRATEGIES

- 10 - Community Clean-up Projects

CORE SERVICES

1. Bulky Item Pick-ups & Disposal Vouchers

Provide residents in the Mitigation Fee Primary Funding Area, who prove eligibility consistent with City/County procedures, with the option of choosing to:

- Request up to one on-call pick-up service per household per calendar year for bulky items that are not accepted in the current on-call clean-ups through Richmond Sanitary Service (RSS), only available to those with an active account with RSS; or
- Request up to twelve \$5 vouchers per household for disposal at Republic’s transfer station on Parr Blvd. per calendar year (vouchers expire after six months, Mitigation Fees only pay for vouchers that are actually redeemed).

[See "Staff Costs" section for agency activities that may also be funded under this Strategy.]

Administering Agency: City of Richmond

Implementing Entity(ies):

Community Housing Development Corporation *(processes requests and issues Disposal Vouchers/arranges Bulky Item Pick-ups)*

Republic Services - Golden Bear Transfer Station & Richmond Sanitary Service *(reimbursed for Disposal Vouchers redeemed and Bulky Item Pick-ups provided)*

Reporting/Payment Requirements: Effective July 1, 2012, CHDC and Republic Services shall provide required data pertinent to Strategy 1 based upon the strategy-specific invoicing/reporting requirements and schedule developed/maintained by Committee Staff in order to receive NRMF-funded payments.

2. Neighborhood Clean-ups

Provide at least one neighborhood and/or creek clean-up event in the Mitigation Fee Funding Area; additional clean-up event may be scheduled as funding allows. *[See "Staff Costs" section for agency activities that may also be funded under this Strategy.]*

Administering Agency: City of Richmond

Implementing Entity(ies):

City Manager's Office *(coordinates scheduling of clean-up dates and associated arrangements in conjunction with partner entities)*

Republic Services - Richmond Sanitary Service *(reimbursed for providing/servicing clean-up boxes and disposing of debris placed in clean-up boxes)*

Reporting/Payment Requirements: Effective July 1, 2012, the City Manager's Office and Republic Services shall provide required data pertinent to Strategy 2 based upon the strategy-specific invoicing/reporting requirements and schedule developed/maintained by Committee Staff in order to receive NRMF-funded payments (funding transfers).

3. Prevention Services Coordinator

Fund at least a portion of a Prevention Services Coordinator (PSC) position (including salary/benefits/overhead and administering agency contracting charge¹) on a contract basis to assist the City and County in implementing Strategy 1 as the point of contact for community members interested in claiming Disposal Vouchers or Bulky-Item Pick ups. Assist community members interested in reporting illegal dumping and seeking referral/resources. Track and report data related to illegally dumped waste collected by Republic Services Hot Spot Crew and handle

¹ Administering agency contracting charge applies (\$3,000 per contract)

associated referrals to applicable public agencies, including right-of-way referrals for Strategy 4. The PSC may also assist City and County with administering funding allocated to selected non-profit organizations under Strategies 10 and 13.

[See "Staff Costs" section for agency activities that may also be funded under this Strategy.]

Administering Agency: Contra Costa County

Implementing Entity: Community Housing Development Corporation (CHDC)
(reimbursed actual cost for part-time position and issues
Disposal Vouchers/arranges Bulky Item Pick-ups)

Reporting/Payment Requirements: Effective July 1, 2012, CHDC shall provide required data pertinent to Strategy 1 and Strategy 3 based upon the strategy-specific invoicing/reporting requirements and schedule developed/maintained by Committee Staff in order to receive NRMF-funded payments.

4. City/County Right-of-Way Pick-up & Tagging Abatement

Fund consolidated pick-up program (including personnel, mileage, equipment rental and administrative costs) for removal of illegal dumping and tagging abatement* in the public right-of-way located within the unincorporated & incorporated Mitigation Fee Primary Funding Area. Additional tasks would include identifying potential sites for Strategy 10 Clean-Up Projects. Funding is intended to pay for removal of illegal dumping that occurs as a result of referrals from the Prevention Services Coordinator for items/debris not collected by the designated Republic Services Hot Spot Route crew.

[See "Staff Costs" section for agency activities that may also be funded under this Strategy.]

Administering Agency: City of Richmond

Implementing Entity: Richmond Police Department's Code Enforcement Division

Reporting/Payment Requirements: Effective July 1, 2012, the Richmond Police Department's Code Enforcement Division shall provide required data pertinent to Strategy 4 based upon the strategy-specific invoicing/reporting requirements and schedule developed/maintained by Committee Staff in order to receive NRMF-funded payments (funding transfers).

5. Code Enforcement Staff - County

Fund at least a portion of County code enforcement position (including salary/benefits and related vehicle and equipment costs), to assist with vacant/abandoned lot abatements and fencing as well as other health/building/zoning violations related to illegal dumping and blight throughout the unincorporated Mitigation Funding Area. Additional tasks would include identifying potential sites for Strategy 10 Clean-Up Projects.

[See "Staff Costs" section for agency activities that may also be funded under this Strategy.]

Administering Agency: Contra Costa County

Implementing Entity: County Department of Conservation & Development's
Building Inspection Division

Reporting/Payment Requirements: Effective July 1, 2012, the County Department of Conservation & Development's Building Inspection Division shall provide required data pertinent to Strategy 5 based upon the strategy-specific invoicing/reporting requirements and schedule developed/maintained by Committee Staff in order to receive NRMF-funded payments (funding transfers).

6. Illegal Dumping Law Enforcement

Fund majority of a full-time Sheriff Deputy (between approximately 90-100% of salary/benefits, overtime, uniform and related cell phone, equipment, and vehicle costs) to assist with law enforcement investigations and patrols to combat illegal dumping within the Mitigation Fee Primary Funding Area. Additional tasks would include identifying potential sites for Strategy 10 Clean-Up Projects.

[See "Staff Costs" section for agency activities that may also be funded under this Strategy.]

Administering Agency: Contra Costa County

Implementing Entity: County Sheriff's Office

Reporting/Payment Requirements: Effective July 1, 2012, the County Sheriff's Office shall provide required data pertinent to this Strategy based upon the strategy-specific invoicing/reporting requirements and schedule developed/maintained by Committee Staff in order to receive NRMF-funded payments (funding transfers).

7. Surveillance Cameras

Fund the cost of cameras, camera infrastructure, camera signage and costs related to monitoring, maintenance, warranty, repair & relocation of surveillance camera system equipment within the Mitigation Fee Primary Funding Area. Cameras will be used to assist the dedicated Illegal Dumping Law Enforcement officer prevent dumping in targeting specific locations where illegal dumping occurs most regularly.

[See "Staff Costs" section for agency activities that may also be funded under this Strategy.]

Administering Agency: Contra Costa County

Implementing Entity(ies):

Richmond Police Department (*operate, move and maintain eight Pan-Tilt-Zoom wireless video surveillance cameras and associated camera system infrastructure throughout NR -AND- install/clean/move FlashCam cameras located within the incorporated NR area if funding is available*)

County Sheriff's Department (*coordinate monitoring of FlashCams or other camera systems located throughout NR and identify/request relocation of surveillance cameras throughout NR as needed*)

County Public Works Department (*install/clean/move FlashCam or other camera systems cameras located within the unincorporated NR area upon request if funding is available*)

Reporting/Payment Requirements: Effective July 1, 2012, each Implementing Entity shall provide required data pertinent to each entity's applicable Strategy 7 responsibilities based upon the strategy-specific invoicing/reporting requirements and schedule developed/maintained by Committee Staff in order to receive NRMF-funded payments (funding transfers) now or in the future.

8. Code Enforcement Staff - City

Fund at least a portion of City code enforcement position (including salary/benefits and related vehicle and equipment costs), to assist with vacant/ abandoned lot abatements and fencing as well as other health/building/zoning violations related to illegal dumping and blight throughout the incorporated Mitigation Funding Area. Additional tasks would include identifying potential sites for Strategy 10 Clean-Up Projects.

[See "Staff Costs" section for agency activities that may also be funded under this Strategy.]

Administering Agency: City of Richmond

Implementing Entity: City Department of Infrastructure Maintenance & Operations

Reporting/Payment Requirements: Effective July 1, 2020, the City Department of Infrastructure Maintenance & Operations shall provide required data pertinent to Strategy 8 based upon the strategy-specific invoicing/reporting requirements and schedule developed/maintained by Committee Staff in order to receive NRMF-funded payments (funding transfers).

SUPPLEMENTAL ENHANCEMENTS

9. Community Services Coordinator

Fund at least a portion of a Community Services Coordinator (CSC) position to be staffed on a contract basis (including salary/benefits/overhead and administering agency contracting charge²). The CSC shall:

- serve as a link between the community of North Richmond, the City of Richmond, and Contra Costa County for issues related to beautification, illegal dumping, and blight using referral process identified by the City and County;
- coordinate outreach activities related to illegal dumping and beautification

²Administering agency contracting charge is \$3,000 per contract.

within the Primary Funding area, as specified by the City/County, including North Richmond Green community service programs and outreach activities described under Strategies 11 & 12; and

- Identifying potential sites for Strategy 10 Clean-Up Projects.
- be bilingual in order to assist with Spanish translation as needed.

[See "Staff Costs" section for agency activities that may also be funded under this Strategy.]

Administering Agency: Contra Costa County

Implementing Entity: Community Housing Development Corporation (CHDC).

Reporting/Payment Requirements: CHDC shall provide required data pertinent to Strategies 9, 11 & 12 based upon the strategy-specific invoicing/reporting requirements and schedule developed/maintained by Committee Staff in order to receive NRMF-funded payments.

10. Community Clean-up Projects

Fund the implementation, oversight and administering agency contracting charges³ of community clean-up projects with specific focus on reducing blight. Community clean-up projects may involve the removal of debris and/or landscaping maintenance. Sites to be cleaned shall be in the Mitigation Fee Funding area and designated by the Administering Agency. The number of sites to be cleaned will be determined by the amount of funding allocated.

A breakdown of contracting costs and amount awarded to the Implementing Entity is contained in the Community Clean-up Project Table included as Attachment 2. Up to 15% of the Implementing Entity's Award Amount in Attachment 2 may be used for a fiscal sponsor or administrative oversight.

[See "Staff Costs" section for agency activities that may also be funded under this Strategy.]

Administering Agency: Contra Costa County. Community Housing Development Corporation (CHDC) may under contract with the County as an Administering Agency, administer Community Clean-Up Project contracts funded under this Strategy. CHDC shall use no more than twenty (20) percent (%) of the total amount awarded to Community Clean-Up Projects (after subtracting City/County contracting cost) listed in Attachment 2 to oversee implementation, including facilitating review/assessment of reports' and deliverables. Payments to Implementing Entities for Community Clean-Up Projects shall not be issued by CHDC without the written approval of City and County Committee Staff.

Implementing Entity: See Community Clean-up Project Table in Attachment 2

³Administering agency contracting charge is \$3,000 per contract entered into by the County and up to 20% of the per project funding allocation as described in Administering Agencies section below).

Reporting/Payment Requirements: Any Community Clean-Up Projects shall be subject to the Reporting & Invoicing Requirements specified in the template Memorandum of Understanding included in Attachment 1. Attachment 1 only applies to Community Clean-Up Project contracts with the Implementing Entities. The County will issue advance payments to CHDC, as needed, to ensure there is adequate funding available for payments requested by Implementing Entities if and when authorized by City and County Staff. Additionally, CHDC would be subject to contractual payment and reporting provisions that differ from those in Attachment 1 due to the nature of the services to be provided.

11. North Richmond Green Community Services Programs

Fund the following North Richmond Green programs on a contract basis⁴ to the extent the specific details submitted are determined to align with the purpose of the Mitigation Fee and Expenditure Plan:

- *NR Little League Baseball Program* - Includes cost of registration and uniforms with customized North Richmond Green patches for up to 5-6 teams, season kick-off event/parade, equipment, stipends for game monitoring and oversight, food and transportation.
- *NR Youth Twilight Basketball Program* - Includes cost of registration and uniforms with North Richmond Green patches for up to 5-6 teams, equipment, stipends for game monitoring and oversight, food and transportation.
- *NR Eco Workshops & Beautification Projects* – Eco Workshops and Beautification Projects include school gardens, recycling efforts, beach/creek/neighborhood clean-ups and ecological field trips. May fund the cost of materials, transportation and fees associated with pre-approved community beautification projects such landscaping and murals.

[See “Staff Costs” section for agency activities that may also be funded under this Strategy.]

Administering Agency: Contra Costa County

Implementing Entity: Community Housing Development Corporation (CHDC).

Reporting/Payment Requirements: CHDC shall provide required data pertinent to Strategies 9, 11 & 12 based upon the strategy-specific invoicing/reporting requirements and schedule developed/maintained by Committee Staff in order to receive NRMF-funded payments.

12. North Richmond Green Campaign

Fund the design, printing and/or distribution of education and outreach materials on a contract basis⁴ which must align with the purpose of the Mitigation Fee and Expenditure Plan and be pre-approved by Committee Staff. Outreach materials must include “Jointly funded by City of Richmond & Contra Costa County” unless otherwise specified herein. Outreach materials may be any of the types specified below, however must clearly intend to directly:

- Inform the community about Mitigation Fee funded programs/efforts,
- Increase participation in Mitigation funded programs/efforts,

⁴ Administering agency contracting charge applies (\$3,000 per contract)

- Reduce illegal dumping and blight in the Mitigation Fee Funding Area, and/or
- Promote beautification in the Mitigation Fee Funding Area.

The following type of outreach material expenditures may be funded if reviewed and pre-approved by Committee Staff:

- STIPENDS – Pay local community members (youth and adults) to distribute printed outreach materials door-to-door to promote mitigation-funded strategies (*Jointly Funded text not applicable to stipend expenses, only materials*)
- HANDOUTS/MAILERS – Newsletters, flyers, brochures or other documents intended to be handed out or mailed to local residents/organizations.
- T-SHIRTS - Shirts shall include the NRGreen.org website to encourage people to learn more about Mitigation funded programs/efforts (*local phone number should also be included when possible, however inclusion of Jointly Funded text may not be required*)
- NR GREEN FESTIVAL – Event held once per year and generally include information booths to raise awareness about mitigation-funded efforts and other local beautification efforts as well as fun activities for kids and food. Materials promoting the event shall include the NRGreen.org website as well as a local phone number.
- SIGNAGE – Printed or manufactured signage, which includes promotional banners for local events/parades, which should include the NRGreen.org website for Community members to learn more about Mitigation funded programs/efforts. Repair, replacement and removal of NRMF-funded Light Pole Banners.

[See “Staff Costs” section for agency activities that may also be funded under this Strategy.]

Administering Agency: Contra Costa County

Implementing Entity: Community Housing Development Corporation (CHDC).

Reporting/Payment Requirements: CHDC shall provide required data pertinent to Strategies 9, 11 & 12 based upon the strategy-specific invoicing/reporting requirements and schedule developed/maintained by Committee Staff in order to receive NRMF-funded payments.

13. Garden Projects

Community Garden Projects: Fund on-going maintenance and up-keep of existing community gardens within the Primary Funding Area. The projects selected under this Strategy has been funded on an on-going basis.

Garden Retrofit Projects: Fund the development and implementation of educational garden retrofit events within the Primary Funding Area. Sites for garden retrofits shall be selected via an application process administered by the implementing Entity and approved by County/City staff. Garden retrofit applications will be ranked based on the applicant’s ability/willingness to maintain the garden after installation, the visibility of the site from the street, and the size of the garden site.

The number of garden sites to be retrofitted will be determined by the amount of funding allocated. Garden retrofits shall contain drought-tolerant, native plants.

Details, including recommended allocation amounts, for Projects are included in Attachment 4. Up to 15% of the Non-Profit Implementer Award Amount specified in Attachment 4 may be used for administrative oversight.

[See "Staff Costs" section for agency activities that may also be funded under this Strategy.]

Administering Agencies: Contra Costa County.⁵ Community Housing Development Corporation (CHDC) may under contract with the County as the Administering Agency, administer Community Garden & Garden Retrofit contracts funded under this Strategy. CHDC shall use no more than twenty (20) percent (%) of the total amount awarded to Projects (after subtracting City/County contracting cost) to oversee implementation, including facilitating review/assessment of reports and deliverables. Payments to Implementing Entities for Community Garden & Garden Retrofit Projects shall not be issued by CHDC without the written approval of both City and County Committee Staff.

Implementing Entity: Various Non-Profit Organizations (see Garden Projects Table in Attachment 4)

Reporting/Payment Requirements: Any Garden Project contracts issued or amended by the City/County shall incorporate Reporting & Invoicing Requirements equivalent with those shown in Attachment 3. Garden Project contracts being administered by CHDC on behalf of the County shall also incorporate Reporting & Invoicing Requirements equivalent with those shown in Attachment 3. Attachment 3 only applies to the Garden Project contracts with the Implementing Entities. CHDC would be subject to contractual payment and reporting provisions that differ from those in Attachment 3 due to the nature of the services to be provided. The County will issue advance payments to CHDC, as needed, to ensure there is adequate funding available to payments requested by Implementing Entities if and when authorized by City and County Staff.

14. Mobile Tool Lending Library

Fund the development, implementation, and on-going maintenance of a mobile tool lending library that is accessible to the public within the Mitigation Fee Primary Funding Area at least once a week. Funding is intended to pay for the purchase of educational material, tools, costs related to the tool lending system & trailer/tool maintenance, and personnel/labor.

Administering Agency: City of Richmond

Implementing Entity: City of Richmond Community Services Department

Reporting/Payment Requirements: Effective July 1, 2020, the City of Richmond Community Services Department shall provide required data pertinent to Strategy 15 based upon the strategy-specific invoicing/reporting requirements and schedule developed/maintained by Committee Staff in order to receive NRMF-funded payments (funding transfers).

STAFF COSTS

Committee Administration/Staffing Funding: The funding allocated for Committee Administration/Staffing may not be adequate to cover the full cost of staff time necessary for jointly staffing the North Richmond Waste & Recovery Mitigation Fee Joint Expenditure Planning Committee as well as developing, administering and overseeing this Expenditure Plan for the specified period. Supplemental funding allocation may be necessary upon determining actual costs exceed the amount budgeted to cover the intended City/County costs for joint staffing.

Strategy-Specific Funding: The cost of City/County staff time spent providing direct implementation assistance and/or coordination for specific Strategies may be covered with a portion of the NRMF funding budgeted for each applicable Strategy. Additionally, a portion of the NRMF funding budgeted for Strategies will be used to pay fixed administering agency contracting charge for each applicable contract (Currently \$3,000 per contract. An additional \$3,000 may be added to a contract amendment to add additional funding or nonprofits to a contract during an existing contract cycle) unless otherwise specified herein.

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TEMPLATE MEMORANDUM OF UNDERSTANDING BETWEEN

AND
COMMUNITY HOUSING DEVELOPMENT CORPORATION

This is an agreement made and executed on _____ between Community Housing Development Corporation (CHDC) and _____ (Contractor). This contract will remain in effect for the time period identified in the TERM section of the agreement.

OVERVIEW:

The _____ North Richmond Mitigation Fee (NRMF) Expenditure Plan approved by the Board of Supervisors in _____ and Richmond City Council in _____ allocates a total of **\$19,400** to the Contractor for the disbursement of funds within Strategy 10 to complete Clean-Up Project(s) in the North Richmond Mitigation Area.

TERM: The term of this agreement begins on _____ and ends on _____. Contractor will complete all work performed under this agreement not later than _____. Invoices submitted for work performed before or after this specified term and invoices submitted after _____ will not be paid.

I. Contractor's Obligations

The Contractor shall administer the _____, as described herein for an amount not to exceed **\$19,400** involving the following activities:

A. Recruit and Hire up to four (4) workers

1. Contractor will develop and publicize the job announcements. Job announcements shall contain, "Jointly funded by The City of Richmond & Contra Costa County" language.
2. Contractor will interview, select and hire up to four workers.
3. Contractor will host training for new hires that discusses the proper procedures of disposal of hazardous waste (televisions, phones, batteries, tires, paint etc.).

Task A - Deliverables:

1. Documentation of publicized job announcement in English/Spanish with required jointly funded language.
2. Documentation of hiring papers.

B. Clean up to eight (8) North Richmond Sites Approved by the County

1. Contractor shall select North Richmond addresses provided by the County or City to be cleaned during each clean up.
 - a. Addresses provided by the County or City will include a description of waste onsite.
 - b. Addresses provided by the County or City shall only be selected once for clean-up unless directed otherwise by County Staff.
2. Contractor will confirm with the County the address for cleanup one week and provide clear written procedures for the proper disposal of all waste types previously described at each clean-up site, including waste that is recyclable, hazardous or requires special handling. Procedures shall be submitted and approved by the County before the site is cleaned up.

3. Contractor shall make arrangements in advance with the appropriate partners for the proper removal, recycling, composting or disposal of the debris identified in the area to be cleaned, including materials that require special handling such as tires, hazardous/universal wastes, appliances, and medical sharps/waste.
4. Contractor shall document approximate quantities (count, volume or weight) of each type of material/debris removed from the area during clean-up, using a log or other method agreed upon in advance.
5. Contractor shall demonstrate how the materials/debris removed during the clean-up were transported and where each type was properly recycled, composted or disposed.

Task B - Deliverables:

1. Documentation of disposal procedures approved by the County for each confirmed clean-up address.
2. Before photos of the entire site before the material/debris has been cleaned up.
3. Completed Contractor's Log identifying the types and amount of material/debris removed.
4. After photos of the entire site after it has been cleaned up. Contractor shall strive to take After photos from the same vantage points as the Before photos.
5. Documentation demonstrating that the material/debris removed was properly disposed or recycled. If debris removed during the clean-up is disposed of in existing containers that are routinely serviced by Republic Services, Contractor shall submit copy of an invoice or letter from Republic Services confirming what collection services were being provided at the disposal location during the applicable timeframe. For any in-kind hauling/disposal service offered by partner organizations or agencies, contractor may submit written communication identifying what was picked up by whom and where it was taken (e.g. e-mail message from the Parks District confirming that yard debris that was placed in tarps and set-out at agreed upon location was placed in designated green waste bin on the District's property or transported to a specified compost facility). Alternatively, if disposal services are provided in the form of debris box donation(s) from Republic Services, contractor may submit written communication confirming donation.

C. Attend Community Meetings and Events

1. Attend one North Richmond Green meeting(s) per quarter (quarterly periods end on December 31st, March 31st and June 30th).
 - a. No portion of the Quarterly Meeting Attendance budget line item will be paid to Contractor unless Contractor submits written evidence proving Contractor representative attended at least one monthly North Richmond Green Meeting during the applicable quarter.

Task C - Deliverables:

1. Documented attendance via minutes or copies of sign-in sheets of North Richmond Green meetings

D. Reporting & Invoicing

1. Submit invoices and the required supporting documentation (including applicable required Deliverables and completed Progress Reports as specified in Section III. Payment Provisions) for each calendar month, and not later than 30 days after the end of the applicable monthly period. The Reporting and Invoicing budget line items are intended to ensure timely submittal of invoices and required supporting documentation. No portion of the Invoicing budget line item will be paid to Contractor for invoices submitted late, or without the required documentation or completed Progress Report.

Task D- Deliverables:

1. Complete monthly invoices on time for all tasks completed, accompanied by all required deliverables (including completed Progress Report or Final Progress Report). If Contractor does not provide a timely and complete invoice with all deliverables required for applicable tasks outlined on the invoice, as specified herein, no later than 30 days after the end of the applicable monthly period, the Contractor shall forfeit the \$100 allocated for each applicable invoice period. Contractor may not use any funding specifically allocated for Reporting and Invoicing for any other purpose
2. Completed Progress Report addressing activities that occurred during the corresponding invoice period (except for the final invoice) consistent with Section III.3.a.
3. Completed Final Progress Report addressing the entire project to be submitted with the final invoice consistent with Section III.3.a.

E. Eligible Costs:

Eligible costs consistent with the below table can only be reimbursed if included on invoices in conformance with the payment provisions and submitted prior to _____.

Budget Line Items by Task/Deliverable	Quantity	Payment per Unit	Total Payments	Budget Amount
A. Recruit and hire up to four (4) workers				\$ 1,750
Deliverable 1 - Recruitment Documentation	1 each	\$350	\$350	
Deliverable 2 - Hiring Documentation	4 each	\$350	\$1,400	
B. Clean-up up to eight (8) designated locations in the NRMF Funding Area				\$ 14,400
Deliverable 1 - Procedures	8 each	\$200	\$1600-	
Deliverable 2 - Before Photos	8 each	\$300	\$2,400-	
Deliverable 3 - Contractors Log	8 each	\$400	\$3,200-	
Deliverable 4 - After Photos	8 each	\$300	\$2,400-	
Deliverable 5 - Disposal Documentation	8 each	\$600	\$4,800-	
C. Attend North Richmond Green Meetings				\$ 750
Deliverable 1 - NR Green Meetings	3 each	\$250	\$750	
D. Reporting and Invoicing				\$ 2,500
Deliverable 1 - Timely & Complete Invoice	9 each	\$100	\$900	
Deliverable 2 - Progress Reports	8 each	\$150	\$1,200	
Deliverable 3 - Final Progress Report	1 each	\$400	\$400	
SUBTOTAL				\$ 19,400
Fiscal Agent (10% of amount invoiced)			\$0	
TOTAL BUDGET & ALLOWABLE PAYMENTS				\$ 19,400

II. CHDC's Obligations

Subject to the payment limit of **\$19,400** CHDC shall reimburse Contractor for eligible costs described in the previous section where such are incurred in the performance of work under the contract, subject to the below Payment Provisions. CHDC will disburse Contractor funds only after receiving written approval by County

authorizing the disbursement of the Contractor grant funds based on approved budget, approved advance and request for reimbursement.

III. Payment Provisions

Contractor shall submit invoices and required deliverables on a monthly basis consistent with the amounts and frequency specified in Section I.E -Eligible Costs, which together may not total more than **\$19,400**. Contractor will only receive payment for eligible costs incurred for work performed during the term of this contract which are itemized on invoices substantiated with adequate supporting documentation. Invoices submitted after July 30, - _____ will not be paid.

1. **Advanced Payments:** In order to receive any potential advance payment, such must be authorized for the specified project in Attachment ____ of the Expenditure Plan approved by the Board of Supervisors and The City of Richmond. Advance payment is limited to no more than ten (10) percent (%) of the approved implemented Entity Award for the Project. Contractor shall submit a written request to CHDC for approval by City and County Committee staff detailing the reason(s) advance payment is necessary and itemizing each specific cost that the requested advance payment amount would pay for and how such costs will aid in the completion of each applicable required task. Advance payment requests must be submitted prior to any other invoice. If an advance payment is issued, Contractor shall not be eligible for an additional payment until enough required deliverables have been approved to offset the amount paid in advance.
2. **Partial Payments:** The Contracting entity (City of County) may authorize partial payment to Contractor for submittal of incomplete deliverables if solely incomplete due to unusual and unforeseen circumstances beyond the control of the Contractor. Contractor must submit written request asking to receive payment for incomplete deliverable containing an explanation as to what factors beyond the Contractor's control specifically precluded the Contractor from submitting the completed deliverable and why such could not have been foreseen or avoided by Contractor.
3. **Invoices:** Invoices shall be submitted monthly, no later than 30 days after the end of the applicable monthly period and contain the following information in sufficient detail and be submitted in a form which adequately demonstrates consistency with this contract. Invoices shall be accompanied by the applicable deliverables.
 - a. Itemization of any tasks completed during the applicable calendar month for which completed deliverables are submitted and associated payment is being requested.
4. **Supported Documentation:** The following required supporting documentation must be submitted with invoices when applicable as described below.
 - a. Every invoice must be accompanied by a Progress Report, with the exception of the final invoice which must be accompanied by a Final Report. Both types of Reports must contain all of the information specified in the City/County provided Report templates, as well as any applicable details specified above in Section I. Contractor's Obligations.

- b. All applicable Deliverables associated with the tasks and requested payment amounts itemized on each monthly invoice.

SIGNATURES: Executed on the dates and by the persons named below.

Date: _____

Date: _____

By: _____

By: _____

Name: _____

Name: _____

IV. Conflict of Interest

By signing below, Contractor agrees not to employ, subcontract with, or make payment to any person (employees and stipend recipients), for the purpose of implementing this Project, that is at the same time employed by Contra Costa County, the City of Richmond or any entity that receives NRMF funding from the County or the City of Richmond, or serves on the NRMF Committee, except upon written approval by the Department of Conservation and Development Director or his designee.

Signature: _____

Name: _____

Title: _____

Date: _____

Attachment 2 - Community Clean-up Projects Table (Strategy 10)

2021/22 Expenditure Plan Funding Allocations for Projects

recommended for City/County approval by the North Richmond Mitigation Fee Committee

A total of **\$75,750.00** is recommended to be allocated in the 2021/2022 Expenditure Plan for Community Clean-up Projects (Strategy 10). Two of the three entities below were previously selected by the Committee based on a Funding Request Proposal process conducted in 2018.¹ The third entity, SOS! Richmond, was added per Committee direction at the October 16, 2020 meeting.

Community Clean-up Projects Recommended for Funding in 2021/2022

Implementing Entity / Fiscal Sponsor (if applicable)	Project Title	Advance Payment Allowed (Up to 10% of Implementer Award Amount)	Requested Amount	Total Award Amount	County Contracting Costs ²	CHDC Contracting Cost (20%) to Manage Non- Profits ²	Non-Profit Implementer Award Amount for Project	Notes
Social Progress Inc.	Brighter Beginnings in North Richmond	Yes	\$ 29,999.76	\$ 25,250.00	\$ 1,000.00	\$ 4,850.00	\$ 19,400.00	
SOS! Richmond	SOS! Richmond	Yes	\$ 75,000.00	\$ 25,250.00	\$ 1,000.00	\$ 4,850.00	\$ 19,400.00	
Men & Women of Valor	Community Working Together	Yes	\$ 20,000.00	\$ 25,250.00	\$ 1,000.00	\$ 4,850.00	\$ 19,400.00	
Total Funding Requested/Allocated			\$ 124,999.76	\$ 75,750.00	\$ 3,000.00	\$ 14,550.00	\$ 58,200.00	

¹ Funding Request Proposal released on February 9, 2018 by Committee Staff and Proposals submitted by eligible non-profit organizations and Agencies on March 6, 2018. Funding Proposal Application received by Men & Women of Valor was the wrong application. At their meeting on March 23, 2018, the NRMF Committee gave Men & Women of Valor 30 days to re-submit their application to the NRMF Committee using the correct application and submittal requirements. On April 22, Committee staff received the correct Funding Proposal application. The Men & Women of Valor Proposal application was considered at the NRMF Committee Meeting on June 8th and selected for funding.

² Costs to have 3rd party organization (CHDC) manage and oversee contracts with Organizations selected for funding is up to twenty (20) percent (%) of award amount after first taking out City/County Contracting cost for \$3,000 for City/County to contract directly with CHDC to have CHDC administer non-profit contracts.

Garden Project Reporting and Invoicing Requirements

Substantially equivalent language to be included in all NRMF-funded Community Project Agreements/Amendments

Agreements providing for payments using funding allocated for Community Projects must include provisions that address the requirements contained herein. Contractor shall submit Progress Reports covering each invoice period, using a City/County provided template in conjunction with each monthly invoice in order to be eligible for payment. Contractor shall monitor, document, and report all Project activities associated with the tasks and deliverables described in the agreement and any eligible Project costs for which reimbursement will be requested. Upon completion of work or the end of the contract's term, Contractor shall submit a Final Report, using a City/County provided template similar to the attached, in conjunction with the final invoice.

Task Deliverables

The agreement shall assign a dollar amount for each deliverable within each task. Contractor shall only be paid for completed deliverables submitted with all associated supporting documentation. The agreement may include assignment of one dollar amount to multiple deliverables for a specific task when appropriate to substantiate completion of the required task. The Contracting entity (City of County) may authorize partial payment to Contractor for submittal of incomplete deliverables if solely incomplete due to unusual and unforeseen circumstances beyond the control of the Contractor. Contractor must submit written request asking to receive payment for incomplete deliverable containing an explanation as to what factors beyond the Contractor's control specifically precluded the Contractor from submitting the completed deliverable and why such could not have been foreseen or avoided by Contractor.

Timely Submittal of Invoices

A separate Reporting & Invoicing budget line item shall be included in the agreement to facilitate timely submittal of invoices, progress reports and other deliverables. Submittal of monthly invoices shall be included as a deliverable and the exact amount that is payable upon timely submittal of each invoice complete with all required supporting documentation shall be specified. The agreement shall provide that no portion of the Reporting & Invoicing budget line item be paid to Contractor for invoices submitted beyond 30 days of any monthly invoice period, or without the required documentation including completed Progress Reports.

Pre-approval Required for Supplies and Materials

Unless the exact supplies and materials are specified as preauthorized in the Agreement, Contractor shall obtain pre-approval from the Contracting entity (City or County) prior to incurring supplies and materials expenses for which reimbursement will be requested. To request pre-approval, contractor shall provide written request identifying all proposed supplies and materials as well as an explanation demonstrating its reasonable cost and how said items will aid in the completion of each applicable required task.

Attendance of Community Meetings and Events

Contractor shall attend one North Richmond Green meeting per quarter during the contract period. Documentation substantiating attendance of required meetings shall be included as a deliverable for this task and be included with all applicable monthly invoice(s).

Acknowledgment Required on Outreach & Promotional Materials

Any printed outreach materials or promotional items must include “Jointly funded by City of Richmond & Contra Costa County”, with the exception of T-Shirts, which Contractor may request Contracting entity pre-approve to include only the NRGreen.org website address.

Authorized Advance Payments

In order to receive any potential payment in advance, such must be authorized for the specified Project in Attachment 2 or Attachment 3 of the Expenditure Plan approved by both the County Board of Supervisors and Richmond City Council. No Contractor authorized for advance payment may receive more than ten (10) percent (%) of the approved Implementing Entity Award for this Project. In order to receive any advance payment(s) provided for in the City and County approved Expenditure Plan, the Contractor shall submit a written request to both the City and County Committee Staff detailing the reason(s) advance payment is necessary and itemizing each specific cost that the requested advance payment amount (not to exceed 10% of total award) would pay for and how such costs will aid in the completion of each applicable required task.

Conflict of Interest Provisions

Contractor shall not employ, subcontract with, or make payment to any person, for the purpose of implementing a specified Project in Attachment 2 or Attachment 3 of the Expenditure Plan that is at the same time employed by Contra Costa County, City of Richmond or any entity that receives Expenditure Plan funding from the County or the City of Richmond, except upon written approval by the Contracting entity (either City or County).

Payment Provisions

Contractor shall submit invoices and required deliverables on a monthly basis consistent with the amounts and frequency contained in the “Eligible Costs” Section, which together may not total more than \$ (enter applicable contract amount). Contractor will only receive payment for eligible costs if such amounts are included on invoices adequately substantiated with required supporting documentation that are all submitted to the Contracting entity on or before July 30th. Invoices or portions thereof for which required supporting documentation has not been submitted by July 30th (or 30 days after any contract end date prior to June 30th) shall not be eligible for payment.

1. **Invoices:** Invoices shall be submitted monthly and contain the following information in sufficient detail and be submitted in a form, which adequately demonstrates consistency with the “Service Plan” specified in the contract. Invoices shall be accompanied by the applicable deliverables.
 - a. Itemization of any tasks partially or fully completed during the applicable calendar month for which completed deliverables are submitted and associated deliverable payment amount is being requested.
2. **Supporting Documentation:** The following required supporting documentation must be submitted with invoices when applicable as described below.
 - a. Every invoice must be accompanied by a Progress Report, with the exception of the final invoice, which must be accompanied by a Final Report. Both types of Reports must contain all of the information specified in the City/County provided Report templates, as well as any applicable details specified in the Service Plan as a Contractor’s Obligation.

- b. All applicable required deliverables associated with the requested payment amounts itemized on each monthly invoice.

City/County shall review submitted invoices and supporting documentation within a reasonable period of time and remit payment to Contractor promptly upon determining the purpose and amount of payment requested are authorized under the Agreement.

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Attachment 4 - Garden Projects (Strategy 13)

2021/2022 Funding Allocations for Garden Projects recommended for City/County approval by the North Richmond Mitigation Fee Committee

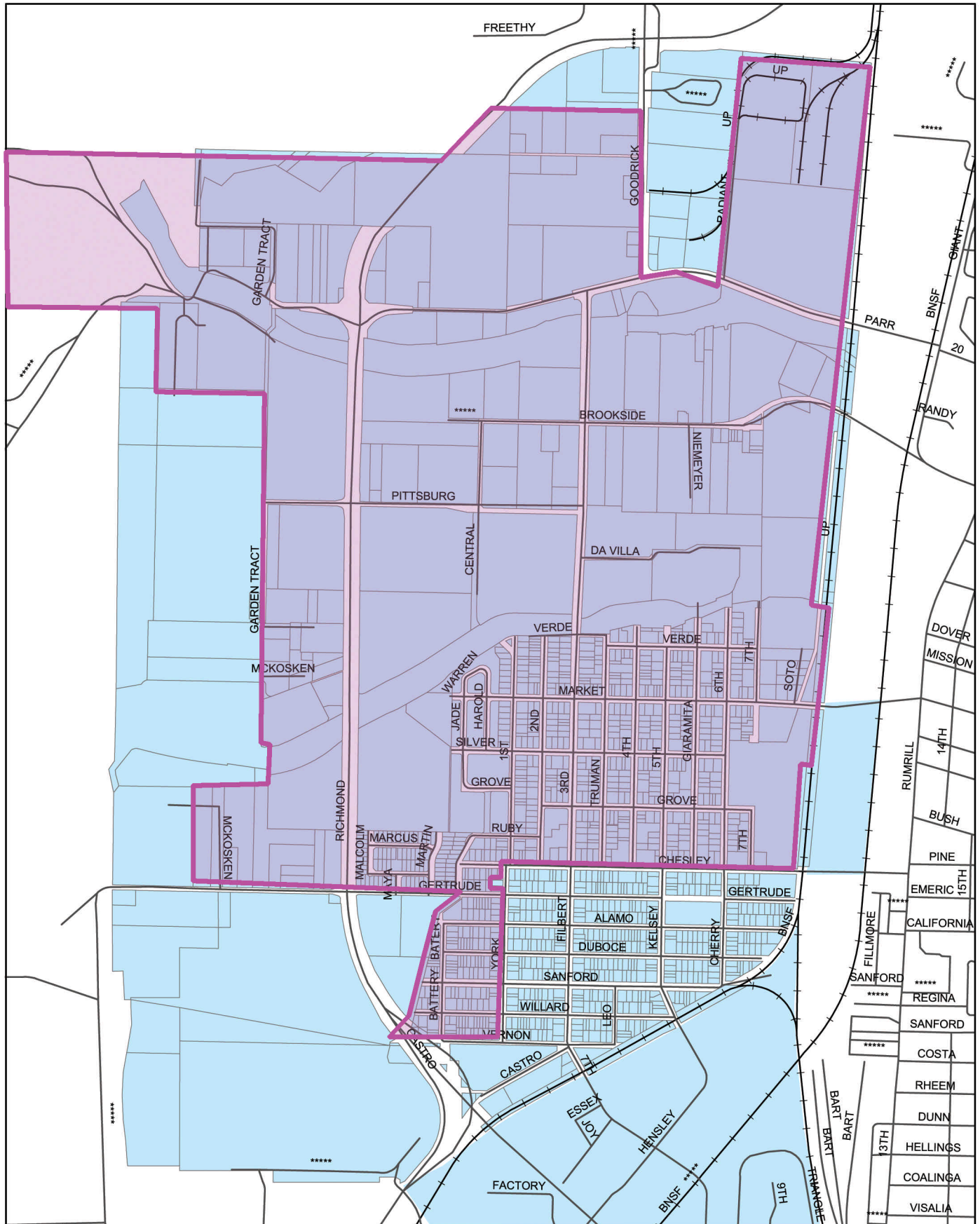
A total allocation of **\$48,179.79 is recommended to be allocated in the 2021/2022 Expenditure Plan for Garden Projects**. The following entities were previously selected by the Committee based on a Funding Request Proposal process conducted in 2018.¹

Garden Projects Recommended for Funding in 2021/2022								
Implementing Entity / Fiscal Sponsor (if applicable)	Project Title	Advance Payment Allowed (Up to 10% of Implementer Award Amount)	Requested Amount	Total Award Amount	County Contracting Costs²	CHDC Contracting Cost (20%) to Manage Non- Profits²	Non-Profit Implementer Award Amount for Project	Notes
Watershed Project	Curb Appeal	No	\$ 29,986.25	\$ 28,062.13	\$ 1,747.34	\$ 5,262.96	\$ 21,051.83	
Communities United Restoring Mother Earth (CURME) / Greater Richmond Interfaith Program	Lots of Crops	No	\$ 15,092.00	\$ 20,117.66	\$ 1,252.66	\$ 3,773.00	\$ 15,092.00	
Total Funding Requested/Allocation Recommended			\$ 45,078.25	\$ 48,179.79	3,000.00	9,035.96	\$ 36,143.83	

¹ Funding Request Proposal released on February 9, 2018 by Committee Staff and Proposals submitted by eligible non-profit organizations and Agencies on March 6, 2018.

² Costs to have 3rd party organization (CHDC) manage and oversee contracts with Organizations selected for funding is up to twenty (20) percent (%) of award amount after first taking out City/County Contracting cost of \$3,000 for City/County to contract directly with CHDC to have CHDC administer non-profit contracts.

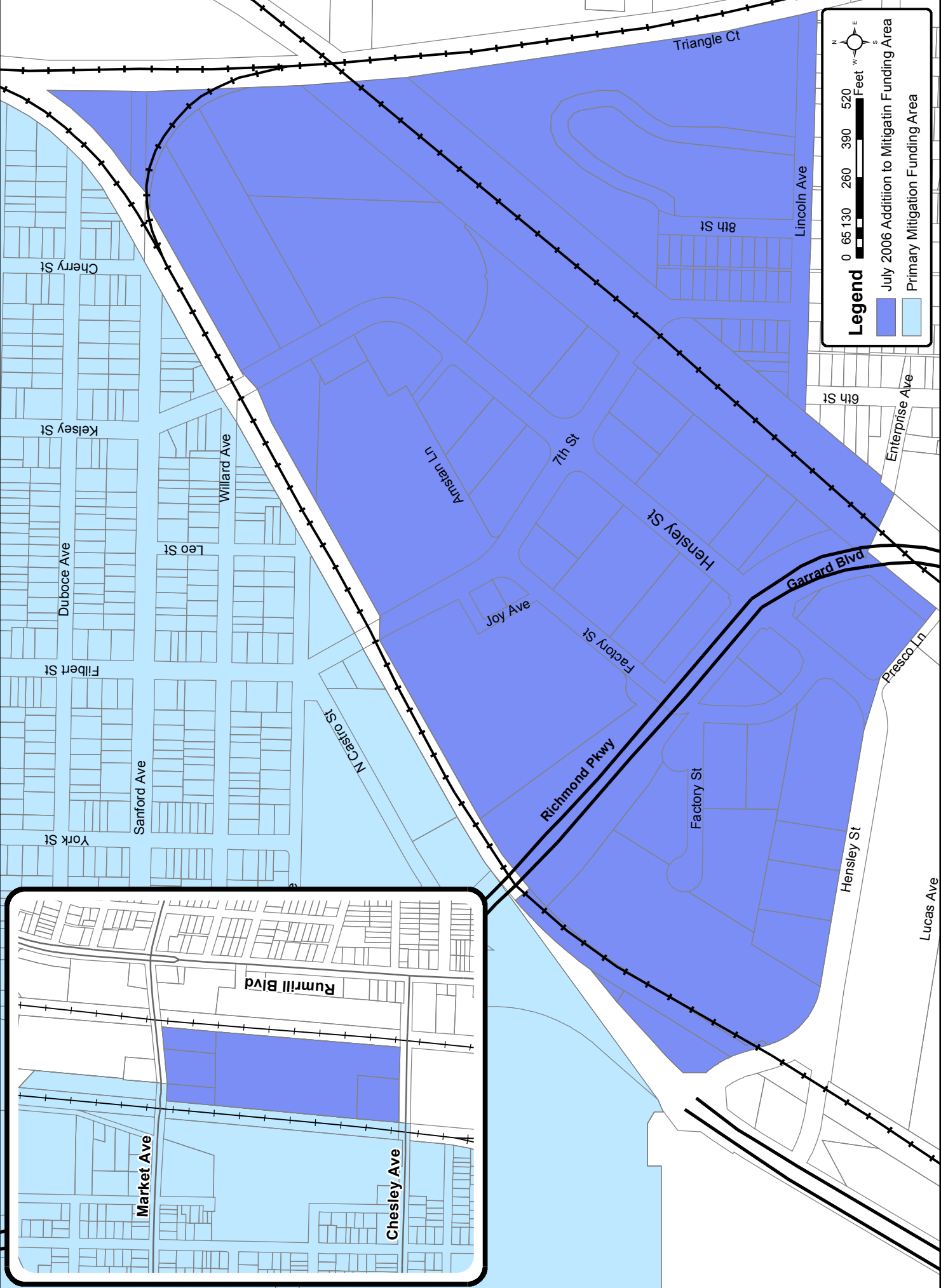
Unincorporated (County)



Southern boundary shown on back side

Map contains copyrighted information
Revised on 7/28/2006

Committee Approved Additions to Primary Mitigation Funding Area





Contra
Costa
County

To: Board of Supervisors
From: Monica Nino, County Administrator
Date: December 14, 2021

Subject: 2021 Annual Report from the Arts and Culture Commission

RECOMMENDATION(S):

Receive and accept the 2021 annual report from the Arts and Culture Commission of Contra Costa County, as recommended by the Commission staff.

FISCAL IMPACT:

There is no fiscal impact.

BACKGROUND:

On January 7, 2020, the Board of Supervisors adopted Resolution 2020/1, which requires each advisory board, commission, or committee to report annually to the Board of Supervisors on its activities, accomplishments, membership attendance, required training/certification, and proposed workplan or objectives for the following year. The annual report is due to the Board of Supervisors in December. The attached report fulfills this requirement for the Arts and Culture Commission.

CONSEQUENCE OF NEGATIVE ACTION:

The Arts and Culture Commission would not fulfill the annual report requirement.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Jenny Balisle, (925)
646-2278

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:

ATTACHMENTS

2021 Arts and Culture Commission Annual
Report



Arts and Culture Commission of Contra Costa County

SUPPORTING ALL THE ARTS

2021 Annual Report

Advisory Body Name: Arts and Culture Commission of Contra Costa County

Meeting Time: 6-8pm second Monday of the month (no August/December)

Chair: District 1 Silvia Ledezma (January - June), At-Large 2 Ben Miyaji (July - September) and District 1 Silvia Ledezma (October - December)

Staff Person: Jenny Balisle, Managing Director

Reporting Period: January 1, 2021 - December 31, 2021

Meeting Locations: Zoom

Mission:

The Arts and Culture Commission of Contra Costa County is dedicated to advancing the arts in a way that promotes communication, education, appreciation and collaboration throughout Contra Costa County so that we may grow creatively as a community that preserves and celebrates our diverse cultural expression.

Racial Equity Statement:

The Arts and Culture Commission of Contra Costa County is dedicated to advancing the arts that preserves and celebrates our diverse cultural expression. Consistent with our values of supporting community, we have a responsibility to acknowledge that we occupy traditional native people's land. With over 1.154 million residents, we are committed to addressing the historical and systematic racial inequalities within government infrastructures, arts institutions, and society. Our top priority is delivering equity and equality in our core values, initiatives, and signature programs. Reimagining structures and policy requires honest self-reflection and identifying biases. Trust is earned through communication, education, appreciation, and collaboration.

Land Acknowledgment:

The Arts and Culture Commission would like to take a moment to acknowledge the land and indigenous peoples of Contra Costa County.

We collectively acknowledge that Contra Costa County resides on the traditional, ancestral, and contemporary lands of indigenous people. Contra Costa County resides on land that was cared for and called home by the Bay Miwok and Ohlone people, who shared their oral traditions in the Utian / Penutian language.

Local tribes from our county include, but are not limited to, the Saclan, Tatcan, Chupchan, Julpun, Volvon, Souyen, and other native peoples from time immemorial.

This land holds great historical, spiritual, and personal significance to its past, present, and future stewards, the native nations and peoples of this region. We honor and continue their tradition of cultural and artistic expression in Contra Costa County through our engagement with the arts today.

I. Activities: *Describe the activities for the past year including areas of study, work, special events, collaborations, etc.*

The Arts and Culture Commission of Contra Costa County is dedicated to advancing the arts through communication, education, appreciation, and collaboration. In 2021, we transitioned programs to meet pandemic needs along with advocating for equitable funding and investment. Signature programs include Poetry Out Loud, ABOUTFACE, Arts Passages, Youth Advisor, Arts Directory, Arts Calendar, advocacy, and outreach. In addition, we had several new initiatives including three California Arts Council grants, Yerba Buena Center for the Arts' *Artist Power Convenings* grants, *Measure X funding advocacy*, *Arts and Culture Prospectus*, and *Envision Contra Costa 2040*. We continued to build an online presence on our website (www.ac5.org) along with consistent engagement on Facebook, Instagram, and YouTube. Special projects, collaborations, events, discussions, activities, and services have been hosted or posted through Zoom, Facebook, and Instagram. We seek to provide meaningful support to artists and art organizations throughout Contra Costa County.

II. Accomplishments: *Describe the accomplishments for the past year, particularly in reference to your work plan and objectives.*

Through discussions and research, the Arts and Culture Commission of Contra Costa County identified the need to strengthen existing programs and implement new initiatives to support the community. The pandemic and social injustices continue to magnify the importance of the arts. Of all Bay Area Counties, Contra Costa County ranks last in arts funding at \$.06 per person when the average is \$1.04. Arts investment represents a vital quality of life, free expression, and celebration of community.

Accomplishments:

- Thanks to the William and Flora Hewlett Foundation, we had our first collaboration and largest regranting arts program (\$40,000) with the Yerba Buena Center for the Arts. The *Artist Power Convenings* grants support underfunded artists and artist-led organizations in Contra Costa County.
 - We gathered community input, prepared presenters, attended each Measure X Community Advisory Board (MXCAB) meeting, and made a Measure X Presentation advocating for the largest additional funding for the arts since 1994. The MXCAB recommended the Arts and Culture Commission to the Board of Supervisors for funding. The Board of Supervisors approved \$250,000 annual ongoing Measure X funding allocation to the Arts and Culture Commission.
 - Identified the need for an updated *Arts and Culture Prospectus of Contra Costa County* for Cultural Stakeholders to highlight community needs through art. After a procurement process, the Commission selected Art Builds Community to facilitate the Prospectus project and started the initial phases of the project.
 - Incorporated Arts into the *Envision CC 2040* (Contra Costa County General Plan), which had previously overlooked the arts.
 - The Arts and Culture Commission of Contra Costa County was awarded three California Arts Council grants: *Jump StArts*, *Impact Projects*, and *General Operating Relief*.
 - As part of the CAC requirement, we completed our first *Racial Equity Statement*.
 - Poetry Out Loud had its first land acknowledgement and ASL interpreters for any Arts and Culture Commission program.
 - Successfully delivered virtual ABOUTFACE workshops for the first time.
 - First Art Passages exhibition at the new County Administration Building.
 - First Youth Advisor, Carolyn Considine, creates the Justice *Mural* project.
 - Collaborated with the County Administrator's Office and County Counsel's Office to update bylaws.
-



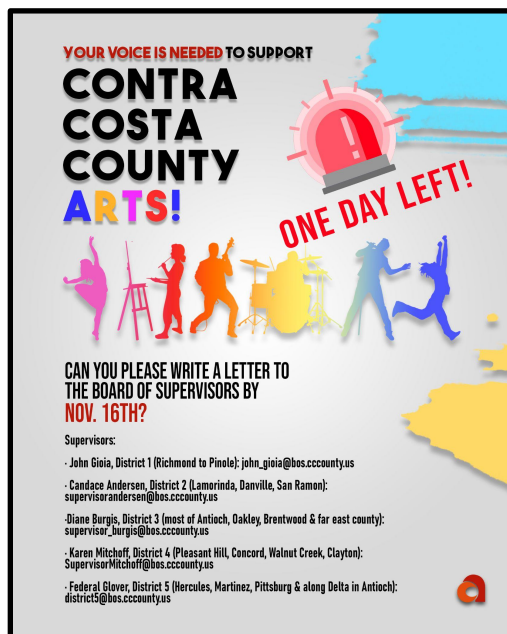
California Arts Council Grants: In 2021, the Arts and Culture Commission of Contra Costa County was awarded three grants: *Jump StArts*, *Impact Projects*, and *General Operating Relief*. As a California Arts Council designated SLP, we're grateful to receive grants that directly support communities, foster new collaborations, and build trust through art.

Jump StArts (\$2,500): With support from the California Arts Council, the Arts and Culture Commission of Contra Costa County will develop an art project in partnership with Juvenile Hall and the Office of Reentry & Justice to serve system-engaged youth.

Two community workshops and public presentation will identify a strategy, actions, and timeline. **Grant proposal ranked #2 out of all applications with a score of 5.6 (out of 6).*

Impact Projects (\$17,100): With support from the California Arts Council, the Arts and Culture Commission of Contra Costa County will establish a Utility Box Art Program. Artists partner with local organizations to create a design highlighting systemic/structural racism, education, poverty, cultural/social justice, or environmental sustainability in response to COVID-19. **Grant proposal received a score of 5 (out of 6).*

General Operating Relief (\$28,500): With support from the California Arts Council, the Arts Commission of Contra Costa County will secure staff to support signature community programs and cultural planning efforts to promote equity. Since 1994, our mission is dedicated to preserving and celebrating our diverse cultural expression through communication, education, appreciation and collaboration. **Grant proposal received a score of 4.6 (out of 6) and in 2019 score was 4 for the State-Local-Partnership grant. Consistent Contra Costa County investment will improve future grant scores.*



Measure X:

The Measure X Community Advisory Board was formed to identify unmet community needs and recommend spending priorities to the county Board of Supervisors for the allocation of Measure X funding (a new countywide half cent tax). On July 28th, the Arts and Culture Commission presented a \$625k investment ask. We gathered research, community input, prepared presenters, attended each meeting, and facilitated a Measure X Presentation advocating for the largest additional funding for the arts since 1994. The Measure X Community Advisory Board recommended the Arts and Culture Commission to the Board of Supervisors for funding.

**Please reference section V.*

Arts and Culture Prospectus of Contra Costa County:

We identified the need for an updated *Arts and Culture Prospectus of Contra Costa County* to provide a voice to Cultural Stakeholders to define needs and programs. The Commission advocated for the approval of developing an updated Arts and Culture Prospectus to the Family and Human Services Committee with a future presentation at the Board of Supervisors. Funded by a rebudget of a one-time allocation for Fiscal Year

21-22, the Arts and Culture Commission selected the firm Art Builds Community (<https://www.artbuildscommunity.com/>) to facilitate.

5/18/21 Arts and Culture Prospectus of Contra Costa County Board of Supervisors Presentation video: https://youtu.be/N2TADmDF_QU

Envision CC 2040:

The Arts and Culture Commission has worked with representatives from the County Department of Conservation and Development to incorporate the Arts into the draft *Envision CC 2040* (Contra Costa County General Plan), which had previously overlooked the arts. “The General Plan outlines the County’s goals for physical growth, conservation, and community life in the unincorporated area, and contains the policies and actions necessary to achieve those goals. County staff members use the General Plan to guide decisions about zoning, permitted development, provision of public services, and transportation improvements.”

Link: <https://envisioncontracosta2040.org/>



Yerba Buena Center for the Arts Artist Power Convenings grants:

Thanks to the William and Flora Hewlett Foundation, we had our first ever collaboration and largest regranting arts program (\$40,000) with the Yerba Buena Center for the Arts for the *Artist Power Convenings* with priority being given to American Indian and Alaska Native, Asian and Asian American, Black and African American, Disabled, Indigenous and Indigena, Latinx, LGBTQIA2S+, MENASA, and Native Hawaiian and Pacific Islander artists and artist-led organizations.

Contra Costa County's award recipients and proposals:

1. Dear America - "JiaYou," a series of discussions bringing together Asian American artists and Bay Area AAPI to discuss racism-related challenges facing the Asian community.
2. Edgar Vega - A convening to build a group of aspiring Contra Costa filmmakers who would like to share knowledge, exchange ideas, and collaborate on short films together.
3. Inner Eye Arts - A two-day collaborative art workshop in San Ramon on the theme of "Dhai Akhar: Seeded in Love," focused on African-Asian solidarity.
4. Jose Cordon - A three-part convening in Antioch featuring an open mic, discussions with local and regional artists, and featured performances with invited dancers and poets.
5. Karl Alfonso Evangelista - Unlocked Festival, a one-day music and multimedia festival centered on artists of color located in Richmond and neighboring areas.
6. Nurturing Independence Through Artistic Development (NIAD) - Supporting NIAD Voice, making the gatherings and artist conversations held during their six-day program for adult artists with disabilities available online.
7. RichCity Rides - A virtual event to bring together the muralists and photographers Rich City Rides works with, to produce ideas for future art projects and initiatives.
8. Robin "Shots" Lopez - #RichmondSpeaks: Art is Not A Monolith, an outdoor in-person event seeking to bring together tattoo artists, street muralists, and woodcarvers who represent Black, Latinx, Asian, and Indigenous identities to exchange ideas and creativity with community members.
9. Tatiana Ortiz - Facilitating artist talks, tours, and art workshops in libraries in the communities of Richmond/El Cerrito and Hercules/Rodeo.

Link: <https://ybca.org/artist-power-convenings/>

YBCA Artist Power Convenings Grant video: <https://youtu.be/5J3y7elOon8>

YBCA Artist Power Convenings Q&A video: <https://youtu.be/nChQcG-Tvgg>

Arts Directory and Arts Calendar: The Arts Directory and Arts Calendar is a free listing service for any Contra Costa County artist or arts organization.

Arts Directory:

<https://zoomaru.org/searchregistry.php?r=y&eportal=contracostaarts>

Arts Calendar:

<https://www.zoomaru5.com/index.php?id=0&display=&eportal=contracostaarts>

Social Media and Platforms: The Arts and Culture Commission of Contra Costa County is on Facebook, Instagram, and YouTube. Make sure to like and follow us to explore the incredible artistic diversity of our County including events, art opportunities, and exhibitions!

Instagram: @artsculturecoco

Facebook: @artsculturecommission

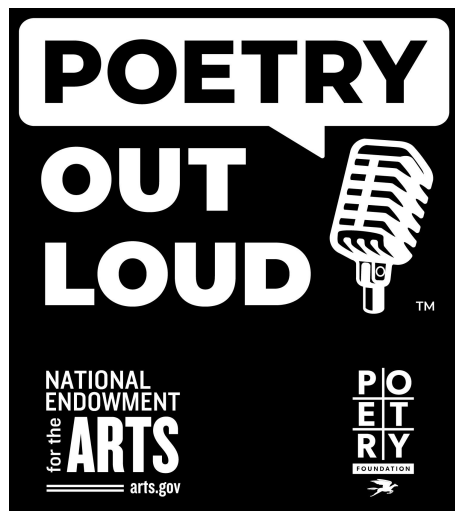
Youtube: Arts and Culture Commission of Contra Costa County

Zoom: We have a professional account with Webinar features to support programs!



Arts Passages: Arts Passages is a rotating visual art exhibit located at the Contra Costa County's Administration Building (1025 Escobar Street, Martinez). Exhibitions showcase the rich diversity of artworks, artists, arts organizations, cultural groups, and residents throughout Contra Costa County. Our first exhibition featured the ABOUTFACE Veteran artworks.

2021 ABOUTFACE exhibition installation video: <https://youtu.be/QYgEkvp258E>
2021 ABOUTFACE exhibition video: <https://youtu.be/137nSzOmzxy>



Poetry Out Loud: Poetry Out Loud is virtual for the 2021-22 school year. Poetry Out Loud (POL) is an exciting National competition started in 2005 by the National Endowment for the Arts and the Poetry Foundation. The contest challenges high school students to memorize and recite poetry, a chance to showcase their talents, build self-confidence, and gain both an appreciation and understanding of poetry. Poetry Out Loud is a free program! There is no cost to either the school or the students.

The [Arts and Culture Commission of Contra Costa County](#) has been an [California Arts Council](#)'s official local partner for Poetry Out Loud since 2007. Every Contra Costa County high school is encouraged to

participate, and for the first time this year non-profit organizations and libraries may participate as well. Each year ten to fifteen high schools representing East, West, and Central County have participated. These include public schools, private schools, charter schools, alternative schools, court schools, and homeschool groups.



In 2021, we managed the first *Poetry Out Loud Virtual Awards and Screening* event with the Commission's first use of an ASL interpreter and Land Acknowledgment. Brennan DeFrisco is the POL Head Student Coach and Co-Coordinator. Donte Clark is the POL Student Coach and Co-Coordinator.

Link:

<https://www.contracosta.ca.gov/5416/Poetry-Out-Loud>

2021 Poetry Out Loud Virtual Screening and Awards Ceremony:

<https://youtu.be/VBnrlluu-NU>

Board of Supervisors Poetry Out Loud Video: <https://youtu.be/KSXAjMSQ3vE>

POL Facebook: poetryoutloudccc

POL Instagram: poetryoutloudccc



ABOUTFACE: The program went virtual for the first time! The Commission was awarded a Veterans in the Arts grant with County matching funds allowing for multiple-day workshops in spring 2021. In 2015, the [California Arts Council](#), the Arts and Culture Commission, and the Physical Rehabilitation Service at Veterans Affairs Health Care developed ABOUTFACE for the purpose of addressing the needs of veterans and improving their lives through art programming. It is based on the belief that individuals have the capacity to heal themselves.

The Arts and Culture Commission works with Veterans in Contra Costa County to offer a series of **FREE** self-portrait painting classes with supplies as a way of saying "Thank you for your service." The three-day

workshops are team-taught by Teaching Artist and Coordinator Victoria Bianco and Veteran Assistant Coordinator Jeffrey Geronimo (DC1(SW/AW) Geronimo, US Navy veteran). Workshop activities include peer discussion, sketching, and painting a final self-portrait.

Link: <https://www.contracosta.ca.gov/5824/ABOUTFACE>

ABOUTFACE Veterans' Voices of Contra Costa video:

<https://www.youtube.com/watch?v=aiY5CYrJgSI>

ABOUTFACE Facebook: ABOUTFACECCC

ABOUTFACE Instagram: aboutfaceccc

III. Attendance/Representation: *Describe your membership in terms of seat vacancies, diversity, level of participation, and frequency of achieving a quorum at meetings.*

Commissioners represent diverse districts and communities throughout Contra Costa County. Currently, there're 3 vacancies: District 3, District 4, and At-Large 2. All vacancies have been marketed on the Arts and Culture Commission's website, Constant Contact email, and social media. Due to not meeting quorum requirements, there were no meetings in March, October, and November. In August and December, there are no regularly scheduled meetings.

Agendas and Minutes:

<https://www.contracosta.ca.gov/AgendaCenter>

Boards and Commissions:

<https://www.contracosta.ca.gov/6408/Boards-and-Commissions-Database>

IV. Training/Certification: *Describe any training that was provided or conducted, and any certifications received, either as a requirement or done on an elective basis by members.*

Commissioners are provided the [Contra Costa County Advisory Body Handbook](#) and [Contra Costa Television Brown Act Training](#). In addition, the Managing Director shares access to the Arts and Culture Commission Google Drive with documents. When Commissioners request technical assistance, the Managing Director is available to assist and answer questions.

New Commissioners receive an orientation which includes viewing the *Brown Act and Better Government Ordinance, What You Need to Know* and *Ethics Orientation for County Officials* presentations. Commissioners update Brown Act training per the Advisory Body Handbook (recommends training be reviewed at two-year intervals). Clerk of the Board contacts were shared with Commissioners for additional assistance and resource information.

V. Proposed Work Plan / Objectives for Next Year: *Describe the advisory body's workplan, including specific objectives to be achieved in the upcoming year.*

Workplan and Objectives:

1. **Signature Programs:**

ABOUTFACE: Facilitate two workshops either hybrid or virtual (depending on the status of the ongoing pandemic).

Poetry Out Loud: Manage County program and host *Virtual Awards & Screening* event.

Youth Advisor: Commission selects and supports a second Youth Advisor.

Art Passages: Curate and install 3 exhibitions at the County Administration Building.

2. California Arts Council grant programs:

Jump StArts: Write workshop summary, submit required paperwork, and build community outreach.

Impact Projects: County Administrator's Office confirms project concept, Managing Director oversees facilitation with County departments, contact participating organizations/artists, social media marketing, and submit required paperwork.

General Operating Relief: Funds are used to supplement staff funding to support new and signature programs. The Managing Director submits required paperwork.

3. Arts and Culture Prospectus: The County Administrator's Office, Managing Director, Chair, subcommittee, and Commissioners support the firm *Art Builds Community* in project participation, advocacy, and completion.

4. Board of Supervisors Measure X New Programs:

The Board of Supervisors approved \$250k Measure X funds to be used for the following:

New Programs 150k:

1. District Public Art Program: Contra Costa County's first public art program. (\$20k each District).

2. AIRS (Artist-in-Residency in the School): Pilot program where teaching artists in CCC schools work with students to create art projects.

3. Arts Connection: Connect artists and art organizations for quarterly meetings for advocacy, opportunities, and data collection.

4. Youth Advisor in Each District: Expands equity and opportunity to youth in each District.

Staffing \$100k: The funds will supplement existing funding to be used for two employees: Managing Director (full-time) and Communication & Marketing staff (part-time). **The initial allocation of funds will be available from 4/1/22-6/30/23. The Managing Director will complete required paperwork, reports, and budgets prior to initial funding. Commissioners will confirm the funding timeline.*

We look forward to strengthening our partnership to serve the community through the arts. Commissioners represent diverse districts, neighborhoods, and communities. They are liaisons to arts, artists, cultural groups, and organizations. The Arts and Culture Commission of Contra Costa County is grateful for the Board of Supervisors' support!

THANK YOU!

For information, records, comments, and questions:

Jenny Balisle, Managing Director, Arts and Culture Commission of Contra Costa County

Email: staff@ac5.cccounty.us

Phone: (925) 646-2278

Mailing Address:

Arts and Culture Commission of Contra Costa County

1025 Escobar Street, 4th Floor

Martinez, CA 94553



Contra Costa County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Approve New and Recredentialing Providers in Contra Costa Health Plan's Community Provider Network

RECOMMENDATION(S):

APPROVE the list of providers recommended by the Medical Director and the Health Services Director on November 17, 2021, and as required by the State Departments of Health Care Services and Managed Health Care, and the Centers for Medicare and Medicaid Services.

FISCAL IMPACT:

There is no fiscal impact for this action.

BACKGROUND:

The National Committee on Quality Assurance (NCQA) requires that evidence of Board of Supervisors approval must be contained within each Contra Costa Health Plan (CCHP) provider's credentials file. Approval of this list of providers as recommended by the CCHP Medical Director will enable the Contra Costa Health Plan to comply with this requirement.

CONSEQUENCE OF NEGATIVE ACTION:

If this action is not approved, Contra Costa Health Plan's Providers would not be appropriately credentialed and not be in compliance with the NCQA.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Monica Nino, County Administrator and Clerk of the Board of Supervisors

Contact: Sharon Mackey,
925-313-6004

By: , Deputy

cc: Terri Bostick, Marcy Wilhelm

ATTACHMENTS

List

Contra Costa Health Plan
Providers Approved by the Medical Director
November 17, 2021

CREDENTIALING ORGANIZATIONAL PROVIDERS NOVEMBER 2021		
Provider Name	Provide the Following Services	Location
DaVita dba Vacavalley Home Training	Dialysis	Vacaville
Fresenius Kidney Care	Dialysis	Union City

REREDENTIALING PROVIDERS NOVEMBER 2021	
Name	Specialty
Barakeh, Joseph, DO	Ophthalmology
Bhat, Jyoti, MD	Endocrinology
Bravo-Rodriguez, Cynthia, BCBA	Qualified Autism Provider
Christian, Darrell, PhD	Psychology
Cropper, Charlotte E, BCBA, MS	Qualified Autism Provider
Dao, Bao, MD	Hematology/ Oncology
Deboisblanc, Michael, MD	General Surgery
Di Dio, Alyssa	Qualified Autism Provider

Contra Costa Health Plan

Providers Approved by the Medical Director November 17, 2021

RECREDENTIALING PROVIDERS NOVEMBER 2021	
Name	Specialty
Fenner, Gayle, PA	Mid Level- Orthopaedic Surgery Assistant
Fieser Jr, Carl	Pain Medicine
Gilbert, Katherine	Allergy & Immunology
Ginsburg, Julie	Acupuncture
Gong, Henry, MD	Cardiovascular Disease
Hightower, Samantha, BCBA	Qualified Autism Provider
Kanj, Iman, LCSW	Clinical Social Work
Karan, John, MD	Nuerology
Le, Vuong, BCBA	Qualified Autism Provider
Lee, Andrew, L.A.C.	Acupuncture
Lenoir, Denise, NP	Mid-Level Pediatrics
Liao, Richard	Acupuncture
Matin, Bitá, DDS	Dental

Contra Costa Health Plan

Providers Approved by the Medical Director
NOVEMBER 17, 2021

RECREDENTIALING PROVIDERS NOVEMBER 2021	
Name	Specialty
Maoz, Iris, DPT	Physical Therapy
Mbadike-Obiora, Maureen, MD	Family Medicine
Mendes, Jacelyn, BCBA	Qualified Autism Provider
Moy, Jason, MD	Surgery/Wound Care
Murray, Dwight, PhD	Neuro Psych Testing
Polido, Phillip	Surgery - General
Ruzicano, Raymond, MD	Psychiatry
Schaefer, Robert, DC	Chiropractic Medicine
Schrager, Ruth, RD	Dietician
Senior, Janine, MD	OB/GYN
Shah, Samir, MD	Ophthalmology
Vemulapalli, Madhavi, MD	Obstetrics and Gynecology

Contra Costa Health Plan

Providers Approved by the Medical Director November 17, 2021

RECREDENTIALING PROVIDERS NOVEMBER 2021	
Name	Specialty
Wallace, Shannon, BCBA	Qualified Autism Provider
Wineman, Caitlin, BCBA	Qualified Autism Provider

RECREDENTIALING ORGANIZATIONAL PROVIDERS NOVEMBER 2021		
Provider Name	Provide the Following Services	Location
Alzheimers's Services of the East Bay	Adult Day Center	Berkeley
RAI Bancroft Ave. Oakland	Dialysis	Oakland
RAI Telegraph Piedmont	Dialysis	Oakland
Kyakameena Care Center	Skilled Nursing	Berkeley



**Contra
Costa
County**

To: Board of Supervisors
From: Kathy Gallagher, Employment & Human Services Director
Date: December 14, 2021

Subject: Clarification of Board Action of January 21, 2020 (Item 37)

RECOMMENDATION(S):

APPROVE clarification of Board Action of January 21, 2020 (Item 37) which Employment and Human Services Department on behalf of the Workforce Development Board executed a contract with California Employment Development Department, Employment Training Panel (ETP) to support programs for careers in the health care professions to change the payment limit of \$200,240 to \$220,230 with no change in the term October 1, 2019 through September 30, 2021.

FISCAL IMPACT:

Clarification to change the payment limit of \$200,240 to \$220,230, received from the California Employment Development Department, Employment Training Panel. (100% State, No County Match)

BACKGROUND:

The ETP provides funding to employers to assist in upgrading the skills of workers that lead to good paying, long term jobs. The ETA was created in 1982 by the State of California Legislature and funded by California employers through a special payroll tax. ETP funds recipients, such as the County Workforce Development Board, determine their training needs and how to provide that training.

CONSEQUENCE OF NEGATIVE ACTION:

Additional funds will not be allocated to support programs for careers in the health care professions.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Elaine Burres
608-49960

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:



Contra Costa County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Approve New and Recredentialing Providers in Contra Costa Health Plan's Community Provider Network

RECOMMENDATION(S):

Approve the list of providers recommended by Contra Costa Health Plan's Medical Director, and the Health Services Director on June 15, 2021, as required by the State Department of Health Care Services and Managed Health Care, and the Centers for Medicare and Medicaid Services.

FISCAL IMPACT:

There is no fiscal impact for this action.

BACKGROUND:

The National Committee on Quality Assurance (NCQA) requires that evidence of Board Approval must be contained within each Contra Costa Health Plan (CCHP) provider's credentials file. Approval of this list of providers as recommended by the CCHP Medical Director will enable the Contra Costa Health Plan to comply with this requirement.

CONSEQUENCE OF NEGATIVE ACTION:

If this action is not approved, Contra Costa Health Plan's Providers would not be appropriately credentialed and not be in compliance with the NCQA.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Monica Nino, County Administrator and Clerk of the Board of Supervisors

Contact: Sharon Mackey,
925-313-6004

By: , Deputy

cc: Terri Bostick, Marcy Wilhelm

ATTACHMENTS

List

Contra Costa Health Plan
Providers Approved by the Medical Director
June 15, 2021

CREDENTIALING PROVIDERS JUNE 2021	
Name	Specialty
Aleman, Jeanette, MS	Qualified Autism Provider
Alix, Catherine, MFT	Mental Health Services
Alizaga, Christina, BTL1	Qualified Autism Paraprofessional
Alvarez, Saydie, RBT	Qualified Autism Paraprofessional
Borlongan, Mia, BTL-1, BA	Qualified Autism Professional
Bormand, Mahdis, MFT	Mental Health Services
Bradley, Donn, AMFT	Mental Health Services
Briones, Julisa, RBT	Qualified Autism Paraprofessional
Butler, Waynisha, BA	Qualified Autism Professional
Buynevich, Vitaliya, RBT, BA	Qualified Autism Professional
Camales, Wendell, BTL-1, MA	Qualified Autism Provider
Coaxum, Crystal, M.Ed	Qualified Autism Provider
Crystal-Ornelas, Lara, MD	Family Planning
Derentz, Ann, BCBA	Qualified Autism Provider
Dobbs, Elena, PsyD, PhD	Mental Health Services
Doria, Mira, BS	Qualified Autism Professional
CREDENTIALING PROVIDERS JUNE 2021	

Contra Costa Health Plan
Providers Approved by the Medical Director
JUNE 15, 2021

Name	Specialty
Fitman, Rebecca MS	Qualified Autism Provider
Guerguis, Jennifer, MFT	Mental Health Services
Hollis, Kimmil, MFT	Mental Health Services
Ilili, Anastacia, BA	Qualified Autism Professional
Javier, Jadsu, RBT	Qualified Autism Paraprofessional
Kazemi, Mustafa, MD	Pulmonary Disease
Kowalewicz, Eva, PhD	Mental Health Services
Kumar, Deepak, MD	Psychiatry
Liu, Jessica, MD	Internal Medicine
Mefford, Shelby, MS	Qualified Autism Provider
Murcia, Connie, LCSW	Mental Health Services
Nunn, Derek, LPCC	Mental Health Services
Ortega, Lizet, BA	Qualified Autism Professional
Pamplin, Brittany, DPT	Physical Therapy

Contra Costa Health Plan
Providers Approved by the Medical Director
JUNE 15, 2021

CREDENTIALING PROVIDERS JUNE 2021	
Name	Specialty
Parra, Raul, RBT, BA	Qualified Autism Professional
Partida, Maricela, LCSW	Mental Health Services
Perez, Eduardo, BA	Qualified Autism Professional
Peterson, Michael, MD	General Surgery Vascular
Powell, Ferris NP	Mid- Level Nephrology
Radell, Paige MD	Dermatology
Reda, Emma, BA	Qualified Autism Professional
Reeder, Jenna, NP	Mid- Level Psychiatry
Reyes, MarieYsbelle, RBT	Qualified Autism Professional
Roberts, Kaitlin, RBT, BA	Qualified Autism Professional
Saeteurn, Stephanie, MA, RBT	Qualified Autism Provider
Schwartz, Emmaline, BTL-1	Qualified Autism Paraprofessional
Serrano, Aurora, BA	Qualified Autism Professional
Singh, Sunpreet, MD	Psychiatry

Contra Costa Health Plan
Providers Approved by the Medical Director
JUNE 15, 2021

CREDENTIALING PROVIDERS JUNE 2021	
Name	Specialty
Sparks, Julissa, LPCC	Mental Health Services
Tesfai, Adhanet, BCBA, M.Ed	Qualified Autism Provider
Tiet, Phuong, BS	Qualified Autism Professional
Vo, Sophia, M.Ed, BCBA	Qualified Autism Provider
Vo-Vu, Jeanette, LCSW	Mental Health Services

CREDENTIALING ORGANIZATIONAL PROVIDERS JUNE 2021		
Provider Name	Provide the Following Services	Location
"Windsor Hayward Estates, LLC dba Windsor Post Acute Care Center of Hayward	Skilled Nursing Facility	Hayward
Windsor Elmhaven Care Center, LLC	Skilled Nursing Facility	Stockton

Contra Costa Health Plan
Providers Approved by the Medical Director
JUNE 15, 2021

RECREREDENTIALING PROVIDERS JUNE 2021	
Name	Specialty
Aboul-Fetouh, Yasser, BCBA	Qualified Autism Provider
Aslan, Alex, MD	Gastroenterology
Barker, Dennis, DC	Chiropractic Medicine
Barsten Pascualy, Julie, PA	Mid-Level Obstetrics and Gynecology
Boutelle, William, MD	Mental Health Services
Bray, Jamie BCBA	Qualified Autism Provider
Cartwright, Wade, MD	Otolaryngology
Chennupati, Sravana MD	Radiation Oncology
Chew, Alison, BCBA	Qualified Autism Provider
Chin, Jonathan, MD	Urology
Choudhry, Aditi, MD	Hematology/ Oncology
Danko, Angela NP	Mid- Level Pain Medicine

Contra Costa Health Plan
Providers Approved by the Medical Director
JUNE 15, 2021

RECREDENTIALING PROVIDERS JUNE 2021	
Name	Specialty
Dawn, Erika BCBA	Qualified Autism Provider
Ditter, Susan MD	Psychiatry
Dopchiz de Martin, Diana, MFT	Mental Health Services
Goodrich, Jamie, BCBA, MS	Qualified Autism Provider
Green, Harry OD	Optometry
Hart, Britton, NP	Mid-Level Nephrology
Helms, Ileana MD	Nephrology
Higa, Lisa MD	Gastroenterology
Hwang, Ivan, MD	Ophthalmology
Joseph, Michal, Au.D	Audiology
Jung, Jesse MD	Ophthalmology
Keim, Valerie, MFT	Mental Health Services

Contra Costa Health Plan
Providers Approved by the Medical Director
JUNE 15, 2021

RECREREDENTIALING PROVIDERS JUNE 2021	
Name	Specialty
Kwok - Olesky, Chrstina DPM	Podiatry
Lee, Meng OD	Optometry
Levinson, David MD	Urgent Care
Lieb, Jeremy MD	Urology
Long, Richard MD	Urology
Marzioli, Joanne, MFT	Mental Health Services
McCrary, Karen, BCBA	Qualified Autism Provider
Munivez, Anna, BCBA	Qualified Autism Provider
Raffetto, Katherine, NP	Mid- Level Family Planning
Schick, Robert DC	Chiropractic Medicine
Sethi, Parminder MD	Urology
Sutton, Michael, OD	Optometry
Turrini, Corinne BCBA	Qualified Autism Provider
Van Buskirk, Rod DC	Chiropractic Medicine
Victor, Jessica BCBA	Qualified Autism Provider
Wang-Chen, Connie, OD	Optometry
Yang, Xiao MD	Internal Medicine
Youn, Edward DPM	Podiatry

Contra Costa Health Plan
 Providers Approved by the Medical Director
 JUNE 15, 2021

RECREREDENTIALING ORGANIZATIONAL PROVIDERS JUNE 2021		
Provider Name	Provide the Following Services	Location
East Bay Endoscopy Center, LP	Ambulatory Surgery Center	Emeryville
Blize Healthcare California, Inc	Hospice	Hercules
Hope Hospice Inc.	Hospice	Dublin
DaVita – Llano Dialysis, LLC dba: Vallejo Dialysis	Dialysis	Vallejo
DaVita – Llano Dialysis, LLC dba: El Cerrito Dialysis	Dialysis	El Cerrito
DaVita - Total Renal Care, Inc. dba: Walnut Creek West Dialysis	Dialysis	Walnut Creek

Bopl-JUNE 15, 2021



Contra
Costa
County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Pets Assistance and Support Program

RECOMMENDATION(S):

ADOPT Resolution No. 2021/408 authorizing the Health Services Director, or designee, to execute amendments or modifications to Standard Agreement #28-913 (CA 19-pas-14071), as well as any documents required by the State in regard to the Pet Assistance and Support (PAS) Program.

FISCAL IMPACT:

There is no matching contribution requirement for activities funded with PAS Program funds, which approximately \$200,000.

BACKGROUND:

The California Department of Housing and Community Development (HCD) announced the availability of approximately \$5 million in PAS Program funding through a Notice of Funding Availability (NOFA). PAS Program funding provides grants to qualified homeless shelters to provide shelter, food, and basic veterinary services for common household pets owned by individuals experiencing homelessness, as well as staffing and liability insurance related to providing those services. The PAS program was authorized by the Budget Act of 2019, as amended by Section 16 of Senate Bill 109.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Lavonna Martin,
925-608-6701

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: L Walker, M Wilhelm

BACKGROUND: (CONT'D)

On March 31, 2020, the Board of Supervisors approved Standard Agreement #28-913 and adopted Resolution 2020/105 for the Department of Housing and Community Development to provide the County with PAS Program grants through June 30, 2022.

Adopting Resolution No. 2021/408 will allow the Health Services Director, or designee, to execute any subsequent amendments or modifications to Standard Agreement #28-913 (CA 19-pas-14071), as well as any documents required by the State in regard to the PAS Program.

CONSEQUENCE OF NEGATIVE ACTION:

The Health Services Director, or designee, will not be able to execute amendments or modifications to the agreement or any necessary documents required by the State of California to provide pet assistance and support to persons who are homeless in the County's homeless shelter.

ATTACHMENTS

Resolution 2021/408

THE BOARD OF SUPERVISORS OF CONTRA COSTA COUNTY, CALIFORNIA
and for Special Districts, Agencies and Authorities Governed by the Board

Adopted this Resolution on 12/14/2021 by the following vote:

AYE: ☐
NO: ☐
ABSENT: ☐
ABSTAIN: ☐
RECUSE: ☐



Resolution No. 2021/408

In The Matter Of: Funds for the Pets Assistance and Support (PAS) program.

WHEREAS the State of California (the "State"), California Department of Housing and Community Development ("Department") issued a Notice of Funding Availability ("NOFA") dated 12/31/2019 under the Pets Assistance and Support (PAS) program (program, or PAS program); and WHEREAS Applicant will receive a PAS program grant to fund shelter, food, and veterinarian services, staffing and liability insurance related to providing those services. WHEREAS the Department may approve funding allocations for the PAS program, subject to the terms and conditions of the NOFA, PAS program requirements, and the Standard Agreement and other contracts between the Department and PAS program grant recipients;

Now, Therefore, Be It Resolved:

1. If Applicant receives a grant of PAS program funds from the Department pursuant to the above referenced PAS program NOFA, it represents and certifies that it will use all such funds in a manner consistent and in compliance with all applicable state and federal statutes, rules, regulations, and laws, including without limitation all rules and laws regarding the PAS program, as well as any and all contracts Applicant may have with the Department. 2. Applicant is hereby authorized and directed to receive a PAS program grant, in an amount not to exceed \$200,000 in accordance with all applicable rules and laws. 3. Applicant hereby agrees to use the PAS program funds for eligible activities as approved by the Department and in accordance with all program requirements, and other rules and laws, as well as in a manner consistent and in compliance with the Standard Agreement and other contracts between the Applicant and the Department. 4. Health, Housing & Homeless Services Director, and/or designee, is authorized to execute the Standard Agreement and any subsequent amendments or modifications thereto, as well as any other documents which are related to the PAS program or the PAS program grant awarded to Applicant, as the Department may deem appropriate.

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Monica Nino, County Administrator and Clerk of the Board of Supervisors

Contact: Lavonna Martin, 925-608-6701

By: , Deputy

cc: L Walker, M Wilhelm



Contra Costa County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Memorandum of Agreement Amendment #28-944-3 with City of Antioch

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee to execute Memorandum of Agreement (MOA) Amendment #28-944-3 containing mutual indemnification language with the City of Antioch, to allow the Health Services Department to continue to use of the City's Nick Rodriguez Community Center for COVID-19 testing and immunizations and extend the termination date from December 31, 2021 to June 30, 2022.

FISCAL IMPACT:

This is a nonfinancial agreement, and there is no cost to the County associated with the signing of this MOA.

BACKGROUND:

On January 5, 2021, the County and City of Antioch entered into a MOA for mutual aid assistance in response to the COVID-19 Pandemic authorizing COVID-19 related services to occur at the Nick Rodriguez Community Center, and the term of the MOA was extended through July 31, 2021.

On July 1, 2021, the Health Services Department and the City of Antioch reached an agreement to extend the term of the MOA through August 31, 2021.

On August 31, 2021, the Health Services Department and the City of Antioch

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Monica Nino, County Administrator and Clerk of the Board of Supervisors

Contact: Anna Roth,
925-957-957-2670

By: , Deputy

cc: Marcy Wilhelm

BACKGROUND: (CONT'D)

reached an agreement to extend the term of the MOA through December 31, 2021.

However, it has now been determined that the need to extend the term of the MOA through June 30, 2022 is necessary, as well as changing the portion of the location's premises be made available for operation of COVID-19 related services.

The County's Health Officer has determined that accessible, timely testing and immunizations are critical to reduce transmission of the COVID-19 virus and to protect the community.

CONSEQUENCE OF NEGATIVE ACTION:

The Department will not have access to this no-cost, additional COVID-19 testing and vaccination site to accommodate County residents' COVID-19 needs.



Contra
Costa
County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Memorandum of Agreement Amendment #28-949-3 with City of Antioch

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute Memorandum of Agreement (MOA) Amendment #28-949-3 containing mutual indemnification language with the City of Antioch, to allow the Health Services Department to continue to use of the City's Antioch Community Center for COVID-19 testing and immunizations and to extend the termination date from December 31, 2021 to June 30, 2022.

FISCAL IMPACT:

This is a nonfinancial agreement, and there is no cost to the County associated with the signing of this MOA.

BACKGROUND:

On January 5, 2021, the County and City of Antioch entered into a MOA for mutual aid assistance in response to the COVID-19 pandemic authorizing COVID-19 related services to occur at the Antioch Community Center, and the term of the MOA was extended through July 31, 2021.

On July 1, 2021, the Health Services Department and the City of Antioch reached an agreement to extend the term of the MOA through August 31, 2021.

On August 31, 2021, the Health Services Department and the City of Antioch

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Anna Roth,
925-957-2670

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Marcy Wilhelm

BACKGROUND: (CONT'D)

reached an agreement to extend the term of the MOA through December 31, 2021.

However, it has now been determined that the need to extend the term of the MOA through June 30, 2022 is necessary, as well as changing the portion of the location's premises be made available for operation of COVID-19 related services.

The County's Health Officer has determined that accessible, timely testing and immunizations are critical to reduce transmission of the COVID-19 virus and to protect the community.

CONSEQUENCE OF NEGATIVE ACTION:

The Department will not have access to this no-cost, additional COVID-19 testing and vaccination site to accommodate County residents' COVID-19 needs.



Contra
Costa
County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Memorandum of Agreement Amendment #28-975-1 with City of Brentwood

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee to execute Memorandum of Agreement (MOA) #28-975-1 containing mutual indemnification language with the City of Brentwood, to allow the Health Services Department and the California Department of Public Health contractors to continue to use the City's Brentwood Technology and Education Center for COVID-19 testing and immunizations and to extend the termination date from December 31, 2021 to April 30, 2022.

FISCAL IMPACT:

This is a nonfinancial agreement, and there is no cost to the County associated with the signing of this MOA.

BACKGROUND:

On July 29, 2021, the parties entered into the MOA between Contra Costa County and City of Brentwood for mutual aid assistance in response to the COVID-19 pandemic, authorizing COVID-19-related services to occur at the Brentwood Education & Technology Center, for the period from July 29, 2021 through December 31, 2021.

The parties now wish to extend the term of the MOU through April 30, 2022.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Anna Roth,
925-957-2670

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Marcy Wilhelm

BACKGROUND: (CONT'D)

The County's Health Officer has determined that accessible, timely testing and immunizations are critical to reduce transmission of the COVID-19 virus and to protect the community.

CONSEQUENCE OF NEGATIVE ACTION:

The Health Services Department will not be able to provide additional COVID-19 testing and immunization services at this facility for East County residents.



Contra Costa County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Memorandum of Agreement Amendment #28-974-1 with Contra Costa Community College District

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director or designee to execute Memorandum of Agreement (MOA) Amendment #28-974-1 containing mutual indemnification language with the Contra Costa Community College District, to allow the Health Services Department to continue to use of the District's Diablo Valley College Overflow Lot for COVID-19 testing and immunizations and to extend the termination date from December 31, 2021 to June 30, 2022.

FISCAL IMPACT:

This is a nonfinancial agreement, and there is no cost to the County associated with the signing of this MOA.

BACKGROUND:

On July 31, 2021, the Contra Costa Community College District entered into a MOA for mutual aid assistance in response to the COVID-19 pandemic authorizing COVID-19 related services, and the term of the MOA was extended through December 31, 2021.

However, it has now been determined that the need to extend the term of the MOA through June 30, 2022 is necessary, as well as changing the portion of the location's premises be made available for operation of COVID-19 related services.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Anna Roth,
925-957-2670

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Marcy Wilhelm

CONSEQUENCE OF NEGATIVE ACTION:

The Department will not have access to this no-cost, additional COVID-19 testing and vaccination site to accommodate County residents' COVID-19 needs.



Contra
Costa
County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Memorandum of Agreement Amendment #28-940-4 with City of San Pablo

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Service Director, or designee to execute Amendment Memorandum of Agreement #28-940-4 with City of San Pablo, to allow the County to continue to use of the City's Davis Park Multi-Purpose Room for COVID-19 vaccination and testing services and to extend the termination date from December 31, 2021 to March 31, 2022

FISCAL IMPACT:

This is a nonfinancial agreement and there is no cost to the County associated with signing this MOA.

BACKGROUND:

On November 10, 2020, the Board of Supervisors approved Memorandum of Agreement #28-940 with the City of San Pablo to allow the County to provide COVID-19 testing services at its Davis Park Multi-Purpose Room located at 1667 Folsom Avenue, San Pablo, California, for the period from November 10, 2020 through June 30, 2021. This MOA includes mutual indemnification.

On November 17, 2020, Amendment Agreement #28-940-1 modified the MOU to change the language regarding hours of operations with no change in the term.

In March 2021, Amendment Agreement #28-940-2 modified the MOU to extend the

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Anna Roth,
925-957-2670

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Marcy Wilhelm

BACKGROUND: (CONT'D)

term of the Agreement from June 30, 2021 to September 30, 2021.

On October 5, 2021, Amendment Agreement #28-940-3 modified the modified the MOU to extend the term from September 30, 2021 to December 31, 2021.

However, it has now been determined that the need to extend the term of the MOA through March 31, 2022 is necessary to continue operation of COVID-19 related services.

The County's Health Officer has determined that accessible, timely testing and immunizations are critical to reduce transmission of the COVID-19 virus and to protect the community.

CONSEQUENCE OF NEGATIVE ACTION:

The Health Services Department will not be able to provide additional COVID-19 testing and immunization services at this facility for West County residents.



**Contra
Costa
County**

To: Board of Supervisors

From: Anna Roth, Health Services Director

Date: December 14, 2021

Subject: Apply for and Accept Homekey Program funding from the California Department of Housing and Community Development

RECOMMENDATION(S):

ADOPT Resolution No. 2021/409 authorizing the Health Services Director, or designee, to apply to the California Department of Housing and Community Development (HCD) for up to \$32,400,000 in Homekey Program grant funding.

AUTHORIZE the Health Services Director, or designee, to execute HCD's standard agreement (STD 213) and all other documents required or necessary to secure Homekey program funds, including any extensions or amendments thereto, subject to approval by the County Administrator and approval as to form by County Counsel.

APPROVE and AUTHORIZE the Public Works Director, or the designee, to execute an exclusive negotiating rights agreement with Clarence Perry, LLC, authorizing continued negotiations of a lease or lease-purchase agreement for the County's acquisition of the property at 2555 El Portal, San Pablo, subject to approval by the County Administrator and approval as to form by County Counsel.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR ☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Lavonna Martin,
925-608-6701

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: L Walker, M Wilhelm

FISCAL IMPACT:

There is no matching contribution required by the State to receive funding under the Homekey Program, however bonus funding is available for applications that include match. Any cost above the state contribution would be the obligation of the County. The Board of Supervisors approved Measure X one-time funds for this project on November 16, 2021 in an amount up to \$5.2M as match.

BACKGROUND:

Homekey Grant Application

The California Department of Housing and Community Development (HCD) announced the availability of approximately \$1.45 billion in Homekey Program (Homekey) funding through a Round 2 Notice of Funding Availability (NOFA) dated September 9, 2021.

Building on the success of Project Roomkey, and initial Homekey awards in 2020, Homekey continues as a statewide effort to rapidly sustain and expand housing for persons experiencing homelessness and impacted by COVID-19.

Of the \$1.45 billion in Homekey funding, \$1.2 billion is derived from the Coronavirus State Fiscal Recovery Fund (CSFRF) established by the federal American Rescue Plan Act of 2021 (ARPA) (Public Law 117-2) and \$250 million in state General Funds. The \$250 million in state General Fund money is intended to supplement the acquisition of, and provide initial operating subsidies for, Homekey sites to promote project feasibility.

The County has been participating in Project Roomkey since early April 2020, when the County Health Officer determined that congregate shelters needed to be emptied to reduce the risk of the spread of COVID-19.

If the County is successful in obtaining Homekey funds, staff will propose that the funds be used to purchase the building located at 2555 El Portal Drive in San Pablo. The County has been working with the property owner for some time to develop plans to renovate the existing building to create 54 micro housing units to provide permanent affordable housing and support services to qualifying individuals experiencing homelessness or at risk of homelessness. Each of the units will be equipped with a bathroom, shower and kitchenette. Services will be offered on-site and tailored to an individual's needs. Services can include case management, primary and behavioral healthcare, life skills support, medication, and money management. Residents will pay no more than 30% of their income toward rent.

Exclusive Negotiating Agreement

The proposed exclusive negotiating agreement is between the County and the owner of the property located at 2555 El Portal Drive in San Pablo. The 1.84-acre site has been improved with a 2-story, 25,610 square foot building. The exclusive negotiating agreement with the building owner is a necessary component of the County's Homekey grant application.

On January 7, 2020, the Board authorized the execution of an exclusive negotiating agreement with the owner of the property at 255 El Portal Drive, San Pablo. Pursuant to that agreement, the County worked closely with the property owner to determine the feasibility of the project and develop site plans and space plans for the use of the property. The City of San Pablo has already granted all discretionary approvals necessary to proceed with the proposed project.

Under the proposed exclusive negotiating agreement, the County and the owner will continue

negotiating a lease or lease-purchase agreement for the County's acquisition of the property. Approval of any lease or lease-purchase agreement will be subject to a separate board action.

CONSEQUENCE OF NEGATIVE ACTION:

Contra Costa County will not apply for a grant of up to \$32,400,000 from the State of California to acquire property for use as housing for homeless individuals.

ATTACHMENTS

Resolution 2021/409

THE BOARD OF SUPERVISORS OF CONTRA COSTA COUNTY, CALIFORNIA
and for Special Districts, Agencies and Authorities Governed by the Board

Adopted this Resolution on 12/14/2021 by the following vote:

AYE: ☐

NO: ☐

ABSENT: ☐

ABSTAIN: ☐

RECUSE: ☐



Resolution No. 2021/409

In The Matter Of: A RESOLUTION OF THE GOVERNING BODY OF CONTRA COSTA COUNTY AUTHORIZING APPLICATION TO AND PARTICIPATION IN THE HOMEKEY PROGRAM

WHEREAS: The Department of Housing and Community Development ("Department") has issued a Notice of Funding Availability, dated September 9, 2021 ("NOFA"), for the Homekey Program ("Homekey" or "Program"). The Department has issued the NOFA for Homekey grant funds pursuant to Health and Safety Code section 50675.1.3 (Assem. Bill No. 140 (2021-2022 Reg. Sess.), § 20.).

WHEREAS: CONTRA COSTA COUNTY ("Applicant") desires to apply for Homekey grant funds. Therefore, Applicant is submitting an application for Homekey funds ("Application") to the Department for review and consideration.

WHEREAS: The Department is authorized to administer Homekey pursuant to the Multifamily Housing Program (Chapter 6.7 (commencing with Section 50675) of Part 2 of Division 31 of the Health and Safety Code). Homekey funding allocations are subject to the terms and conditions of the NOFA, the Application, the Department-approved STD 213, Standard Agreement ("Standard Agreement"), and all other legal requirements of the Homekey Program.

THEREFORE, IT IS RESOLVED THAT:

1. Applicant is hereby authorized and directed to submit an Application to the Department in response to the NOFA, and to apply for Homekey grant funds in a total amount not to exceed \$32,400,000.
2. If the Application is approved, Applicant is hereby authorized and directed to enter into, execute, and deliver a Standard Agreement in a total amount not to exceed \$32,400,000, any and all other documents required or deemed necessary or appropriate to secure the Homekey funds from the Department and to participate in the Homekey Program, and all amendments thereto (collectively, the "Homekey Documents").
3. Applicant acknowledges and agrees that it shall be subject to the terms and conditions specified in the Standard Agreement, and that the NOFA and Application will be incorporated in the Standard Agreement by reference and made a part thereof. Any and all activities, expenditures, information, and timelines represented in the Application are enforceable through the Standard Agreement. Funds are to be used for the allowable expenditures and activities identified in the Standard Agreement.
4. Health Services Director, or his or her designee, is authorized to execute the Application and the Homekey Documents on behalf of Applicant for participation in the Homekey Program.

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Monica Nino, County Administrator and Clerk of the Board of Supervisors

Contact: Lavonna Martin, 925-608-6701

By: , Deputy

cc: L Walker, M Wilhelm



Contra
Costa
County

To: Board of Supervisors
From: Anna Roth, Health Services Director
Date: December 14, 2021

Subject: Amendment #27-277-25 with Kaiser Foundation Health Plan, Inc.

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Health Services Director, or designee, to execute on behalf of the County Contract Amendment Agreement #27-277-25 with Kaiser Foundation Health Plan, Inc., a non-profit corporation, effective July 1, 2021 to amend Contract #27-277-20 (as amended by Amendment Agreement #27-277-21 and Amendment/Extension Agreement #27-277-22) with no change in the payment limit of \$600,000,000 to revise the Delegation Agreement, include data exchange requirements per the Department of Health Care Services All Plan Letter APL20-017, and revise reporting requirements for continuing Medi-Cal services for Contra Costa Health Plan (CCHP) members enrolled in the Kaiser Health Plan with no change in the term.

FISCAL IMPACT:

Approval of this amendment will result in no additional contractual expenditures as funded by 100% CCHP Enterprise Fund II.

BACKGROUND:

CCHP has an obligation to provide certain specialized health care services for its members under the terms of their Individual and Group Health Plan membership contracts with the County. This contractor has been a part of the CCHP Provider Network since October 1, 2004, providing health care services for CCHP Medi-Cal recipients

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Sharron Mackey,
925-313-6104

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: K Cyr, K Cyr, M Wilhelm

BACKGROUND: (CONT'D)

enrolled in the Kaiser Foundation Health Plan.

On September 27, 2016, the Board of Supervisors approved Contract #27-277-20 with Kaiser Foundation Health Plan, Inc., in an amount not to exceed \$600,000,000 to provide health care services for Medi-Cal recipients enrolled in the Kaiser Foundation Health Plan, for the period from October 1, 2016 through September 30, 2019.

On July 10, 2018, the Board of Supervisors approved Contract Amendment Agreement #27-277-21, to add a Delegation Agreement with no change in the payment limit of \$600,000,000 or term of October 1, 2016 through September 30, 2019.

On September 9, 2019, the Board of Supervisors approved Contract Amendment/Extension Agreement #27-277-22, to extend the term from September 30, 2019 to September 30, 2021, with no change in the payment limit of \$600,000,000, to allow the contractor to continue to provide additional Medi-Cal services to Medi-Cal members enrolled in the Kaiser Health Plan through September 30, 2021.

On September 21, 2021, Board of Supervisors took action clarifying incorrect term language previously approved by the Board on September 27, 2016, July 18, 2018 and September 10, 2019 to correct the term to match the agreement so it will automatically be renewed for two successive years periods, until such time it is terminated by either party.

Approval of Amendment Contract #27-277-25 will modify the Delegation Agreement, include data exchange requirements per the Department of Health Care Services All Plan Letter APL20-017, and revise reporting requirements for continuing Medi-Cal services for CCHP members enrolled in the Kaiser Health Plan with no change in the term.

CONSEQUENCE OF NEGATIVE ACTION:

If this amendment is not approved, certain specialized health care services for Medi-Cal members may not be provided.



**Contra
Costa
County**

To: Board of Supervisors
From: Esa Ehmen-Krause, County Probation Officer
Date: December 14, 2021

Subject: 2021 Advisory Body Annual Report for the Juvenile Justice Coordinating Council

RECOMMENDATION(S):

ACCEPT the 2021 Advisory Body Annual Report for the Juvenile Justice Coordinating Council (JJCC).

FISCAL IMPACT:

There is no fiscal impact.

BACKGROUND:

On January 7, 2020, the Board of Supervisors adopted Resolution No. 2020/1 which requires that each advisory board, commission, or committee report annually on its activities, accomplishments, membership attendance, required training/certification, and proposed work plan or objectives for the following year. This Annual Report is due to the Board of Supervisors in December.

The Juvenile Justice Coordinating Council is tasked with advising the Board of Supervisors on the development and implementation of a multi-agency juvenile justice plan composed of several critical parts, including, but not limited to an assessment of existing law enforcement, probation, education, mental health, health, social services, drug and alcohol and youth services resources which specifically target at-risk juveniles, juvenile offenders, and their families. Additionally they are tasked with identification and

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Deborah Caldwell,
9253134188

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:

BACKGROUND: (CONT'D)

prioritization of the neighborhoods, schools, and other areas in the community that face a significant public safety risk from juvenile crime. The Council also coordinates on a countywide basis, the work of those governmental and non-governmental organizations engaged in activities designed to reduce the incidence of juvenile crime and delinquency in the greater community, develop information and intelligence-sharing systems to ensure that county actions are fully coordinated, and provide data and appropriate outcome measures.

CONSEQUENCE OF NEGATIVE ACTION:

The 2021 Advisory Body Annual Report submitted on behalf of the Juvenile Justice Coordinating Council in accordance with Resolution No. 2020/1 would not be formally accepted.

ATTACHMENTS

2021 Advisory Body Annual Report for JJCC



ADVISORY BODY ANNUAL REPORT

Advisory Body Name: Juvenile Justice Coordinating Council (JJCC)

Advisory Body Meeting Time/Location: Second Wednesday of the Month from 3:30-5:30 p.m.

Chair (during the reporting period): Esa Ehmen-Krause

Staff Person (during the reporting period): Deborah Caldwell

Reporting Period: Calendar year 2021

I. Activities

(estimated response length: 1/2 page)

Describe the activities for the past year including areas of study, work, special events, collaborations, etc.

The JJCC continues to focus on expanding and enhancing prevention services, and identifying gaps in resources throughout the county, including developing and releasing a survey to partners and stakeholders.

Our contracted partner, RDA, was commissioned in 2021 to draft a report entitled, "2021 Report on Juvenile Justice Programs and Services." This is the first of what we anticipate being a bi-annual report. The findings and recommendations will be utilized to develop the County's JJCPA/YOBG Plan that is submitted annually to the Board of State and Community Corrections.

The Data and Services and Prevention, Intervention and Community Engagement subcommittees continue to meet monthly as well.

II. Accomplishments

(estimated response length: 1/2 page)

Describe the accomplishments for the past year, particularly in reference to your work plan and objectives.

The JJCC's DJJ Realignment Planning Subcommittee successfully developed the County's DJJ Realignment Plan to submit to the Office of Youth and Community Restoration for calendar year 2022.

III. Attendance/Representation

(estimated response length: 1/4 page)

Describe your membership in terms of seat vacancies, diversity, level of participation, and frequency of achieving a quorum at meetings.

The Juvenile Justice Coordinating Council is comprised of twenty (20) seats, including the following:
One (1) Chief Probation Officer Representative, as Chair (Ex-Officio)
One (1) District Attorney's Office Representative (Ex-Officio)
One (1) Public Defender's Office Representative (Ex-Officio)
One (1) Sheriff's Office Representative (Ex-Officio)
One (1) Board of Supervisors' representative (Ex-Officio)
One (1) Employment and Human Services Department Representative (Ex-Officio)
One (1) Behavioral Health Services Representative (Ex-Officio)
One (1) Alcohol and Other Drugs Division Representative (Ex-Officio)
One (1) Public Health Representative (Ex-Officio)
One (1) Juvenile Justice Commission Chair (Ex-Officio)
One (1) City Police Department Representative
One (1) County Office of Education or a School District Representative
Four (4) At-Large Members, residing or working within the County of Contra Costa
Two (2) Community-Based Organization Representatives
Two (2) At-Large Youth Member, 14 to 21 years old and residing or working within Contra Costa
As a result of on-going attendance considerations, we conducted recruitments in 2021 to fill the two at-large youth member seats. Additionally we conducted a recruitment to fill the community based organization representative seats which were vacated due to term limits.
The JJCC general body never struggled to meet quorum, however the subcommittees frequently has issues with this, and we are actively working to resolve that concern.

IV. Training/Certification

(estimated response length: 1/4 page)

Describe any training that was provided or conducted, and any certifications received, either as a requirement or done on an elective basis by members. NOTE: Please forward copies of any training certifications to the Clerk of the Board.

N/A

V. Proposed Work Plan/Objectives for Next Year

(estimated response length: 1/2 page)

Describe the advisory body's workplan, including specific objectives to be achieved in the upcoming year.

Draft and submit the JJCPA/YOBY plan in May 2022, as well as the JJCPA/YOBY Annual Report in October 2022.



Contra
Costa
County

To: Board of Supervisors
From: John Kopchik, Director, Conservation & Development Department
Date: December 14, 2021

Subject: Contra Costa County Planning Commission 2021 Annual Report

RECOMMENDATION(S):

ACCEPT the Contra Costa County Planning Commission 2021 Annual Report.

FISCAL IMPACT:

None.

BACKGROUND:

On December 13, 2011, the Board of Supervisors adopted Resolution No. 2011/497, which requires each regular and ongoing board, commission, or committee report annually to the Board of Supervisors. The attached report presented to the Board for its consideration fulfills this requirement.

CONSEQUENCE OF NEGATIVE ACTION:

The annual reporting requirement to the Board of Supervisors would not be fulfilled.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Aruna Bhat
925-655-2857

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:

ATTACHMENTS

2021 CPC Annual
Report



ADVISORY BODY ANNUAL REPORT

Advisory Body Name: _____
Advisory Body Meeting Time/Location: _____
Chair (during the reporting period): _____
Staff Person (during the reporting period): _____
Reporting Period: _____

I. Activities

(estimated response length: 1/2 page)

Describe the activities for the past year including areas of study, work, special events, collaborations, etc.

II. Accomplishments

(estimated response length: 1/2 page)

Describe the accomplishments for the past year, particularly in reference to your work plan and objectives.

III. Attendance/Representation

(estimated response length: 1/4 page)

Describe your membership in terms of seat vacancies, diversity, level of participation, and frequency of achieving a quorum at meetings.

IV. Training/Certification

(estimated response length: 1/4 page)

Describe any training that was provided or conducted, and any certifications received, either as a requirement or done on an elective basis by members. NOTE: Please forward copies of any training certifications to the Clerk of the Board.

V. Proposed Work Plan/Objectives for Next Year

(estimated response length: 1/2 page)

Describe the advisory body's workplan, including specific objectives to be achieved in the upcoming year.



Contra Costa County

To: Board of Supervisors
 From: Monica Nino, County Administrator
 Date: December 14, 2021

Subject: Notice of Adjustment in Compensation Paid to Members of the Board of Supervisors

RECOMMENDATION(S):

RECEIVE notice of adjustment in compensation paid to members of the Board of Supervisors, showing the 0.5562 percent salary increase for Board members effective July 1, 2021, as required by Ordinance 2019-11.

FISCAL IMPACT:

Receipt of the notice has no fiscal impact.

BACKGROUND:

On April 16, 2019, the Board of Supervisors adopted Ordinance No. 2019-11, linking the base salary for members of the Board of Supervisors to the salary of Superior Court judges. The ordinance provides that from and after January 1, 2021, Supervisors receive 65% of judges' salary. This includes the increases, at the same time and in the same percentage, that the judges receive, so that a base salary of 65% of Contra Costa County Superior Court judges' salary is maintained. Ordinance No. 2019-11 requires that for all adjustments to base salary occurring after January 1, 2021, a "notice of adjustment in compensation paid to members of the board of supervisors" shall appear on the agenda of a regular meeting of the Board of Supervisors at least ten (10) days prior to the date such adjustment is implemented. Each such adjustment will have the same effective date as the corresponding salary adjustment for the Contra Costa County Superior Court judges.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☒ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Laura Strobel (925)
 655-2058

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:

BACKGROUND: (CONT'D)

On December 6, 2021, the County received notice that Superior Court judges' salary will be increased to \$225,074, retroactive to July 1, 2021. This is a 0.5562% increase to judicial salaries. The purpose of this Board Order is to provide notice, pursuant to Ordinance 2019-11, that the salaries for members of the Board of Supervisors also are increased by 0.5562% to maintain a base salary of 65% of Superior Court Judges' salary. The monthly salary amount for Board members increases from \$12,124.07 to \$12,191.50. This salary increase will be implemented on or after December 14, 2021, with an effective date of July 1, 2021.

CONSEQUENCE OF NEGATIVE ACTION:

The County will not be in compliance with Ordinance 2019-11.

ATTACHMENTS

Notice of Adjustment



JUDICIAL COUNCIL OF CALIFORNIA

455 Golden Gate Avenue • San Francisco, California 94102-3688
Telephone 415-865-4200 • Fax 415-865-4205 • TDD 415-865-4272

MEMORANDUM

Date

December 6, 2021

Action Requested

For Your Information

To

Associate Justices of the Supreme Court
Associate Justices of the Courts of Appeal
Judges of the Superior Courts of California

Deadline

N/A

From

Martin Hoshino
Administrative Director, Judicial Council

Contact

Evelyn Ramos, Human Resources Supervisor
415-865-4296 phone
evelyn.ramos@jud.ca.gov

Subject

Fiscal Year 2021–22 Judicial Salary Increase
Adjustment

I am forwarding the attached Exempt Pay Letter received from the California Department of Human Resources regarding an adjustment to the fiscal year 2021–22 judicial salary increases.

Three executive branch bargaining units (5, 8, and 19) received a general salary increase retroactive to July 1, 2021. These salary increases have now been included in the calculations. The pay letter addresses an adjusted judicial salary increase from 4.3% to 4.88% effective July 1, 2021, pursuant to provisions of Government Code section 68203, subdivision (a).

The State Controller's Office (SCO) must still confirm dates for issuance of payments. However, it is anticipated that the new salary rates will be reflected in December 2021 payroll checks issued on January 1, 2022. Also subject to SCO confirmation, a separate retroactive payment for July 2021–November 2021 could be delivered by December 31, 2021. We will advise you if these timeframes are altered by the SCO.

December 6, 2021

Page 2

Please note that administrative presiding justices and presiding judges will continue to receive additional pay differentials to their compensation.

MH/fnk

Attachment

cc: Hon. Tani G. Cantil-Sakauye, Chief Justice of California
Mr. Jorge Navarrete, Clerk/Executive Officer of the Supreme Court
Clerk/Executive Officers of the Courts of Appeal
Court Executive Officers of the Superior Courts
Human Resources Liaisons of the Courts of Appeal and Superior Courts
Ms. Millicent Tidwell, Chief Deputy Director, Judicial Council
Mr. John Wordlaw, Chief Administrative Officer, Judicial Council
Mr. Robert Oyung, Chief Operating Officer, Judicial Council
Ms. Shelley Curran, Chief Policy and Research Officer, Judicial Council
Ms. Aurora Rezapour, Human Resources Director, Judicial Council



Exempt Program
1515 S Street, North Building, Suite 500
Sacramento, CA 95811
(916) 324-9381; Fax (916) 327-1886

Governor Gavin Newsom
Secretary, Government Operations Agency Yolanda Richardson
Director Eraina Ortega

December 6, 2021

State Controller's Office
300 Capitol Mall
Sacramento, CA 95814

Subject: Exempt Pay Letter

Per Government Code section 68203, this is to notify you that the Department of Human Resources (CalHR) has adjusted the following statutory judicial salaries, effective July 1, 2021.

After CalHR calculated the 2021 Judicial Salary Increase of 4.30%, three bargaining units (5, 8, and 19) received a general salary increase retroactive to July 1, 2021. With the inclusion of the Bargaining Unit 5, 8, and 19 general salary increases, the 2021 calculation yields a 4.88% average percentage salary increase. To account for the difference between the previously provided 4.30% and the newly calculated 4.88%, CalHR has adjusted the judicial salaries by 0.5560% to 0.5562% as reflected in the chart below:

Class Code	Class Title	Monthly Salary	Annual Salary	New Monthly Salary	New Annual Salary
L5987	Chief Justice	\$23,875.58	\$286,507	\$24,008.33	\$288,100
L5988	Associate Justice	\$22,767.75	\$273,213	\$22,894.33	\$274,732
L5991	Justice, Court of Appeal	\$21,344.83	\$256,138	\$21,463.50	\$257,562
L9999	Judge, Superior Court	\$18,652.41	\$223,829	\$18,756.16	\$225,074

Please note that the monthly rate may be rounded down so that the total for the twelve months does not exceed the annual amount. If you have any questions, please contact Angelina Snarr at (916) 324-9406 or Angelina.Snarr@calhr.ca.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read "Manpreet Singh".

Manpreet Singh
Exempt Program Manager
(916) 323-4023

cc: Martin Hoshino, Administrative Director
Millicent A. Tidwell, Chief Deputy Director
John Wordlaw, Chief Administrative Officer
Aurora Rezapour, Director, Human Resources Office
Felizia Nava-Kardon, Deputy Director, Human Resources
Evelyn Ramos, Human Resources Supervisor



**Contra
Costa
County**

To: Board of Supervisors
From: Esa Ehmen-Krause, County Probation Officer
Date: December 14, 2021

Subject: 2021 Advisory Body Annual Report for the Racial Justice Oversight Body

RECOMMENDATION(S):

ACCEPT the 2021 Advisory Body Annual Report for the Racial Justice Oversight Body (RJOB).

FISCAL IMPACT:

The action is accepting a report. There is no fiscal impact.

BACKGROUND:

On January 7, 2020, the Board of Supervisors adopted Resolution No. 2020/1, which requires that each advisory board, commission, or committee report annually to the Board on its activities, accomplishments, membership attendance, required training/certification, and proposed work plan or objectives for the following year. This Annual Report is due to the Board of Supervisors in December.

The 2021 Advisory Body Annual Report for the Racial Justice Oversight Body (RJOB) is included as Attachment A.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

**VOTE OF
SUPERVISORS**

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Monica Nino, County Administrator and Clerk of the Board of Supervisors

Contact: 9253134188

By: , Deputy

cc:

BACKGROUND: (CONT'D)

The RJOB is a multi-agency advisory body established by the Board of Supervisors to oversee the implementation of the recommendations made by the Racial Justice Task Force (RJTF) and accepted by the Board of Supervisors to reduce racial disparities in the criminal and juvenile justice systems. The RJOB also reviews local criminal and juvenile justice data in an ongoing fashion to identify and address any racial disparities that may persist. The RJOB is comprised of 18 members, including nine representatives from local community-based organizations (CBOs) and nine ex-officio members from specified local justice system agencies. The RJOB meets on a quarterly basis and its members also serve on its three subcommittees that each currently meet on a monthly basis.

CONSEQUENCE OF NEGATIVE ACTION:

The 2021 Advisory Body Annual Report submitted on behalf of the Racial Justice Oversight Body in accordance with Resolution No. 2020/1 would not be formally accepted.

ATTACHMENTS

2021 Advisory Body Annual Report for RJOB



ADVISORY BODY ANNUAL REPORT

Advisory Body Name: _____
Advisory Body Meeting Time/Location: _____
Chair (during the reporting period): _____
Staff Person (during the reporting period): _____
Reporting Period: _____

I. Activities

(estimated response length: 1/2 page)

Describe the activities for the past year including areas of study, work, special events, collaborations, etc.

II. Accomplishments

(estimated response length: 1/2 page)

Describe the accomplishments for the past year, particularly in reference to your work plan and objectives.

III. Attendance/Representation

(estimated response length: 1/4 page)

Describe your membership in terms of seat vacancies, diversity, level of participation, and frequency of achieving a quorum at meetings.

IV. Training/Certification

(estimated response length: 1/4 page)

Describe any training that was provided or conducted, and any certifications received, either as a requirement or done on an elective basis by members. NOTE: Please forward copies of any training certifications to the Clerk of the Board.

V. Proposed Work Plan/Objectives for Next Year

(estimated response length: 1/2 page)

Describe the advisory body's workplan, including specific objectives to be achieved in the upcoming year.



Contra Costa County

To: Board of Supervisors
 From: Diane Burgis, District III Supervisor
 Date: December 14, 2021

Subject: County Service Area P-2A ~ Citizens Advisory Committee

RECOMMENDATION(S):

ACCEPT the 2021 Annual Report for the County Service Area P-2A - Citizen's Advisory Committee, as recommended by Supervisor Diane Burgis.

FISCAL IMPACT:

None

BACKGROUND:

On January 7, 2020, the Board of Supervisors adopted Resolution No. 2020/1, which requires that each regular and ongoing board, commission, or committee shall annually report to the Board of Supervisor's on it's activities, accomplishments, membership attendance, required training/certification (if any), and proposed work plan or objectives for the following year, in December.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Monica Nino, County Administrator and Clerk of the Board of Supervisors

Contact: Alicia Nuchols,
 925-655-2335

By: , Deputy

cc:

ATTACHMENTS

P2A Annual
Report



ADVISORY BODY ANNUAL REPORT

Advisory Body Name: _____
Advisory Body Meeting Time/Location: _____
Chair (during the reporting period): _____
Staff Person (during the reporting period): _____
Reporting Period: _____

I. Activities

(estimated response length: 1/2 page)

Describe the activities for the past year including areas of study, work, special events, collaborations, etc.

II. Accomplishments

(estimated response length: 1/2 page)

Describe the accomplishments for the past year, particularly in reference to your work plan and objectives.

III. Attendance/Representation

(estimated response length: 1/4 page)

Describe your membership in terms of seat vacancies, diversity, level of participation, and frequency of achieving a quorum at meetings.

IV. Training/Certification

(estimated response length: 1/4 page)

Describe any training that was provided or conducted, and any certifications received, either as a requirement or done on an elective basis by members. NOTE: Please forward copies of any training certifications to the Clerk of the Board.

V. Proposed Work Plan/Objectives for Next Year

(estimated response length: 1/2 page)

Describe the advisory body's workplan, including specific objectives to be achieved in the upcoming year.



Contra
Costa
County

To: Board of Supervisors
From: Monica Nino, County Administrator
Date: December 14, 2021

Subject: Civil Grand Jury Report No. 2104, entitled "Cyber Attack Preparedness in Contra Costa County"

RECOMMENDATION(S):

RECEIVE Civil Grand Jury Report No. 2104, entitled "Cyber Attack Preparedness in Contra Costa County" (attached), and REFER to the County Administrator and the Department of Information Technology for response.

FISCAL IMPACT:

There is no fiscal impact for this action.

BACKGROUND:

On November 22, 2021, the 2020/2021 Contra Costa County Civil Grand Jury filed the above-referenced report. Per standard procedures, this action alerts the Board of Supervisors that the report has been received and directs the appropriate staff to review the report, provide the Board of Supervisors with an appropriate response, and forward that response to the Superior Court no later than February 20, 2022 (90 days).

CONSEQUENCE OF NEGATIVE ACTION:

There is no immediate consequence.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☒ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Laura Strobel (925)
655-2058

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:

ATTACHMENTS

Grand Jury Report No. 2104 - Cyber Attack Preparedness in Contra Costa
County

Grand Jury

**Contra
Costa
County**

725 Court Street
P.O. Box 431
Martinez, CA 94553-0091



November 23, 2021

Monica Nino
Contra Costa County
1025 Escobar Street
Martinez, CA 94553

Dear Monica Nino:

Attached is a copy of Grand Jury Report No. 2104, "Cyber Attack Preparedness in Contra Costa County" by the 2020-2021 Contra Costa County Grand Jury.

Sincerely,

A handwritten signature in blue ink, reading "Samil Beret".

Samil Beret, Foreperson
2020-2021 Contra Costa County Civil Grand Jury

Enclosure

A REPORT BY

THE 2020-2021 CONTRA COSTA COUNTY CIVIL GRAND JURY

725 Court Street
Martinez, California 94553

Report 2104

Cyber Attack Preparedness In Contra Costa County

APPROVED BY THE GRAND JURY

Date 11-22-2021



SAMIL BERET
GRAND JURY FOREPERSON

APPROVED FOR FILING

Date 11/22/2021



JILL C. FANNIN
JUDGE OF THE SUPERIOR COURT

Contact: Samil Beret
Foreperson
(925) 608-2621

Contra Costa County Grand Jury Report 2104

Cyber Attack Preparedness in Contra Costa County

TO: Contra Costa County Board of Supervisors

Contra Costa County Department of Information Technology

SUMMARY

In the fall of 2019, hackers from the Balkans breached the Contra Costa County Library's (CCCL) Information Technology systems. The hackers obtained an administrative login, gained access to the network, took control, installed, and encrypted malicious software. In January 2020, the hackers demanded a ransom. This attack might have been prevented if the Library had cyber security software. Fortunately, the County's Department of IT (DoIT) was able to restore the Library's administrative systems within three days. However, the public system was inaccessible for two weeks at 29 locations, including library computers and all e-library features such as e-book delivery.

Contra Costa County uses IT as a foundation for data gathering, sharing, and storage throughout all county offices for essential services, including communication for law enforcement, healthcare, and infrastructure such as public works. Building and maintaining a robust IT environment require substantial capital outlays as well as annual expenditures.

The budget for DoIT in 2021 was \$18.6 million, while the overall County budget is \$4.06 billion. IT expenditures of individual County departments (e.g., Health Services, Sheriff's Office, and the Library) are not reflected in DoIT's budget since IT services are decentralized in various County departments. Further, those IT budgets for individual County departments are not separated from their overall budgets and therefore not transparent.

IT is subject to rapid evolution. New technologies are introduced weekly. Expensive hardware and software can quickly become obsolete or open to cyber-attack because older equipment might not support the necessary security upgrades.

Cyber-attacks are a threat to private and public institutions globally. According to cyber security experts, threats arise from disgruntled employees, foreign hackers or computer enthusiasts exhibiting their hacking abilities. Recent nation-wide breaches by external sources, including at SolarWinds, Colonial Pipeline, and Scripps, highlight the urgency to step up protection against attacks.

The Contra Costa County Library (CCCL), Contra Costa County Fire Protection District (Con Fire), and Contra Costa County Health Services Departments (Health Services) have experienced cyber-attacks. The Grand Jury investigated the general County IT landscape to determine vulnerabilities and plans to protect exposed systems and software.

The Grand Jury found that the overall County IT infrastructure is decentralized. Progress to eliminate redundancies (e.g., email systems, data storage) has been made since the 2017-2018 Grand Jury Report (1805). According to industry experts, decentralized organizations are less able to prevent cyber security breaches because they often lack key IT professionals, systems and/or coordination to deter cyber-attacks. The Grand Jury recommends that the County consider selective consolidation of IT services and resources into DoIT that will increase readiness to prevent and recover from cyber-attacks.

METHODOLOGY

The Grand Jury used the following investigative methods:

- Requests for information from County departments.
- Interviews with County IT department employees, County officials, and industry experts.
- Internet research of public, private, and government agency best practices.
- Review of news articles, including those exposing cyber-attacks, threats, and their outcomes.
- Review of prior Grand Jury Report 1805.
- Review of cyber security best practices based on National Institute of Security Technology, US Department of Homeland Security and California Office of Emergency Services.

BACKGROUND

In Contra Costa County, the IT infrastructure spans twenty-four County departments. The organization is headed by DoIT, the central IT group which coordinates the

individual departmental IT groups. DoIT is responsible for the central county computing complex, a county Wide Area Network, and numerous local area networks. Storage and backup procedures in this environment make data available on multiple devices via network servers or digital backups. DoIT is also responsible for the overall level of computing, printing, and telecommunications standards in the County. DoIT also provides business and technical consulting services to departments and managers throughout the County on a reimbursable basis.

In May 2018, the Grand Jury produced report 1805 on "Effectiveness of IT Operations in County Government." Some of the Grand Jury recommendations were implemented while others were not. For example, the County's IT Strategy and Disaster Recovery Plans have been updated. Recommendations not followed were due to the DoIT's Chief Information Officer (CIO) not having the authority to mandate them due to the decentralized IT structure of the County. Specific examples include centralized procurement and installation of standard hardware and software on a County-wide basis.

The budget for DoIT in 2021 was \$18.6 million, while the overall County budget is \$4.06 billion. IT expenditures of individual County departments (e.g., Health Services, Sheriff's Office, and the Library) are not reflected in DoIT's budget. The Grand Jury reviewed the Comprehensive Annual Financial Report of the County and could not identify the IT budgets for individual county departments. It is difficult to determine precisely how much money the County is spending on IT and whether there are potential redundancies. This was a problem the previous Grand Jury Report 1805 identified.

Supplementing DoIT's services, some large departments (e.g., Health Services Department, Sheriff's Office) retain control over their own IT strategy, procurement, and routine IT services provided for their departments. These departments have their own data and network operations and dedicated IT staff. They have specialized requirements such as Health Insurance Portability and Accountability Act (HIPAA) compliance and the Sheriff's Office's use of Federal and State databases. Other smaller departments have small IT teams for local and/or specialized support, but generally rely on DoIT for procurement, equipment updates, and system maintenance. Based on the Grand Jury's interviews, there is a lack of uniformity in systems and software, such as email systems and data storage.

Cyber-attacks pose a threat to governmental operations in Contra Costa County and nationwide. According to Check Point Software's Mid-Year Security Report, there were 93% more ransomware attacks in the first half of 2021 than in the same period last year. In addition, the attacks were marked by the rise of what is known as "Triple Extortion" ransomware. Not only is data encrypted, stolen, and moved, but if there is no response to the original threat for payment or the threat of a data leak, attackers may then launch a Denial-of-Service attack which locks up the targeted entity's system services to force it to the negotiation table. Cyber-attacks are increasing in their number and cost. IBM estimated that data breaches now cost companies \$4.24 million per incident on average, with costs rising 10% compared to 2020.

As the COVID-19 crisis spread globally, so did cyber attacks. The increase in virtual activities such as remote work and online shopping have made enterprise networks and popular websites a breeding ground for cybercrime. According to an advisory from the U.S. Department of Homeland Security Cyber Security and Infrastructure Agency (CISA) and the U.K.'s National Cyber Security Centre (NCSC), cybercriminals are targeting individuals, businesses, and organizations of all sizes with these attacks, including phishing attempts and trying to exploit security lapses in remote meetings. (<https://www.gartner.com/en/human-resources/research/talentneuron/labor-market-trends/cybersecurity-labor-shortage-and-covid-19>).

The 2019 Contra Costa County Library (CCCL) attack and subsequent disruption of e-Library Services heightened concern about county-wide cyber security. It demonstrated how a lack of cyber security experts in individual departments, and departmental cyber security oversight by DoIT, impact end users. Based on the Grand Jury's interviews, staff shortages intensify this problem. Small IT teams do not always have cyber security experts and are impacted if they have an open position or someone on leave. In this case, after the attack, DoIT took over the IT operations for the CCCL. DoIT provided resources including access to an external specialized team contracted to restore access to all systems. The estimated total costs were between \$4 million and \$6 million to upgrade firewalls, equipment and software updates or upgrades to bring the CCCL systems to industry standards. An insurance claim was filed for \$1.2 million for recovery costs. The CCCL has applied for a State Library Association Technology Grant to upgrade its systems. If awarded, it will provide an additional \$3 Million to bring the systems into compliance with current updated County standards.

The routine software update may be one of the most familiar and least understood parts of our digital lives... Last spring, a Texas-based company called SolarWinds made one such software update available to its customers. It was supposed to provide the regular fare — bug fixes, performance enhancements — to the company's network management system... Hackers believed to be directed by the Russian intelligence service, the SVR, used that routine software update... as a vehicle for a massive cyberattack against America. (<https://www.npr.org/2021/04/16/985439655/a-worst-nightmare-cyberattack-the-untold-story-of-the-solarwinds-hack>).

Due to the SolarWinds Attack, software companies worldwide scrambled to update their software platforms to secure their systems. The Con Fire email servers were so obsolete that the Microsoft security patch to fix this vulnerability could not be applied in April 2021. When Con Fire's staff recognized the threat, they asked DoIT to assist. DoIT staff went on-site to perform hardware upgrades and expensive off-hours software updates. The total cost is still being assessed. While there was not a breach, Con Fire was vulnerable to one.

In 2018, the use of a flash drive by a contractor for the Contra Costa Health Services Department resulted in a data breach of patient medical information. This could have been prevented if adequate protocols were in place regarding the use of flash drives. (<https://www.hipaajournal.com/contra-costa-health-plan-breach/>)

DISCUSSION

The Grand Jury focused on three general areas that put the County at risk for a cyber-attack: 1) Staffing shortages, 2) Training frequency, and 3) Decentralization.

Staffing Shortages

A shortage of trained IT employees, and the strain of ever-increasing workloads affect quality of service and cyber-attack readiness. For example, implementation of body cameras for uniformed police officers requires additional training and maintenance for IT staff in addition to data storage. During interviews with various county departments, all interviewees noted being understaffed with open IT positions. In February 2021, Contra Costa County Health Services had 13 unfilled IT positions. As of November 2021, the County has several IT openings with a salary range between \$74,000 to \$140,000. The County is having difficulty hiring experienced staff to implement state-of-the-art IT tools because qualified cyber security personnel are in high demand nationwide. Based on Grand Jury interviews, the County cannot match private industry's compensation packages. While there may be better job security and long-term benefits working for a government agency, the competitive salaries and enticements like stock options, profit sharing and in-office perks pose competition to the County.

IT executives see the talent shortage as the most significant adoption barrier to 64% of emerging technologies, compared with just 4% in 2020, according to a new survey from Gartner, Inc. A lack of talent availability was cited far more often than other barriers this year, such as implementation cost (29%) or security risk (7%).

Talent availability is cited as a leading factor inhibiting adoption among all six technology domains included in the survey – compute(r) infrastructure and platform services, network, security, digital workplace, IT automation and storage and database. IT executives cited talent availability as the main adoption risk factor for most IT automation technologies (75%) and nearly half of digital workplace technologies (41%). (<https://www.gartner.com/en/newsroom/press-releases/2021-09-13-gartner-survey-reveals-talent-shortages-as-biggest-barrier-to-emerging-technologies-adoption>)

Even though there is limited IT talent available, the County could be more competitive with its compensation packages to attract more of these scarce resources. During interviews, it was evident that work-life balance is a significant issue for all IT

departments. IT staff shortages lead to increasing employee burnout and turnover. If the County were able to fill gaps in IT staff, the workload would be more manageable, creating a better work-life balance. Some private enterprises have developed skilled labor pools of IT specialists to cover temporary shortages in multiple departments. A pool concept reduces the need to increase staffing across many departments and is an efficient way to address chronic staff shortages. Also, a talent pool concept can be used as a training platform for new hires.

Training Frequency

The county currently has a three-part IT Security training program. The following is from DoIT's website:

1. "Information Security – This program covers prudent business practices that will establish and implement "the need to know" rule base. It dictates how county-controlled assets, both physical and logical "computer," are maintained with integrity, security, and monitoring.
2. Security Awareness - This grass roots program will ensure all County employees thoroughly understand and acknowledge that protection of County-controlled assets is critical to the survival and well-being of the County, as well as themselves.
3. Business Resumption (*BRP*) - This program ensures business continues after any significant business interruption. BRP is the overall umbrella that covers disaster recovery, emergency preparedness plans used by individual department and Individual employee's personal recovery capability."

Industry experts point out that unsuspecting employees often initiate cyber-attacks by opening emails with attachments containing malicious software or employees plugging in hardware such as flash drives or memory sticks to capture or corrupt network data. Based on Grand Jury interviews, industry experts recommend restricting the use of any personal devices at work and work devices at home especially flash or thumb drives. Based on our interviews, County employees and officials are still using personal devices connected to county computers.

DoIT is working to make this above training mandatory. With the increase in threats, DoIT will be requesting annual training. Currently, county-wide training is neither annual nor mandatory.

Decentralization

Based on interviews, the Grand Jury identified the decentralized structure of IT within the County as a potential source of vulnerability to cyber threats. Interviews revealed that there are at least three reasons for this vulnerability.

First, small departmental IT staffs do not have the time to perform necessary hardware and software updates on a regular basis. This undermines the security of data and systems in these departments and the entire County.

Second, the email systems used by County departments have their own domain names. "Because of spam, it is becoming increasingly difficult to reliably forward mail across different domains, and some recommend avoiding it if at all possible." (John Levine (2008-10-15). "Users Don't Like Forwarded Spam." CircleID Retrieved 2008-11-07.)

Third, DoIT has procured state-of-the-art software programs to monitor network and email domains across the County. DoIT has also built cloud and server protections that are expandable for individual department needs. However, DoIT does not have the authority to mandate use of these capabilities county-wide. Based on our interviews, there are some departments that are either unwilling to utilize these products and services, or unable due to obsolete equipment or lack of available staff. Currently, the County does not have consistent methods or policies for ensuring that all County computer systems are protected from a cyber-attack.

FINDINGS

- F1. County IT Departments are chronically understaffed.
- F2. Obsolete equipment poses a vulnerability threat to County IT security.
- F3. Some County IT departments do not have time to conduct software and hardware updates, and vulnerability scans which are critical for cyber security because of understaffing.
- F4. Some County departments with small IT staffs do not have specialized cyber security personnel.
- F5. Cyber security training is performed on an inconsistent basis in some County departments.
- F6. County employees and contractors use personal storage devices (e.g., flash drives) on County computers.
- F7. The use of personal devices makes County computers vulnerable to denial of service, data breaches or other cyber-attacks.
- F8. IT expenditures and budgets in County departments are not transparently reported so it is difficult to identify redundant and duplicative IT expenditures.
- F9. Decentralized IT structures increase vulnerability to cyber-attacks.

F10. The County's IT structure is decentralized.

F11. Based on interviews, Contra Costa County is at a disadvantage to hire IT staff with cyber security expertise due to increased compensation and perks offered by some private enterprises.

RECOMMENDATIONS

The Grand Jury recommends that:

- R1. The Board of Supervisors direct the County Chief Information Officer by December 2022 to create a talent pool within DoIT that includes cyber security experts to relieve chronic staffing shortages in all IT departments.
- R2. The Board of Supervisors direct the County Administrator by June 2022 to require all IT departments to forbid use of personal devices on and with County computers (e.g., personal thumb drives).
- R3. The Board of Supervisors direct the County Administrator by June 2022 to require the installation of software on all County computers that can scan for threats and viruses on any device attached to them.
- R4. The Board of Supervisors direct the County Administrator by June 2022 to authorize DoIT to require system vulnerability testing on all County computer systems.
- R5. The Board of Supervisors direct the County Administrator by June 2022 to require all county employees to complete annual cyber security awareness training.
- R6. The Board of Supervisors direct the County Administrator by June 2022 to have DoIT ensure mandatory updates are performed on all systems for all software applications.
- R7. The Board of Supervisors direct the County Administrator by December 2022 to have all County departments identify and replace obsolete IT hardware.
- R8. The Board of Supervisors direct the County Administrator by June 2022 to require County departments to identify their planned IT spending in their overall budgets for transparency.

REQUIRED RESPONSES

	Findings	Recommendations
Contra Costa County Board of Supervisors	F1 to F11	R1 to R8.
Department of Information Technology is invited to respond	F1 to F11	R1 to R8.

These responses must be provided in the format and by the date set forth in the cover letter that accompanies this report. An electronic copy of these responses in the form of a Word document should be sent by e-mail to ctadmin@contracosta.courts.ca.gov and a hard (paper) copy should be sent to:

Civil Grand Jury – Foreperson
725 Court Street
P.O. Box 431
Martinez, CA 94553-0091



Contra
Costa
County

To: Board of Supervisors
From: FINANCE COMMITTEE
Date: December 14, 2021

Subject: 2021 ANNUAL REPORT OF THE FINANCE COMMITTEE

RECOMMENDATION(S):

RECEIVE the 2021 Annual Report submitted by the Finance Committee.

FISCAL IMPACT:

No fiscal impact.

BACKGROUND:

On June 18, 2002, the Board of Supervisors adopted Resolution No. 2002/377, which requires that each regular and ongoing board, commission, or committee shall annually report to the Board of Supervisors on its activities, accomplishments, membership attendance, required training/certification (if any), and proposed work plan or objectives for the following year.

This report fulfills this requirement for the Finance Committee.

All Finance Committee reports from 2009 onward and attachments can be found on the County website at <http://ca-contracostacounty.civicplus.com/index.aspx?NID=2286>.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Lisa Driscoll, County Finance
Director (925) 665-2047

, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: Robert Campbell, Auditor-Controller

BACKGROUND: (CONT'D)

In 2021, the Finance Committee received reports and/or made recommendations to the Board of Supervisors concerning issues related to:

- Measure X Community Advisory Board (MXCAB):
 - Recommendations for MXCAB bylaws;
 - Recommendations for MXCAB appointment;
 - Report of MXCAB member training and attendance;
- Listening session regarding Board of Supervisors actions of November 16, regarding Measure X funding;
- Department of Conservation and Development (DCD) recommendations regarding Community Development Block Grant funding for Economic Development and Infrastructure/Public facilities category;
- Policy on the evaluation of Enhanced Infrastructure Financing Districts (EIFSs);
- Regular capital facility updates and specific building projects; and
- Single Audit for the fiscal year ending June 30, 2020.

At year end, the Finance Committee had pending referrals on:

- Policy on the evaluation of Enhanced Infrastructure Financing Districts (EIFSs);
- Continuing to implement and evaluate the Real Estate Asset Management Plan (RAMP); and
- Developing options for additional funding sources to comply with Municipal Regional Permit 2.0 (Storm water).



Contra
Costa
County

To: Board of Supervisors
From: John Kopchik, Director, Conservation & Development Department
Date: December 14, 2021

Subject: 2021 Advisory Body Annual Report for the Affordable Housing Finance Committee (AHFC)

RECOMMENDATION(S):

ACCEPT the 2021 Advisory Body Annual Report for the Affordable Housing Finance Committee (AHFC).

FISCAL IMPACT:

The action is accepting a report. There is no fiscal impact.

BACKGROUND:

Board policy requires that regular and ongoing boards, commissions, or committees shall annually report on activities, accomplishments, membership attendance, required training/certification, and proposed work plan or objectives for the following year.

ANNUAL REPORT

1. Activities: The committee met on April 8, 2021, to consider applications for the Community Development Block Grant (CDBG), HOME Investment Partnerships Act (HOME) funds, and Housing Opportunities for Persons with HIV/AIDS (HOPWA) funds. Projects recommended for final funding amounts included new construction of three multifamily rental housing projects with 155 total units located in Pittsburg, Pleasant Hill, and Richmond totaling \$5,946,000 in HOME funds and

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☒ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Kristin Sherk
925-655-2889

, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:

BACKGROUND: (CONT'D)

\$410,000 in HOPWA funds. Two acquisition and rehabilitation multifamily rental housing projects with 104 total units in Danville and Richmond were recommended for funding totaling \$4,94,807 in CDBG funds and \$1,000,000 in HOME funds. Lastly, funding recommendations were made for the Neighborhood Preservation and Program to provide rehabilitation loans and grants to low-income homeowners who reside in their homes.

2. Accomplishments: The AHFC reviewed eight applications as described above and provided funding recommendations to the Board of Supervisors through the Department of Conservation and Development. Committee members provide a critical review of the projects which ensures substantial leverage of CDBG, HOME, and HOPWA funds. On the administrative side, the membership categories were refined to improve representation by qualified residents of the various sub-areas of the County. On March 2, 2021, the Board of Supervisors adopted Bylaws of the AHFC to contain seven members of the committee in three categories: City membership, County membership, and one at-large community membership. Due to the technical nature of the committee's charge, the Bylaws require that all members have experience in the field of affordable housing finance, design, development, or property management.

3. Attendance/Representation: The AHFC committee achieved a quorum at the annual meeting in April. There are currently zero vacancies. Senior Housing Planner Kristin Sherk staffed the committee.

4. Training/Certification: There has not been any special training in the past year. Staff provides information to committee members on webinars that provide information on related topics.

5. Proposed Work Plan/Objectives for Next Year: In 2022, the AHFC will meet at least once. One meeting will be in the spring and additional meetings will be held if applications are received during the year.

CHILDREN'S IMPACT STATEMENT:

The AHFC reviews and makes recommendations on many types of affordable housing projects, including housing suitable for families with children. The recommendation supports one or more of the following children's outcomes:

- (1) Children Ready for and Succeeding in School;
- (2) Children and Youth Healthy and Preparing for Productive Adulthood;
- (3) Families that are Economically Self Sufficient;
- (4) Families that are Safe, Stable and Nurturing; and
- (5) Communities that are Safe and Provide a High Quality of Life for Children and Families.



Contra
Costa
County

To: Board of Supervisors
From: John Kopchik, Director, Conservation & Development Department
Date: December 14, 2021

Subject: Fish and Wildlife Committee 2021 Annual Report

RECOMMENDATION(S):

ACCEPT the Contra Costa County Fish and Wildlife Committee 2021 Annual Report, as recommended by the Fish and Wildlife Committee.

FISCAL IMPACT:

None

BACKGROUND:

On January 7, 2020, the Board of Supervisors adopted Resolution 2020/1, which requires each advisory board, commission, or committee to report annually to the Board of Supervisors on its activities, accomplishments, membership attendance, required training/certification, and proposed workplan or objectives for the following year. The annual report is due to the Board of Supervisors in December. The attached report presented for Board consideration was approved by the Fish and Wildlife Committee on November 17, 2021.

CONSEQUENCE OF NEGATIVE ACTION:

The annual reporting requirement to the Board of Supervisors would not be fulfilled.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Maureen Parkes (925)
655-2909

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:

ATTACHMENTS

FWC Annual Report -
2021

Advisory Body Name: Contra Costa County Fish and Wildlife Committee

Advisory Body Meeting Time/Location: 3rd Wednesday of the month, 6 meetings per year, 3 – 5 pm
2475 Waterbird Way, County Public Works Department Road Maintenance Division lunchroom

Chair: Daniel Pellegrini

Staff: Maureen Parkes

Reporting Period: January 2021 – December 2021

1. Activities and Accomplishments The Fish and Wildlife Committee met five times to discuss matters related to fish and wildlife issues in Contra Costa County (CCC). The Committee administered a grant program that expends the Fish and Wildlife Propagation Funds (funds that are collected by the CA Department of Fish and Wildlife for code violations). Additional details on these activities are provided below.

Grant Program: The Committee reviewed seven proposals requesting Fish and Wildlife Propagation Fund grant funds. The Committee reviewed the proposals, interviewed applicants, and selected all seven proposals for full or partial funding totaling \$60,830.71 to recommend to the Board of Supervisors. Grant awards ranged from \$4,973.00 – \$16,000.00. The Committee reviewed progress and final reports from previous grant cycles and extended invitations to grantees to give presentations.

Outreach: Distributed Wildlife in Your Backyard brochure.

Volunteer Activities: Several members volunteered in the community with other organizations that are interested in fish and wildlife issues. Rhonda Gehlke – California Water Environment Association (CWEA) - State Division Chair of the Community Engagement and Outreach Committee, CWEA - San Francisco Bay Section Communications Committee; Susan Heckly - Lindsay Wildlife Experience, CCC Master Gardener, International Wildlife Rehabilitation Council and the FWC representative on the CCC Integrated Pest Management Advisory Committee; Kathleen Jennings - Co-chair of the Peyton Slough Wetlands Advisory Committee; Danny Pellegrini - Contra Costa Mosquito and Vector Control District Board of Trustees - Secretary, Sheriff's Posse of CCC (Barbeque Captain) and the Martinez Sportsmen's Club.

Committee members were regularly updated on activities related to fish and wildlife in CCC, which included a presentation by a grant recipient and an update from County staff. The presentation and update are listed below:

- Overview of Mammalian Carnivore Activity on Protected East Bay Regional Park District Lands in California's Diablo Range. (Steven Bobzien, East Bay Regional Park District)
- Update on the activities of the Contra Costa County Integrated Pest Management Advisory Committee (IPM) (Wade Finlinson, Contra Costa Health Services Department)

2. Attendance/Representation The FWC is composed of ten members. Each County Supervisor appoints a member and the Internal Operations Committee appoints four At-large members and one At-large Alternate. The FWC met five times at which a quorum was always present. The members were: Susan Heckly (D-II), Clark Dawson (D-III), Brett Morris (D-IV), Daniel Pellegrini (D-V), Rhonda Gehlke (At-large), Kathleen Jennings (At-large), Nicole Balbas (At-large), Cass Rogers (At-large), and Felipe Solis (At-large Alternate).

3. Training/Certification All members have viewed the required Brown Act & Better Government Ordinance and Ethics Training videos. Certifications are on file for all of the members.

4. Proposed Work Plan/Objectives for Next Year

(a) FWC Operations:

- Develop and refine Work Plan (working document).
- Maintain FWC membership by advertising vacancies and forwarding applications to the Internal Operations Committee.
- Seek to coordinate with other Fish and Wildlife Committees on regional matters.
- Coordinate with the Contra Costa Watershed Forum.

(b) Make recommendations to the Board of Supervisors via the Internal Operations Committee for the appropriation of funds from the Fish and Wildlife Propagation Fund to support fish and wildlife projects in the community:

- Conduct grant program to solicit proposals, evaluate their relative merits, and recommend funding for projects which will contribute most to the fish and wildlife resources of the County.
- Develop and advertise FWC grant program by: 1) reviewing past Request for Proposals (RFP), funding applications; and 2) developing new RFP, funding application deadline, and funding priorities; and 3) posting

to the County website, distributing these materials to the media, the FWC mailing list and RFP mailing list, and to anyone who requests them.

- Work with agencies, organizations, and individuals to help them plan and develop projects suitable for support from the Fish and Wildlife Propagation Fund.
- Monitor the efficiency and effectiveness of the grant disbursement process.
- Review funding applications received. Make recommendations to the Board of Supervisors via the Internal Operations Committee for the awarding of grants.
- Follow-up on projects that receive funding to assure that projects proceed as proposed. One way the FWC will do this is to extend invitations to prior Fish and Wildlife Propagation Fund Grant recipients to future meetings to give status reports, outcomes and presentations regarding their projects.
- Send out a letter to grant recipients requesting project status reports.

(c) FWC priorities for 2021/2022:

- Make recommendations to the Board to approve Fish and Wildlife Propagation Fund grant applications for projects that increase collaboration with law enforcement agencies, the court, and community cultural organizations on enforcement issues and increase education focusing on communities that may be unaware of local fish and game laws.
- Provide public forum opportunities for open discussion on wildlife issues that affect CCC residents and impact natural resources in our County, increase outreach efforts and provide advisory updates to Board of Supervisors as needed.
- Disseminate “Wildlife in Your Backyard” booklet and develop other projects for involvement of the FWC and the community in CCC.
- Develop a resource document regarding invasive species.
- Update website with information on invasive species and a list of awarded Fish and Wildlife Propagation Fund grants.

(d) FWC projects (develop and prioritize a list of projects for potential FWC involvement; select projects for FWC involvement and provide appropriate support, including: initiation, planning, consultation, and/or funding):

- Make recommendations to the Board on awarding Certificates of Appreciation for significant contributions to the fish and wildlife resources of the County.
- Consider hosting a forum about wildlife.

(e) Improve enforcement of fish and game laws and regulations; increase flow of money into the Fish and Wildlife Propagation Fund:

- Help assure that, when appropriate, a portion of fines from violations of laws designed to protect fish and wildlife resources is deposited in the Fish and Wildlife Propagation Fund. Promote awareness of the harm caused by violation of fish and wildlife regulations and the value of enforcement.
- Host a Fall Forum with law enforcement officials (CA Dept. of Fish and Wildlife, Sheriff’s Dept., District Attorney’s Office, Superior Court, Public Defender’s Office, the East Bay Regional Park District Police) to discuss fish and wildlife issues and enforcement (subject to County Health Officer’s Shelter Order to slow the spread of Covid-19).

(f) Monitor and advise the Board on projects that may affect fish and wildlife resources in the County:

- Attend field trips to see major restoration projects and prior Fish and Wildlife Propagation Fund Grant recipients’ projects in the County.
- Consider tours of East CCC Habitat Conservancy properties, Marsh Creek Fish Ladder, Walnut Creek Drop Structure, Dow Wetlands and Chelsea Wetlands at Pinole.

(g) Develop policy recommendations (“white papers”) on fish and wildlife issues:

- Discuss impacts of invasive species.
- Discuss wildlife and human interaction / interface.
- Discuss public education on reducing the impact of free-roaming cats on wildlife.
- Discuss the Delta Conveyance Project.



**Contra
Costa
County**

To: Board of Supervisors
From: John Kopchik, Director, Conservation & Development Department
Date: December 14, 2021

Subject: APPROVE and AUTHORIZE Consulting Services Agreement with ERM, West, Inc.

RECOMMENDATION(S):

APPROVE and AUTHORIZE the Conservation and Development Director, or designee, to execute a contract between ERM-WEST, INC., a California corporation, on the one hand and Contra Costa County, the Hookston Group, and Union Pacific Railroad ("the Hookston Parties") on the other, effective November 23, 2021, with a payment limit of \$210,233 and a term ending January 31, 2023, to continue providing remediation and related environmental services at the Hookston Site, subject to approval by the County Administrator and approval as to form by County Counsel.

FISCAL IMPACT:

In accordance with an existing settlement agreement, the contract costs are shared between UPRR (50%), Helix Family Trust (25%) and Contra Costa County (25%). The County portion has been designated as an enforceable obligation as is covered by the Successor Agency Funds.

☒ APPROVE

☐ OTHER

☒ RECOMMENDATION OF CNTY ADMINISTRATOR

☐ RECOMMENDATION OF BOARD COMMITTEE

Action of Board On: **12/14/2021** ☐ APPROVED AS RECOMMENDED ☐ OTHER

Clerks Notes:

VOTE OF SUPERVISORS

I hereby certify that this is a true and correct copy of an action taken and entered on the minutes of the Board of Supervisors on the date shown.

ATTESTED: December 14, 2021

Contact: Maureen Toms
(925)655-2895

Monica Nino, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc:

BACKGROUND:

The Hookston Parties entered into a settlement agreement in 1997 to resolve a civil suit involving allegations of contamination of the soil, subsoil, surface water and groundwater on and emanating from an approximately 8-acre site located at the intersection of Hookston Road and Bancroft Road in Pleasant Hill, California ("Hookston Site").

The Hookston Site is currently regulated under Regional Water Quality Control Board Order No. R2-2007-0009, Adoption of Final Site Cleanup Requirements and Recission of Order Nos. R2-2003-0035 and R2-2004-0081, dated January 30, 2007.

The subject contract consists of two parts, a Consultant Services Agreement and a letter agreement. Together they describe the terms under which ERM, West, Inc. will provide remediation and related environmental services at the Hookston Site through January 2023.

CONSEQUENCE OF NEGATIVE ACTION:

The County would not be in compliance with the Regional Water Quality Control Board Order No. R2-2007-0009.

ATTACHMENTS

Hookston Consulting Services Agmt - V7

Hookston Station CA CWA- v2-clean

Letter Agreement

CONSULTING SERVICES AGREEMENT

This Consulting Services Agreement ("CSA") is dated as of December 14, 2021 (the "Effective Date"), and is between UNION PACIFIC RAILROAD COMPANY, successor by merger of Southern Pacific Transportation Company, a Delaware corporation ("UPRR"), MARY LOU HELIX, KAREN HOOK, DEBBIE HOOK, AND BLAKE PUCELL (together, the "Hookston Group"), and CONTRA COSTA COUNTY, a political subdivision of the State of California (the "County") on one hand, and ERM-WEST, INC., a California corporation ("Contractor") on the other. Together, UPRR, the Hookston Group and the County are the "Hookston Parties."

RECITALS

- A. The Hookston Parties are parties to a settlement agreement that was entered into in 1997 to resolve a civil suit involving allegations of contamination of the soil, subsoil, surface water and groundwater on and emanating from an approximately 8-acre site located at the intersection of Hookston Road and Bancroft Road in Pleasant Hill, California (the "Hookston Site") (the "Settlement Agreement").
- B. The Hookston Site is currently regulated under Regional Water Quality Control Board Order No. R2-2007-0009, *Adoption of Final Site Cleanup Requirements and Recission of Order Nos. R2-2003-0035 and R2-2004-0081*, dated January 30, 2007 (the "Order").
- C. Simultaneous with the execution of this CSA, the Hookston Parties and Contractor are entering into a work authorization dated November 30, 2021 (a "Work Authorization"), that describes the scope of remediation and related environmental services (the "Work") Contractor is to perform at the Hookston Site through January 2023. If additional Work is to be performed by Contractor at the Site, the parties will execute additional Work Authorizations. Each Work Authorization is a part of this CSA and is incorporated by reference into this CSA.

The Hookston Parties and Contractor mutually agree as follows:

Section 1. CONTRACTOR REPRESENTATION AND WARRANTIES.

- Contractor shall perform the Work with the same care and skill ordinarily exercised by experienced professional performing similar services for projects of similar scope and complexity in the same jurisdiction.
- Contractor's personnel assigned by Contractor to perform the Work are experienced,

qualified, and licensed (if necessary or advisable) to perform the Work.

- Contractor and its personnel assigned to perform the Work shall comply in all respects with this CSA, and all federal, state and local laws, rules, regulations, orders, codes and ordinances applicable to the Work, including environmental, safety and health laws (if applicable) that are in effect at the time the Work is performed. Contractor warrants that its instructions to the Hookston Parties will comply in all respects with all applicable laws, rules, regulations, orders, codes and ordinances applicable to the Work.
- The Work will not infringe on any patent, copyright, trademark, or other intellectual property right, unless the Hookston Parties direct Contractor to incorporate software into the Work and such software is later determined to infringe on the intellectual property rights of a third party. If the Hookston Parties direct Contractor to incorporate software into the Work, Contractor will inform the Hookston Parties if Contractor has knowledge that the software requires a license agreement.
- Contractor has the expertise necessary to perform the Work and the Hookston Parties are entitled to rely on Contractor's expertise, reports, data and/or conclusions reached by Contractor in its performance of the Work.
- Contractor shall, at Contractor's own expense, furnish (unless herein otherwise specifically provided) all supervision, labor, tools, equipment, materials, and supplies and all other things requisite and necessary to perform the Work.
- Contractor has all necessary permits and/or licenses required to perform the Work contemplated by this CSA.
- Contractor warrants the Work for a period of one year from completion of the Work.
- CONTRACTOR MAKES NO REPRESENTATIONS OR WARRANTIES OTHER THAN THOSE EXPRESSLY SET FORTH HEREIN.

Section 2. HOOKSTON PARTIES REPRESENTATIONS AND WARRANTIES.

- The Hookston Parties shall cause their use of the Work, in accordance with Contractor's instructions, to comply with all applicable laws, rules, regulations, orders, codes and ordinances.

Section 3. ALLOCATION OF COSTS AND ESCROW ACCOUNT MANAGEMENT

The Hookston Parties will bear the cost of their obligations under each Work Authorization in accordance with the Settlement Agreement.

Section 4. CONTRACTOR COMPENSATION.

Contractor shall cause each Work Authorization to set forth an estimated costs for labor, subcontractors, and materials for the Work. The labor rates have been estimated using the current rate sheet for the calendar year when the work will occur. Contractor may adjust labor rates annually at the beginning of a new calendar year; provided the increase is no more than 3% per year.

Payments for Work will be made on a monthly basis for work performed by the Contractor in accordance with the relevant Work Authorization. The Hookston Parties will reimburse reasonable, documented expenses incurred by Contractor in the performance of the Work. The estimates set forth in the Work Letter do not include applicable taxes, including jurisdiction-specific taxes, such as sales tax, use tax, commodity tax, excise tax, valued added tax, withholding tax, transaction tax, customs, tariffs, duties and similar levies, which are the sole responsibility of the Hookston Parties. Contractor is responsible for applicable taxes on Contractor's net income or taxes arising from the independent contractor relationship between Contractor and its personnel. Late payments will bear interest at 1.5% per month. Contractor has the right to suspend performance of the Work in the event of non-payment of undisputed invoices.

The amount specified in each invoice is payable within thirty (30) days after presentation of an invoice.

Section 5. TERM; TERMINATION.

The term of this CSA begins on the Effective Date and will continue until Work under each Work Authorization is complete, unless terminated sooner as provided below.

Either Contractor or the Hookston Parties may terminate this CSA or any Work Authorization at any time during the Term, with or without cause, by providing the other party thirty (30) days written notice of termination. Upon termination, the Hookston Parties' sole obligation to Contractor is to pay for Work performed through the date of termination at the rates set forth in the relevant Work Authorization, together with all reasonable costs incurred by Contractor after termination that are necessary to conclude Contractor's performance under the relevant Work Authorization, including without limitation, demobilization and demurrage costs.

Section 6. INSURANCE REQUIREMENTS.

Contractor shall, at its sole cost and expense, procure and maintain during the life of this CSA (except as otherwise provided in this CSA) the following insurance coverage:

Commercial General Liability Insurance. Commercial general liability (CGL) with a limit of \$1,000,000 each occurrence and an aggregate limit of \$2,000,000.

Business Automobile Coverage Insurance. Business auto coverage with a combined single limit of \$1,000,000 for each accident and coverage must include liability arising out of any auto (including owned, hired, and non-owned autos).

Worker's Compensation and Employer's Liability Insurance. Coverage must include but is not limited to:

- Contractor's statutory liability under the worker's compensation laws of California.
- Employer's liability (Part B) with limits of \$1,000,000.00 each accident, \$1,000,000.00 disease policy limit, \$1,000,000.00 each employee.

Coverage must include liability arising out of the U.S. Longshoremen's and Harbor Workers' Act, the Jones Act, and the Outer Continental Shelf Land Act, if applicable.

Alternate Employer Endorsement. Worker's compensation and employer's liability insurance must be endorsed with form WC 00 03 01 A (or a substitute form providing equivalent coverage) showing each UPRR, the Hookston Group and the County in a schedule as an alternate employer, with each name stated on the certificate of insurance.

Umbrella or Excess Insurance. If Contractor utilizes umbrella or excess policies, these policies must "follow form" and afford no less coverage than the primary policy.

Other Requirements

All policy(ies) required above (except worker's compensation and employer's liability and professional liability) must identify each of the Hookston Parties as an "Additional Insured" using Additional Insured Endorsements CG 20 10 04 13 and CG 20 37 04 13 (or substitute forms providing equivalent coverage), which must be stated on the certificate of insurance. The coverage provided to the Hookston Parties as additional named insured shall, to the extent provided under Additional Insured Endorsement CG 20 10 04 13 and CG 20 37 04 13, provide coverage for the Hookston Parties negligence, whether sole or partial, active or passive, and may not be limited by Contractor's liability under the indemnity provisions of this CSA.

The fact that insurance is obtained by Contractor or the Hookston Parties on behalf of Contractor will not be deemed to release or diminish the liability of Contractor, including, without limitation, liability under the indemnity provisions of this CSA. Damages recoverable by the Hookston Parties from Contractor or any third party will not be limited by the amount of the required insurance coverage.

Contractor waives all rights against the Hookston Parties and their agents, officers, directors and employees, where permitted by law, for recovery of damages to the extent these damages are covered by the worker's compensation and employer's liability or

commercial umbrella/excess liability insurance obtained by Contractor required by this CSA, which must be stated on the certificate of insurance.

Prior to commencing the Work, Contractor shall furnish the Hookston Parties with a certificate(s) of insurance, executed by a duly authorized representative of each insurer, showing compliance with the insurance requirements in this CSA.

All insurance policies must be written by a reputable insurance company acceptable to Hookston or with a current Best's Insurance Guide Rating of A- and Class VII or better, and authorized to do business in the state(s) in which the Work is to be performed.

Section 7. ENFORCEABILITY; CHOICE OF LAW; CHOICE OF FORUM.

This CSA is governed by the Laws of the State of California.

Section 8. INDEPENDENT CONTRACTOR.

Contractor and the agents and employees of the Contractor are not and may not be considered as employees of the parties comprising the Hookston Parties. Contractor is and will remain an independent contractor and nothing herein contained may be construed inconsistent with that status. If the Hookston Parties determine, in their discretion, that any person employed by Contractor or any subcontractor is not performing the Work in accordance with Contractor representations and warranties set forth in this CSA or the relevant Work Authorization, then, upon the request of a majority of the entities comprising the Hookston Parties, Contractor shall permanently remove such person from the Work.

Section 9. PAYMENT OF WAGES AND PAYROLL TAXES.

Contractor shall pay the wages and salaries of the officers and employees of the Contractor in strict accordance with all applicable law, including those relating to wages, prevailing wages, minimum wages, working hours, overtime, and working conditions. Contractor agrees to accept exclusive liability for the payment of any and all payroll taxes or contributions for unemployment insurance or old age pensions or annuities that are measured by the wages, salaries or other remuneration paid to the employees of the Contractor or measured by the performance by Contractor of the services, or the furnishing of equipment, tools, or materials, as provided herein. Contractor shall reimburse the Hookston Parties for any of the aforesaid taxes and contributions that they may be required to pay. Contractor shall comply with all valid administrative regulations respecting the assumption of liability for the aforesaid taxes and contributions and the supplying of information to the proper authorities.

The Contractor agrees to comply with the provisions of 29 Code of Federal Regulations (CFR), Part 470, if applicable.

Section 10. GENERAL INDEMNITY AND LIABILITY.

Contractor shall defend, indemnify, and hold harmless the Hookston Parties from all fines, judgments, awards, claims, demands, liability, losses, damages and expenses (including attorney fees and costs) ("Claims") to the extent caused by Contractor's negligent actions, omissions, or willful misconduct in the performance of this CSA, including but not limited to those Claims based on injury or death to third parties and loss or damage to property belonging to third parties (including environmental claims). If a Claim is brought by an employee of Contractor, then Contractor shall defend, indemnify, and hold harmless the Hookston Parties harmless from such employee's Claim. **EXCEPT AS OTHERWISE SET FORTH HEREIN, CONTRACTOR'S INDEMNIFICATION OBLIGATION WITH RESPECT TO CLAIMS BROUGHT BY CONTRACTOR'S EMPLOYEES HEREUNDER IS EXPRESSLY INTENDED TO INCLUDE INDEMNIFICATION FOR ALL CLAIMS, INCLUDING THOSE CAUSED OR ALLEGED TO BE CAUSED BY THE PARTIAL OR SOLE NEGLIGENCE OF THE HOOKSTON PARTIES AND/OR THEIR EMPLOYEES, WHETHER ACTIVE OR PASSIVE, BUT EXCLUDING HOOKSTON PARTIES' GROSS NEGLIGENCE OR WILLFUL MISCONDUCT. TO THE EXTENT IT MAY LAWFULLY DO SO, CONTRACTOR WAIVES ANY AND ALL DEFENSES UNDER WORKERS' COMPENSATION OR INDUSTRIAL INSURANCE ACTS TO SO INDEMNIFY THE HOOKSTON PARTIES.**

THIS INDEMNIFICATION OBLIGATION BY CONTRACTOR INCLUDES ANY CLAIMS, SUITS OR JUDGMENTS BROUGHT AGAINST THE HOOKSTON PARTIES UNDER THE FEDERAL EMPLOYER'S LIABILITY ACT, INCLUDING CLAIMS FOR STRICT LIABILITY UNDER THE SAFETY APPLIANCE ACT OR THE BOILER INSPECTION ACT.

The Hookston Parties shall give notice to Contractor, in writing, of the receipt or pendency of any Claims. Contractor shall defend the Hookston Parties, at the Hookston Parties' discretion, from and against all Claims for which Contractor has an indemnification obligation with counsel reasonably satisfactory to the Hookston Parties. Contractor may not settle any Claim in a manner that would impose any expense, penalty, obligation or limitation on the Hookston Parties without the prior written consent of each of the parties comprising the Hookston Parties. The Hookston Parties have the right, but not the obligation, to defend any Claim, and if the Hookston Parties opt to defend, Contractor shall remain obligated to indemnify, and save harmless the Hookston Parties from and against all Claims. If Contractor disputes its indemnification obligation with regard to a particular Claim, Contractor shall nevertheless defend the Hookston Parties, and the Hookston Parties shall reimburse Contractor for any portion of the damages, judgments, decrees, attorney fees, costs, and expenses that is determined attributable to the Hookston Parties by a court of competent jurisdiction.

Contractor's obligations to defend, indemnify, and hold harmless exist whether the Claims giving rise to these obligations are made against the parties comprising the Hookston Parties individually or collectively as a whole. Contractor's obligations to

defend, indemnify, and hold harmless the Hookston Parties shall survive the termination or expiration of this CSA and the Work Authorizations.

EXCEPT FOR GROSS NEGLIGENCE, WILLFUL MISCONDUCT OR BREACH OF CONFIDENTIALITY, (A) NEITHER PARTY WILL BE LIABLE FOR ANY INDIRECT, INCIDENTAL, CONSEQUENTIAL, SPECIAL OR PUNITIVE DAMAGES, ECONOMIC LOSSES OR LOST PROFITS, AND (B) CONTRACTOR IS NOT LIABLE IN THE AGGREGATE FOR ANY DAMAGES IN EXCESS OF \$3,000,000.

The obligations and limitations of this Section shall survive any termination of this CSA.

Section 11. CONFIDENTIAL INFORMATION.

County is a political subdivision of the State of California and is, therefore, subject to the California Public Records Act (California Government Code Sections 6250 *et seq.*, the "Act"). Any information provided to the Hookston Parties by Contractor is subject to disclosure pursuant to the Act.

Section 12. RIGHT TO STOP WORK; EXTRA WORK.

The Hookston Parties have the right to stop the Work or make changes in the amount, dimensions or character of the Work as the majority of the Hookston Parties determine is in the best interest of the Hookston Parties. Any increase in the Work that results from such changes, is to be paid for by the Hookston Parties at the same rates as similar work is contracted for under a Work Authorization. Any work that the Hookston Parties may require that is outside the scope of a Work Authorization will be the subject of a separate agreement between the parties or a third-party contractor. Contractor is not liable for any work performed by a third-party contractor.

Contractor has the right to suspend performance of the Work, or terminate this CSA, without liability, immediately upon notice to the Hookston Parties if Contractor determines in its reasonable discretion, based on industry norms and the circumstances surrounding the Work, that the health and safety of its personnel or its subcontractors' personnel is or may be at risk in performing the Work.

Section 13. CONTRACTOR'S BOOKS AND RECORDS – AUDITING.

Contractor shall maintain comprehensive records of its employees, its equipment and the Work performed under this CSA and each Work Authorization. Contractor shall keep these records available for inspection by the Hookston Parties' and their respective authorized representatives at all times for the later to occur of (i) a period of seven (7) years following completion of the Work, and (ii) the expiration or termination of this CSA.

At any time, the Hookston Parties and their respective authorized representatives have the right to audit Contractor's records to determine the accuracy of bills submitted by the Contractor pursuant to this CSA and any Work Authorization. Contractor shall reimburse

the Hookston Parties for amounts that are not supported by the records maintained by Contractor.

Contractor may exclude any hardware infrastructure, trade secrets, proprietary information, confidential data, non-reimbursable costs or derivation of rates or profit margins from any audit conducted.

Section 14. ASSIGNMENT – SUBCONTRACTING.

The Contractor may not assign or subcontract this CSA or any interest therein, except as set forth in a Work Authorization.

The Contractor shall comply with the provisions of 29 CFR, Part 470, if applicable.

Section 15. PATENT, COPYRIGHT, AND OTHER INFRINGEMENTS.

The Contractor shall indemnify, defend, and hold harmless the Hookston Parties from and against any and all claims, lawsuits, judgments, losses, costs, and expenses (including attorneys' fees) arising out of any claims or action made or brought against the Hookston Parties that are based on a claim that any product, equipment, design, or any other material or thing furnished by Contractor, or used by Contractor in performing the Work, including without limitation, any computer software or related equipment or products, infringes upon patent, copyright, trademark, or other proprietary right of any third party, constitutes misappropriation of a trade secret, or constitutes misuse of a license. This indemnification obligation does not apply in the case where the majority of the Hookston Parties directed Contractor to incorporate infringed third-party intellectual property rights into the Work.

Section 16. MODIFICATION – WAIVER OF DEFAULT – ENTIRE CSA.

This CSA may be only be amended in a writing that is signed by Contractor and each of the Hookston Parties. Any waiver by the Hookston Parties of any default by Contractor does not affect or impair any right arising from any subsequent default. This CSA and the Work Authorizations constitute the entire understanding between Contractor and the Hookston Parties with respect to the Work and supersede any prior negotiations, understandings or agreements, whether written or oral, with respect to the Work or any part thereof.

Section 17. ENFORCEABILITY.

If any provision of this agreement is held by a court of competent jurisdiction to be invalid, void or unenforceable, the remainder of the provisions will continue in full force and effect unless the rights and obligations of the parties have been materially altered or abridged by such invalidation, voiding or unenforceability.

There are no third-party beneficiaries to this CSA or the Work Authorizations.

Section 18. RETAINED RIGHTS.

Contractor retains all right, title and interest in and to any invention, whether patentable or not, including but not limited to compositions, formulas, designs, products, and methods, together with any data, and any know-how, copyrights, software programs, trade secrets, patents, copyrightable materials, and other intellectual property ("Intellectual Property") (a) owned, made, conceived, authored, reduced to practice, or otherwise developed by Contractor prior to the Effective Date of this CSA, or (b) developed by Contractor outside the scope of Work under this CSA.

Section 19. MISCELLANEOUS.

The Hookston Parties represents and warrant that (i) they will provide access to the Hookston Site, including access to public and private property as required for Contractor to perform Work, (ii) they will provide complete and accurate information as necessary for Contractor's performance of the Work, (iii) they will approve or direct each specific location for boring, drilling, excavation or other intrusive work before Contractor performs Work, (iv) Contractor may rely on all information provided by the Hookston Parties in order for Contractor to perform Work, (v) Contractor is not responsible for any conditions existing at Hookston Site prior to Contractor's performance of any work at the Hookston Site related to the Order, (vi) Contractor is not responsible for handling or transporting hazardous materials or other waste from the Hookston Site, for which the Hookston Parties remain liable, and (vii) the Hookston Parties remain liable for the acts or omissions of any third parties that the Hookston Parties engage to perform work at the Hookston Site.

[Remainder of Page Intentionally Left Blank]

The parties are signing this CSA as of the date set forth in the introductory paragraph.

UNION PACIFIC RAILROAD: UNION PACIFIC RAILROAD COMPANY

By: _____

Title: _____

Printed Name: _____

CONTRA COSTA COUNTY

By: _____

Title: _____

Printed Name: _____

HOOKSTON GROUP

By: _____

Title: _____

Printed Name: _____

CONTRACTOR: ERM-West, Inc.

By: _____

Title: _____

Printed Name: _____



30 November 2021

via Electronic Mail

Ms. Mary Lou Helix
1102 Northridge Court
Concord, CA 94518

Ms. Lauren Mancuso
Union Pacific Railroad Company
1408 Middle Harbor Road
Oakland, CA 94607

Ms. Maureen Toms
Contra Costa County
C/O Department of Conservation and Development
30 Muir Road
Martinez, CA 94553

Subject: Work Authorization for Additional Required Tasks through January 2023
Hookston Station Site
Pleasant Hill, California

Dear Ms. Helix, Ms. Mancuso, and Ms. Toms:

ERM-West, Inc. (ERM) is pleased to provide this Work Authorization for additional environmental services at the Hookston Station site in Pleasant Hill, California (site) through the end of January 2023. ERM's previous work at this site has been performed on behalf of the Hookston Parties, which consist of Union Pacific Railroad Company (UPRR); Mary Lou Helix, Karen Hook, Debbie Hook, and Blake Pucell (together the Hookston Group); and Contra Costa County. The site is currently regulated under Regional Water Quality Control Board (RWQCB) Order No. R2-2007-0009, *Adoption of Final Site Cleanup Requirements and Rescission of Order Nos. R2-2003-0035 and R2-2004-0081*, dated 30 January 2007 (Order).

All tasks in this proposed scope of work are being conducted to satisfy the ongoing requirements of the Order, the RWQCB approved scope of work in *Colony Park Town House Vapor Intrusion Investigation Workplan*, dated 16 December 2016, recommendations made in the *Colony Park Town Houses Vapor Intrusion Interim Progress Report*, dated 2 July 2021, the *Mid-Plume High Resolution Site Characterization Results* document, dated 9 July 2021, and comments on the *Feasibility Study Addendum/Remedial Design and Implementation Plan*, dated 31 March 2021 issued by the RWQCB in an email dated 14 June 2021. This Work Authorization covers all currently known scopes of work to satisfy RWQCB requirements and does not include any additional elements that may be required by the RWQCB in the future. These tasks are estimated to be completed by January 2023.

This Work Authorization describes the following tasks to be performed by ERM:

- Task 1: Colony Park Town Houses Vapor Intrusion Investigation

- Task 2: Additional Mid-Plume Targeted Treatment Area Hydropunch Assessment
- Task 3: Update to Feasibility Study/Remedial Design and Implementation Plan
- Task 4: 2022 Annual Soil Vapor Monitoring and Reporting
- Task 5: 2022 Annual Indoor Air Sampling and Reporting
- Task 6: Project Management

The following sections provide a rationale for the proposed work; a brief description of the scope of work; and cost estimate for performing the tasks outlined above. Note, that there is no groundwater monitoring and sampling activities proposed in 2022, as the Self Monitoring Program (SMP) approved by RWQCB directs the Hookston Parties to conduct groundwater sampling on a biennial basis during odd years.

PROPOSED SCOPE OF WORK

A description of work to be performed under each task is provided below. All proposed work is required by the current Order.

Task 1 – Colony Park Town Houses Vapor Intrusion Investigation

This scope item satisfies the contingency sampling plan outlined in *Colony Park Town House Vapor Intrusion Investigation Workplan*, dated 16 December 2016 to perform subslab vapor and indoor air sampling in three of the Colony Park Town Houses. The performance of the contingency sampling plan is required based on the results of the initial vapor intrusion investigation results at the Colony Park Town House property, as presented in the *Colony Park Town Houses Vapor Intrusion Investigation Progress Report*, dated 2 July 2021. The scope of work includes the installation of a sub-slab vapor pin, and the collection of a sub-slab vapor sample, and two indoor air samples in each of the three town house buildings.

The following items will be performed as part of the scope of work:

- Fieldwork preparation activities will include:
 - Coordinate access with the property owners of the three Colony Park Town House buildings for advancement of soil vapor pins
 - Update the site Health and Safety Plan to include new project tasks and investigation procedures
 - Coordinate with subcontractors
- Performance of field investigation activities will include:
 - USA markout and subsurface utility clearance
 - Install soil vapor pins using a roto sonic drill
 - Collect sub-slab vapor samples and indoor air samples
- Review the field data collected during the site assessment, perform quality assurance/quality control (QA/QC) evaluation of laboratory reports, and tabulate field and analytical data

The results of the assessment activities will be summarized in a stand-alone report. ERM will provide a draft version of the report to the Hookston Parties for review, and comments/ revisions will be incorporated into the final submittal to the RWQCB.

Task 2 – Additional Mid-Plume Targeted Treatment Area Hydropunch Assessment

This scope item satisfies recommendations for additional grab groundwater sampling as described in the *Mid-Plume High Resolution Site Characterization Results* document, dated 9 July 2021. The previous scope of work was performed to refine the extent of the Mid-Plume Targeted Treatment Area, as initially outlined in the *Feasibility Study Addendum/Remedial Design and Implementation Plan*, dated 31 March 2021; however, the results of the investigation did not provide the full delineation of the targeted mid-plume treatment zone. The Hookston Parties approved ERM's recommendation to perform additional assessment in the targeted mid-plume treatment area during a conference call meeting held on 1 July 2021, and the recommendation was included in the *Mid-Plume High Resolution Site Characterization Results* document, submitted to the RWQCB on 9 July 2021. The proposed scope includes the advancement of three additional clusters of direct push soil borings for the collection of grab groundwater samples from the A1-, A2-, and B-Zones to refine our understanding of the distribution of dissolved-phase volatile organic compounds (VOCs) farther southeast than the previously-completed scope of work. These data will be use to refine the final extent of the Mid-Plume Targeted Treatment Area. The soil borings will be advanced to depths of up to 60 feet below ground surface.

The following items will be performed as part of the scope of work:

- Fieldwork preparation activities will include:
 - Coordinate access for advancement of soil borings in public right of way
 - Obtain soil boring permits from Contra Costa County
 - Update the site Health and Safety Plan to include new project tasks and investigation procedures
 - Coordinate with subcontractors
- Performance of field investigation activities will include:
 - USA markout and subsurface utility clearance
 - Advance soil borings with direct push tooling and collect grab groundwater samples
- Review the field data collected during the site assessment, perform quality assurance/quality control (QA/QC) evaluation of laboratory reports, and tabulate field and analytical data

The results of the assessment activities will be summarized in the revised *Feasibility Study Addendum/Remedial Design and Implementation Plan*. ERM will provide a draft version of the report to the Hookston Parties for review, and comments/ revisions will be incorporated into the final submittal to the RWQCB.

Task 3 – Update to Remedial Design and Implementation Plan

In an email dated 14 June 2021, RWQCB provided the following comments to the *Feasibility Study Addendum/Remedial Design and Implementation Plan*:

- Installation of a new monitoring well in the source area
- Provide time estimates to reach cleanup goals for the entire plume
- Include treatment of the B-Zone in the area downgradient of the permeable reactive barrier (PRB), depending on the results of the time estimate to reach cleanup goals evaluation
- Include all existing wells that exceed the cleanup goals in the performance monitoring program
- Provide a list of property owners within 500 feet of the plume boundary for public notification of the remedial strategy proposed in the *Feasibility Study Addendum/Remedial Design and Implementation Plan*

ERM will prepare an update to the *Feasibility Study Addendum/Remedial Design and Implementation Plan* to address the RWQCB comments presented above. This scope of this document includes the following elements:

- A review of recent and historical groundwater VOC data, placing the data into a database for statistical analysis and data visualization
- Trend analyses of existing wells to estimate cleanup timeframes under current conditions, and will provide estimated timeframes for the effects of the additional groundwater treatment to reach downgradient monitoring wells
- An evaluation of the benefits of supplemental B-Zone treatment in the PRB area, and the inclusion of a B-Zone treatment design if needed
- Redefining the performance monitoring program
- Revision to the Mid-Plume Treatment Area remedial design based on the results of the assessment activities presented above under Task 2
- Evaluation of potential source area remediation options

Additionally, ERM will review the list of property owners within a 500 foot radius of the plume boundary and assist RWQCB with the preparation and submission of a public notice regarding the final alternative remedial plan.

ERM will provide a draft version of the report to the Hookston Parties for review, and comments/ revisions will be incorporated into the final submittal to the RWQCB.

Task 4 – 2022 Annual Soil Vapor Sampling and Reporting

ERM will perform routine soil vapor sampling for the site during the Third Quarter 2022. ERM will subcontract Blaine Tech Services to sample 13 soil vapor wells. The samples will be analyzed for the presence of volatile organic compounds (VOC). Laboratory costs for sample analyses are included in this task, which includes 13 soil vapor samples and two quality assurance/quality control soil vapor samples. The results of the annual soil vapor sampling will be included in the Annual Monitoring

Status Report, which will be submitted to the RWQCB by 30 January 2023. A draft of the report will be submitted to the Hookston Parties for review as soon as it is available, but no later than a minimum of two weeks prior to submission to the RWQCB. The report will document soil vapor sampling, vapor intrusion prevention systems (VIPS) inspections, and other activities conducted during that time period. VIPS inspections are contracted directly with the Hookston Parties and are not included in this scope of work. Groundwater monitoring will not be performed in 2022 per the revisions to the SMP.

Task 5 – 2022 Annual Indoor Air Sampling and Reporting

ERM will perform annual indoor air sampling at selected properties within the Indoor Air Study Area during the Third Quarter 2022. After the completion of field activities, ERM will prepare a report that documents sampling activities, presents tabulated data, and evaluates indoor air concentration trends over time, following the existing template for prior reports as approved by the RWQCB. ERM will provide a draft version of the report to the Hookston Parties for review, and comments/revisions will be incorporated into the final submittal to the RWQCB. ERM will mail analytical results for each house sampled to the residence as required by the Order.

Task 6 – Project Management

This task will cover the management activities associated with the tasks to complete activities as presented in Tasks 1, 2, 3, 4, and 5. These activities include cost tracking; calls, meetings, and strategic support from ERM for regulatory agency interactions; and routine communications with the Hookston Parties through 31 January 2023.

Task 6a covers additional project management costs for tasks described in this Work Authorization that will be completed through the end of calendar year 2021 (Tasks 1, 2, and 3). Task 6b covers project management costs for routine annual tasks described in this Work Authorization that will be completed in calendar year 2022 through January 2023 and include a 3% annual labor escalation (Tasks 4 and 5).

ESTIMATED PROBABLE COST

The estimated probable cost to perform the proposed scope of work is \$210,233, as summarized in the tables included as [Appendix A](#). This budget is being proposed on a time-and-materials basis of hourly charges for ERM personnel, plus direct expenses. Only those costs incurred will be charged, and will not exceed the estimated cost without prior approval by the Hookston Parties. The estimated cost is an estimated maximum, which we fully expect will cover the services described herein, but no guarantee is made or implied. Our previous contract with the Hookston Parties has expired. This work will be performed in accordance with Consulting Services Agreement between the Hookston Parties and ERM dated 14 December 2021.

A cost summary by task is provided in the table below.

Task	Description	Total
1	Colony Park Town Houses Vapor Intrusion Investigation	\$37,277
2	Additional Mid-Plume Targeted Treatment Area Hydropunch Assessment	\$45,123

3	Update to Feasibility Study/Remedial Design and Implementation Plan	\$37,691
4	2022 Annual Soil Vapor Sampling and Reporting	\$20,801
5	2022 Annual Indoor Air Sampling and Reporting	\$23,714
6a	Project Management 2021	\$21,035
6b	Project Management 2022	\$24,592
Estimated Probable Cost		\$210,233

CLOSING AND SCHEDULE

ERM is prepared to start the scope of work outlines above immediately upon approval of this Work Authorization by the Hookston Parties. An estimated project schedule has been included as [Appendix B](#). This estimated schedule assumes approval of this CWA by Friday 17 December 2021; the dates listed in the estimated schedule will need to be adjusted based on the final approval date from the Hookston Parties.

AUTHORIZATION

If this Work Authorization is acceptable, please have an authorized representative sign in the space provided below and return a copy to ERM for our files. The above-referenced offer is valid for 90 days.

ERM-West, Inc.

Client Approval

UPRR Representative

Signature

Brian Bjorklund

Printed Name

Partner

Title

Date

Signature

Printed Name

Title

Date

Contra Costa County Representative

Signature

Printed Name

Title

Date

Helix Trust Representative

Signature

Printed Name

Title

Date

APPENDIX A COST ESTIMATE TABLES

APPENDIX B ESTIMATED PROJECT SCHEDULE



1 November 2021

via Electronic Mail

Ms. Mary Lou Helix
1102 Northridge Court
Concord, CA 94518

Ms. Lauren Mancuso
Union Pacific Railroad Company
1408 Middle Harbor Road
Oakland, CA 94607

Ms. Maureen Toms
Contra Costa County
C/O Department of Conservation and Development
30 Muir Road
Martinez, CA 94553

Subject: Cost Estimate for Additional Required Tasks through January 2023
Hookston Station Site
Pleasant Hill, California

Dear Ms. Helix, Ms. Mancuso, and Ms. Toms:

ERM-West, Inc. (ERM) is pleased to provide this proposal for additional environmental services at the Hookston Station site in Pleasant Hill, California (site) through the end of January 2023. ERM's previous work at this site has been performed on behalf of the Hookston Parties, which consist of Union Pacific Railroad Company (UPRR), Mary Lou Helix (on behalf of herself and Karen Hook, Debbie Hook, and Blake Pucell), and Contra Costa County. The site is currently regulated under Regional Water Quality Control Board (RWQCB) Order No. R2-2007-0009, *Adoption of Final Site Cleanup Requirements and Rescission of Order Nos. R2-2003-0035 and R2-2004-0081*, dated 30 January 2007 (Order).

All tasks in this proposed scope of work are being conducted to satisfy the ongoing requirements of the Order, the RWQCB approved scope of work in *Colony Park Town House Vapor Intrusion Investigation Workplan*, dated 16 December 2016, recommendations made in the *Colony Park Town Houses Vapor Intrusion Interim Progress Report*, dated 2 July 2021, the *Mid-Plume High Resolution Site Characterization Results* document, dated 9 July 2021, and comments on the *Feasibility Study Addendum/Remedial Design and Implementation Plan*, dated 31 March 2021 issued by the RWQCB in an email dated 14 June 2021. This proposal covers all currently known scopes of work to satisfy RWQCB requirements and does not include any additional elements that may be required by the RWQCB in the future. These tasks are estimated to be completed by January 2023.

This proposal describes the following tasks to be performed by ERM:

- Task 1: Colony Park Town Houses Vapor Intrusion Investigation

- Task 2: Additional Mid-Plume Targeted Treatment Area Hydropunch Assessment
- Task 3: Update to Feasibility Study/Remedial Design and Implementation Plan
- Task 4: 2022 Annual Soil Vapor Monitoring and Reporting
- Task 5: 2022 Annual Indoor Air Sampling and Reporting
- Task 6: Project Management

The following sections provide a rationale for the proposed work; a brief description of the scope of work; and cost estimate for performing the tasks outlined above. Note, that there is no groundwater monitoring and sampling activities proposed in 2022, as the Self Monitoring Program (SMP) approved by RWQCB directs the Hookston Parties to conduct groundwater sampling on a biennial basis during odd years.

PROPOSED SCOPE OF WORK

A description of work to be performed under each task is provided below. All proposed work is required by the current Order.

Task 1 – Colony Park Town Houses Vapor Intrusion Investigation

This scope item satisfies the contingency sampling plan outlined in *Colony Park Town House Vapor Intrusion Investigation Workplan*, dated 16 December 2016 to perform subslab vapor and indoor air sampling in three of the Colony Park Town Houses. The performance of the contingency sampling plan is required based on the results of the initial vapor intrusion investigation results at the Colony Park Town House property, as presented in the *Colony Park Town Houses Vapor Intrusion Investigation Progress Report*, dated 2 July 2021. The scope of work includes the installation of a sub-slab vapor pin, and the collection of a sub-slab vapor sample, and two indoor air samples in each of the three town house buildings.

The following items will be performed as part of the scope of work:

- Fieldwork preparation activities will include:
 - Coordinate access with the property owners of the three Colony Park Town House buildings for advancement of soil vapor pins
 - Update the site Health and Safety Plan to include new project tasks and investigation procedures
 - Coordinate with subcontractors
- Performance of field investigation activities will include:
 - USA markout and subsurface utility clearance
 - Install soil vapor pins using a roto sonic drill
 - Collect sub-slab vapor samples and indoor air samples
- Review the field data collected during the site assessment, perform quality assurance/quality control (QA/QC) evaluation of laboratory reports, and tabulate field and analytical data

The results of the assessment activities will be summarized in a stand-alone report. ERM will provide a draft version of the report to the Hookston Parties for review, and comments/ revisions will be incorporated into the final submittal to the RWQCB.

Task 2 – Additional Mid-Plume Targeted Treatment Area Hydropunch Assessment

This scope item satisfies recommendations for additional grab groundwater sampling as described in the *Mid-Plume High Resolution Site Characterization Results* document, dated 9 July 2021. The previous scope of work was performed to refine the extent of the Mid-Plume Targeted Treatment Area, as initially outlined in the *Feasibility Study Addendum/Remedial Design and Implementation Plan*, dated 31 March 2021; however, the results of the investigation did not provide the full delineation of the targeted mid-plume treatment zone. The Hookston Parties approved ERM's recommendation to perform additional assessment in the targeted mid-plume treatment area during a conference call meeting held on 1 July 2021, and the recommendation was included in the *Mid-Plume High Resolution Site Characterization Results* document, submitted to the RWQCB on 9 July 2021. The proposed scope includes the advancement of three additional clusters of direct push soil borings for the collection of grab groundwater samples from the A1-, A2-, and B-Zones to refine our understanding of the distribution of dissolved-phase volatile organic compounds (VOCs) farther southeast than the previously-completed scope of work. These data will be use to refine the final extent of the Mid-Plume Targeted Treatment Area. The soil borings will be advanced to depths of up to 60 feet below ground surface.

The following items will be performed as part of the scope of work:

- Fieldwork preparation activities will include:
 - Coordinate access for advancement of soil borings in public right of way
 - Obtain soil boring permits from Contra Costa County
 - Update the site Health and Safety Plan to include new project tasks and investigation procedures
 - Coordinate with subcontractors
- Performance of field investigation activities will include:
 - USA markout and subsurface utility clearance
 - Advance soil borings with direct push tooling and collect grab groundwater samples
- Review the field data collected during the site assessment, perform quality assurance/quality control (QA/QC) evaluation of laboratory reports, and tabulate field and analytical data

The results of the assessment activities will be summarized in the revised *Feasibility Study Addendum/Remedial Design and Implementation Plan*. ERM will provide a draft version of the report to the Hookston Parties for review, and comments/ revisions will be incorporated into the final submittal to the RWQCB.

Task 3 – Update to Remedial Design and Implementation Plan

In an email dated 14 June 2021, RWQCB provided the following comments to the *Feasibility Study Addendum/Remedial Design and Implementation Plan*:

- Installation of a new monitoring well in the source area
- Provide time estimates to reach cleanup goals for the entire plume
- Include treatment of the B-Zone in the area downgradient of the permeable reactive barrier (PRB), depending on the results of the time estimate to reach cleanup goals evaluation
- Include all existing wells that exceed the cleanup goals in the performance monitoring program
- Provide a list of property owners within 500 feet of the plume boundary for public notification of the remedial strategy proposed in the *Feasibility Study Addendum/Remedial Design and Implementation Plan*

ERM will prepare an update to the *Feasibility Study Addendum/Remedial Design and Implementation Plan* to address the RWQCB comments presented above. This scope of this document includes the following elements:

- A review of recent and historical groundwater VOC data, placing the data into a database for statistical analysis and data visualization
- Trend analyses of existing wells to estimate cleanup timeframes under current conditions, and will provide estimated timeframes for the effects of the additional groundwater treatment to reach downgradient monitoring wells
- An evaluation of the benefits of supplemental B-Zone treatment in the PRB area, and the inclusion of a B-Zone treatment design if needed
- Redefining the performance monitoring program
- Revision to the Mid-Plume Treatment Area remedial design based on the results of the assessment activities presented above under Task 2
- Evaluation of potential source area remediation options

Additionally, ERM will review the list of property owners within a 500 foot radius of the plume boundary and assist RWQCB with the preparation and submission of a public notice regarding the final alternative remedial plan.

ERM will provide a draft version of the report to the Hookston Parties for review, and comments/revisions will be incorporated into the final submittal to the RWQCB.

Task 4 – 2022 Annual Soil Vapor Sampling and Reporting

ERM will perform routine soil vapor sampling for the site during the Third Quarter 2022. ERM will subcontract Blaine Tech Services to sample 13 soil vapor wells. The samples will be analyzed for the presence of volatile organic compounds (VOC). Laboratory costs for sample analyses are included in this task, which includes 13 soil vapor samples and two quality assurance/quality control soil vapor samples. The results of the annual soil vapor sampling will be included in the Annual Monitoring

Status Report, which will be submitted to the RWQCB by 30 January 2023. A draft of the report will be submitted to the Hookston Parties for review as soon as it is available, but no later than a minimum of two weeks prior to submission to the RWQCB. The report will document soil vapor sampling, vapor intrusion prevention systems (VIPS) inspections, and other activities conducted during that time period. VIPS inspections are contracted directly with the Hookston Parties and are not included in this scope of work. Groundwater monitoring will not be performed in 2022 per the revisions to the SMP.

Task 5 – 2022 Annual Indoor Air Sampling and Reporting

ERM will perform annual indoor air sampling at selected properties within the Indoor Air Study Area during the Third Quarter 2022. After the completion of field activities, ERM will prepare a report that documents sampling activities, presents tabulated data, and evaluates indoor air concentration trends over time, following the existing template for prior reports as approved by the RWQCB. ERM will provide a draft version of the report to the Hookston Parties for review, and comments/revisions will be incorporated into the final submittal to the RWQCB. ERM will mail analytical results for each house sampled to the residence as required by the Order.

Task 6 – Project Management

This task will cover the management activities associated with the tasks to complete activities as presented in Tasks 1, 2, 3, 4, and 5. These activities include cost tracking; calls, meetings, and strategic support from ERM for regulatory agency interactions; and routine communications with the Hookston Parties through 31 January 2023.

Task 6a covers additional project management costs for tasks described in this proposal that will be completed through the end of calendar year 2021 (Tasks 1, 2, and 3). Task 6b covers project management costs for routine annual tasks described in this proposal that will be completed in calendar year 2022 through January 2023 and include a 3% annual labor escalation (Tasks 4 and 5).

ESTIMATED PROBABLE COST

The estimated probable cost to perform the proposed scope of work is \$204,990, as summarized in the tables included as [Appendix A](#). This budget is being proposed on a time-and-materials basis of hourly charges for ERM personnel, plus direct expenses. Only those costs incurred will be charged, and will not exceed the estimated cost without prior approval by the Hookston Parties. The estimated cost is an estimated maximum, which we fully expect will cover the services described herein, but no guarantee is made or implied. Our previous contract with the Hookston Parties has expired. This work will be performed in accordance with updated contracting documents, provided as [Appendix B](#).

A cost summary by task is provided in the table below.

Task	Description	Total
1	Colony Park Town Houses Vapor Intrusion Investigation	\$37,277
2	Additional Mid-Plume Targeted Treatment Area Hydropunch Assessment	\$45,123
3	Update to Feasibility Study/Remedial Design and Implementation Plan	\$37,691
4	2022 Annual Soil Vapor Sampling and Reporting	\$20,801

5	2022 Annual Indoor Air Sampling and Reporting	\$23,714
6a	Project Management 2021	\$21,035
6b	Project Management 2022	\$24,592
Estimated Probable Cost		\$210,233

CLOSING AND SCHEDULE

ERM is prepared to start the scope of work outlines above immediately upon approval of this proposal by the Hookston Parties. An estimated project schedule has been included as [Appendix C](#). This estimated schedule assumes approval of this proposal by Friday 5 November 2021; the dates listed in the estimated schedule will need to be adjusted based on the final approval date from the Hookston Parties.

AUTHORIZATION

If this proposal is acceptable, please have an authorized representative sign in the space provided below and return a copy to ERM for our files. The above-referenced offer is valid for 90 days. In addition, please execute the attached Agreement provided in [Appendix A](#) and return to us for our files.

ERM-West, Inc.

Signature

Brian Bjorklund

Printed Name

Partner

Title

Date**Client Approval****UPRR Representative**

Signature

Printed Name

Title

Date**Contra Costa County Representative**

Signature

Printed Name

Title

Date**Helix Trust Representative**

Signature

Printed Name

Title

Date

APPENDIX A COST ESTIMATE TABLES

PROPOSAL SUMMARY

Cost Estimate for Tasks through Calendar Year 2021
Hookston Station Site, Pleasant Hill, CA
ERM-West, Inc.

SCOPE OF WORK

The following activities to be conducted during Third Quarter 2021 and through the First Quarter 2022 are included in this proposal:

- 1) CPTA VI Assessment
- 2) Additional Mid-Plume Hydropunch
- 3) FS/RDIP Update
- 4) 2022 Annual Soil Vapor Sampling and Reporting
- 5) 2022 Annual Indoor Air Sampling and Reporting
- 6) Regulatory Management 2021
- 7) Regulatory Management 2022

GRAND TOTALS	AMOUNT
Total Agreement Dollars	\$ 210,233
Total Labor Dollars	\$ 157,174
Total Labor Hours	1,314

SERVICE ITEM TOTALS	
SERVICE ITEM	AMOUNT
WP/Sec	\$ 5,662
Staff Associate	\$ 33,969
CAD Operator	\$ 5,317
Project Associate	\$ 37,808
Project Manager	\$ 20,369
Sr. Project Manager	\$ 30,030
Program Director	\$ 13,659
Principal	\$ 10,360
TOTAL	\$ 157,174
Reimbursables	\$ 2,720
Materials	\$ 5,904
Markup on Materials	\$ 295
Subcontractors	\$ 41,995
Markup on Subs	\$ 2,145
TOTAL	\$ 53,059

Distribute total agreement amount to the year when work will occur	
YEAR	DOLLAR AMOUNT
2020	\$ -
2021	\$ 141,126
2022	\$ 69,107

TOTAL AMOUNT PER TASK			
TASK	AMOUNT	LABOR	SUBS + ODCs
Task 1 - CPTA Indoor Air Assessment	\$ 37,277	\$ 28,664	\$ 8,613
Task 2 - Additional Mid-Plume Hydropunch	\$ 45,123	\$ 21,031	\$ 24,093
Task 3 - FS/RDIP Update	\$ 37,691	\$ 36,916	\$ 775
Task 4 - 2022 SV Field Work and Annual Reporting	\$ 20,801	\$ 11,428	\$ 9,372
Task 5 - 2022 Indoor Air and Reporting	\$ 23,714	\$ 13,507	\$ 10,207
Task 6a - Regulatory Management 2021	\$ 21,035	\$ 21,035	\$ -
Task 6b - Regulatory Management 2022	\$ 24,592	\$ 24,592	\$ -
Totals	\$ 210,233	\$ 157,174	\$ 53,059

Task 1 - CPTHA Indoor Air Assessment

SUMMARY	
Total for Job Number	\$ 37,277
Total Labor	\$ 28,664
Total Hours	246.0

				CPTHA Access and Pre-Field		CPTHA Assessment		Data Entry and QA/QC		Report Preparation	
PROPOSALS				Sub Task 1		Sub Task 2		Sub Task 3		Sub Task 4	
Category		Totals		Location		Location		Location		Location	
SI Number - Description	Rate	Quantity	(\$)	Quantity	(\$)	Quantity	(\$)	Quantity	(\$)	Quantity	(\$)
WP/Sec	\$ 56.44	16.0	\$ 903	10.0	\$ 564	-	\$ -	-	\$ -	6.0	\$ 339
Staff Associate	\$ 104.83	84.0	\$ 8,806	30.0	\$ 3,145	40.0	\$ 4,193	8.0	\$ 839	6.0	\$ 629
CAD Operator	\$ 104.83	8.0	\$ 839	-	\$ -	-	\$ -	-	\$ -	8.0	\$ 839
Project Associate	\$ 110.21	70.0	\$ 7,715	16.0	\$ 1,763	10.0	\$ 1,102	8.0	\$ 882	36.0	\$ 3,968
Project Manager	\$ 126.33	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -
Sr. Project Manager	\$ 147.83	50.0	\$ 7,392	20.0	\$ 2,957	8.0	\$ 1,183	4.0	\$ 591	18.0	\$ 2,661
Program Director	\$ 161.28	10.0	\$ 1,613	-	\$ -	4.0	\$ 645	-	\$ -	6.0	\$ 968
Principal	\$ 174.71	8.0	\$ 1,398	4.0	\$ 699	-	\$ -	-	\$ -	4.0	\$ 699
Reimbursables	Actual	-	\$ 620		\$ -		\$ 420		\$ -		\$ 200
Materials	Actual	-	\$ 2,212		\$ 1,312		\$ 800		\$ 100		\$ -
Markup on Materials	5%	-	\$ 111		\$ 66		\$ 40		\$ 5		\$ -
Subcontractors	Actual	-	\$ 5,400		\$ -		\$ 5,400		\$ -		\$ -
Markup on Subs	5%	-	\$ 270		\$ -		\$ 270		\$ -		\$ -
Mileage	\$0.580	-	\$ -		\$ -		\$ -		\$ -		\$ -
Per Diem	\$125.00	-	\$ -		\$ -		\$ -		\$ -		\$ -
Grand Totals			\$ 37,277		\$ 10,506		\$ 14,053		\$ 2,417		\$ 10,301

REIMBURSABLE DETAILS		
ITEM	SUB TASK	AMOUNT

Reimbursable Total (Check Cell E22) \$ -

MATERIAL DETAILS		
ITEM	SUB TASK	AMOUNT

Materials Total (Check Cell E23) \$ -

SUBCONTRACTOR DETAILS		
ITEM	SUB TASK	AMOUNT

Subcontractor Total (Check Cell E25) \$ -

Budget Assumptions

LABOR DETAILS		Sub Task 1 - CPTHA Access and Pre-Field	
Category	Hours	Assumptions	
WP/Sec	10.0	Property access communication and correspondence	
Staff Associate	30.0	Property access communication, coordination assistance, HASP update	
CAD Operator			
Project Associate	16.0	project coordination, permitting, HASP updates	
Project Manager			
Sr. Project Manager	20.0	PM oversight, client communications, property access communication	
Program Director			
Principal	4.0	technical input/ review	

LABOR DETAILS	Sub Task 2 - CPTA Assessment	
Category	Hours	Assumptions
WP/Sec		
Staff Associate	40.0	4 days field work - USA markout (0.5), utility location (1), soil vapor sampling (1), indoor air sampling (1.5)
CAD Operator		
Project Associate	10.0	1 day field work
Project Manager		
Sr. Project Manager	8.0	field implementation oversight
Program Director	4.0	field implementation oversight
Principal		

LABOR DETAILS		Sub Task 3 - Data Entry and QA/QC
Category	Hours	Assumptions
WP/Sec		
Staff Associate	8.0	data entry, data tabulaiton
CAD Operator		
Project Associate	8.0	Data QC, QC report generation
Project Manager		
Sr. Project Manager	4.0	QC Data review
Program Director		
Principal		

LABOR DETAILS		Sub Task 4 - Report Preparation	
Category	Hours	Assumptions	
WP/Sec	6.0	report copy production	
Staff Associate	6.0	data tabulation	
CAD Operator	8.0	Figure creation	
Project Associate	36.0	Report drafting and editing	
Project Manager			
Sr. Project Manager	18.0	Report review and project team coordination	
Program Director	6.0	Document review	
Principal	4.0	Document review	

REIMBURSABLE DETAILS	Sub Task 1 - CPTA Access and Pre-Field			
Item	# of Units	Price	Total	Assumption
TOTAL			\$ -	

REIMBURSABLE DETAILS	Sub Task 2 - CPTA Assessment			
Item	# of Units	Price	Total	Assumption
Truck	4	\$105	\$ 420.00	
TOTAL			\$ 420.00	

REIMBURSABLE DETAILS	Sub Task 3 - Data Entry and QA/QC			
Item	# of Units	Price	Total	Assumption
TOTAL			\$ -	

REIMBURSABLE DETAILS		Sub Task 4 - Report Preparation		
Item	# of Units	Price	Total	Assumption
CAD - Recovery Computer	8.00	\$25	\$ 200.00	recovery rate
TOTAL			\$ 200.00	

MATERIALS DETAILS		Sub Task 1 - CPTA Access and Pre-Field		
Item	# of Units	Price	Total	Assumption
Soil Boring Permit	1	\$1,112	\$ 1,112.00	
Postage	1	\$200	\$ 200.00	
TOTAL			\$ 1,312.00	

MATERIALS DETAILS		Sub Task 2 - CPTA Assessment		
Item	# of Units	Price	Total	Assumption
PID	4	\$150	\$ 600.00	
Sampling Supplies	1	\$200	\$ 200.00	
TOTAL			\$ 800.00	

MATERIALS DETAILS		Sub Task 3 - Data Entry and QA/QC		
Item	# of Units	Price	Total	Assumption
Shipping- Reports	1	\$100	\$ 100.00	
TOTAL			\$ 100.00	

MATERIALS DETAILS		Sub Task 4 - Report Preparation		
Item	# of Units	Price	Total	Assumption
TOTAL			\$ -	

SUBCONTRACTOR DETAILS		Sub Task 1 - CPTA Access and Pre-Field		
Item	# of Units	Price	Total	Assumption
TOTAL			\$ -	

SUBCONTRACTOR DETAILS		Sub Task 2 - CPTA Assessment		
Item	# of Units	Price	Total	Assumption
GPRS Utility Location	1	\$1,500	\$ 1,500.00	
Pace-summa	18	\$25	\$ 450.00	
Pace-flow controller	18	\$35	\$ 630.00	
Pace-VOCs TO-15	10	\$130	\$ 1,300.00	7 primary, 1 FD, 1 TB, 1 contingency
Pace-VOCs TO-15 SIM	8	\$190	\$ 1,520.00	5 primary, 1 FD, 1 TB, 1 contingency
TOTAL			\$ 5,400.00	

SUBCONTRACTOR DETAILS		Sub Task 3 - Data Entry and QA/QC		
Item	# of Units	Price	Total	Assumption
TOTAL			\$ -	

SUBCONTRACTOR DETAILS		Sub Task 4 - Report Preparation		
Item	# of Units	Price	Total	Assumption
TOTAL			\$ -	

Task 2 - Additional Mid-Plume Hydropunch

SUMMARY	
Total for Job Number	\$ 45,123
Total Labor	\$ 21,031
Total Hours	181.0

PROPOSALS		Field Work Prep				Hydropunch Sampling				Reporting			
		Sub Task 1		Sub Task 2		Sub Task 3		Sub Task 4					
Category		Totals		Location		Location		Location		Location			
SI Number - Description	Rate	Quantity	(\$)	Quantity	(\$)	Quantity	(\$)	Quantity	(\$)	Quantity	(\$)	Quantity	(\$)
WP/Sec	\$ 56.44	6.0	\$ 339	-	\$ -	-	\$ -	6.0	\$ 339	-	\$ -	-	\$ -
Staff Associate	\$ 104.83	62.0	\$ 6,499	12.0	\$ 1,258	30.0	\$ 3,145	20.0	\$ 2,097	-	\$ -	-	\$ -
CAD Operator	\$ 104.83	8.0	\$ 839	-	\$ -	-	\$ -	8.0	\$ 839	-	\$ -	-	\$ -
Project Associate	\$ 110.21	62.0	\$ 6,833	16.0	\$ 1,763	30.0	\$ 3,306	16.0	\$ 1,763	-	\$ -	-	\$ -
Project Manager	\$ 126.33	8.0	\$ 1,011	8.0	\$ 1,011	-	\$ -	-	\$ -	-	\$ -	-	\$ -
Sr. Project Manager	\$ 147.83	18.0	\$ 2,661	-	\$ -	6.0	\$ 887	12.0	\$ 1,774	-	\$ -	-	\$ -
Program Director	\$ 161.28	9.0	\$ 1,452	-	\$ -	3.0	\$ 484	6.0	\$ 968	-	\$ -	-	\$ -
Principal	\$ 174.71	8.0	\$ 1,398	4.0	\$ 699	-	\$ -	4.0	\$ 699	-	\$ -	-	\$ -
Reimbursables	Actual	-	\$ 725		\$ 210		\$ 315		\$ 200		\$ -		\$ -
Materials	Actual	-	\$ 2,662		\$ 2,112		\$ 450		\$ 100		\$ -		\$ -
Markup on Materials	5%	-	\$ 133		\$ 106		\$ 23		\$ 5		\$ -		\$ -
Subcontractors	Actual	-	\$ 19,550		\$ 1,500		\$ 18,050		\$ -		\$ -		\$ -
Markup on Subs	5%	-	\$ 1,023		\$ 120		\$ 903		\$ -		\$ -		\$ -
Mileage	\$0.580	-	\$ -		\$ -		\$ -		\$ -		\$ -		\$ -
Per Diem	\$125.00	-	\$ -		\$ -		\$ -		\$ -		\$ -		\$ -
Grand Totals			\$ 45,123		\$ 8,778		\$ 27,562		\$ 8,783		\$ -		\$ -

REIMBURSABLE DETAILS		
ITEM	SUB TASK	AMOUNT

Reimbursable Total (Check Cell E22) \$ -

MATERIAL DETAILS		
ITEM	SUB TASK	AMOUNT

Materials Total (Check Cell E23) \$ -

SUBCONTRACTOR DETAILS		
ITEM	SUB TASK	AMOUNT

Subcontractor Total (Check Cell E25) \$ -

Budget Assumptions

LABOR DETAILS	Sub Task 1 - Field Work Prep	
Category	Hours	Assumptions
WP/Sec		
Staff Associate	12.0	coordination assistance, utility locate
CAD Operator		
Project Associate	16.0	project coordination, permitting, utility locate
Project Manager	8.0	PM oversight, client communications
Sr. Project Manager		
Program Director		
Principal	4.0	technical input/ review

LABOR DETAILS	Sub Task 2 - Hydropunch Sampling	
Category	Hours	Assumptions
WP/Sec		
Staff Associate	30.0	3 days field work
CAD Operator		
Project Associate	30.0	3 days field work
Project Manager		
Sr. Project Manager	6.0	field implementation oversight
Program Director	3.0	field implementation oversight
Principal		

LABOR DETAILS		Sub Task 3 - Reporting
Category	Hours	Assumptions
WP/Sec	6.0	Report copy generation, editorial review
Staff Associate	20.0	Data tabulation, reporting
CAD Operator	8.0	Figures
Project Associate	16.0	Data tabulation, reporting, QA/QC
Project Manager		
Sr. Project Manager	12.0	Data analysis, data management, reporting, edits
Program Director	6.0	Document review
Principal	4.0	Document review

LABOR DETAILS		Sub Task 4 -
Category	Hours	Assumptions
WP/Sec		
Staff Associate		
CAD Operator		
Project Associate		
Project Manager		
Sr. Project Manager		
Program Director		
Principal		

REIMBURSABLE DETAILS		Sub Task 1 - Field Work Prep		
Item	# of Units	Price	Total	Assumption
Truck	2	\$105	\$ 210.00	
TOTAL			\$ 210.00	

REIMBURSABLE DETAILS		Sub Task 2 - Hydropunch Sampling		
Item	# of Units	Price	Total	Assumption
Truck	3	\$105	\$ 315.00	
TOTAL			\$ 315.00	

REIMBURSABLE DETAILS		Sub Task 3 - Reporting		
Item	# of Units	Price	Total	Assumption
CAD - Recovery Computer	8.00	\$25	\$ 200.00	Hourly CAD computer recovery rate
TOTAL			\$ 200.00	

REIMBURSABLE DETAILS		Sub Task 4 -		
Item	# of Units	Price	Total	Assumption
TOTAL			\$ -	

MATERIALS DETAILS		Sub Task 1 - Field Work Prep		
Item	# of Units	Price	Total	Assumption
Soil Boring Permit	1	\$1,112	\$ 1,112.00	
City of Concord Encroachment	1	\$1,000	\$ 1,000.00	
TOTAL			\$ 2,112.00	

MATERIALS DETAILS		Sub Task 2 - Hydropunch Sampling		
Item	# of Units	Price	Total	Assumption
PID	3	\$150	\$ 450.00	
TOTAL			\$ 450.00	

MATERIALS DETAILS		Sub Task 3 - Reporting		
Item	# of Units	Price	Total	Assumption
Shipping- Reports	1	\$100	\$ 100.00	
TOTAL			\$ 100.00	

MATERIALS DETAILS		Sub Task 4 -		
Item	# of Units	Price	Total	Assumption
TOTAL			\$ -	

SUBCONTRACTOR DETAILS		Sub Task 1 - Field Work Prep		
Item	# of Units	Price	Total	Assumption
GPRS Utility Location	1	\$1,500	\$ 1,500.00	
TOTAL			\$ 1,500.00	

SUBCONTRACTOR DETAILS		Sub Task 2 - Hydropunch Sampling		
Item	# of Units	Price	Total	Assumption
Cascade Drilling	1	\$10,000	\$ 15,000.00	3 day drilling; 9-12 water samples
Surveying	1	\$2,000	\$ 2,000.00	
AIS Waste Disposal	1	\$150	\$ 150.00	
Pace-VOCs	15	\$60	\$ 900.00	
TOTAL			\$ 18,050.00	

SUBCONTRACTOR DETAILS		Sub Task 3 - Reporting		
Item	# of Units	Price	Total	Assumption
TOTAL			\$ -	

SUBCONTRACTOR DETAILS		Sub Task 4 -		
Item	# of Units	Price	Total	Assumption
TOTAL			\$ -	

Task 3 - FS/RDIP Update

SUMMARY	
Total for Job Number	\$ 37,691
Total Labor	\$ 36,916
Total Hours	314.0

PROPOSALS		Data Management				GW Timeframe Eval		Reporting		Property Owner Notification	
		Sub Task 1		Sub Task 2		Sub Task 3		Sub Task 4			
Category		Totals		Location		Location		Location		Location	
SI Number - Description	Rate	Quantity	(\$)	Quantity	(\$)	Quantity	(\$)	Quantity	(\$)	Quantity	(\$)
WP/Sec	\$ 56.44	20.0	\$ 1,129	-	\$ -	-	\$ -	10.0	\$ 564	10.0	\$ 564
Staff Associate	\$ 104.83	108.0	\$ 11,322	20.0	\$ 2,097	40.0	\$ 4,193	32.0	\$ 3,355	16.0	\$ 1,677
CAD Operator	\$ 104.83	10.0	\$ 1,048	-	\$ -	-	\$ -	10.0	\$ 1,048	-	\$ -
Project Associate	\$ 110.21	80.0	\$ 8,817	20.0	\$ 2,204	24.0	\$ 2,645	28.0	\$ 3,086	8.0	\$ 882
Project Manager	\$ 126.33	16.0	\$ 2,021	-	\$ -	16.0	\$ 2,021	-	\$ -	-	\$ -
Sr. Project Manager	\$ 147.83	44.0	\$ 6,505	10.0	\$ 1,478	10.0	\$ 1,478	20.0	\$ 2,957	4.0	\$ 591
Program Director	\$ 161.28	16.0	\$ 2,580	-	\$ -	6.0	\$ 968	10.0	\$ 1,613	-	\$ -
Principal	\$ 174.71	20.0	\$ 3,494	6.0	\$ 1,048	6.0	\$ 1,048	6.0	\$ 1,048	2.0	\$ 349
Reimbursables	Actual	-	\$ 250		\$ -		\$ -		\$ 250		\$ -
Materials	Actual	-	\$ 500		\$ -		\$ -		\$ 100		\$ 400
Markup on Materials	5%	-	\$ 25		\$ -		\$ -		\$ 5		\$ 20
Subcontractors	Actual	-	\$ -		\$ -		\$ -		\$ -		\$ -
Markup on Subs	5%	-	\$ -		\$ -		\$ -		\$ -		\$ -
Mileage	\$0.580	-	\$ -		\$ -		\$ -		\$ -		\$ -
Per Diem	\$125.00	-	\$ -		\$ -		\$ -		\$ -		\$ -
Grand Totals			\$ 37,691		\$ 6,827		\$ 12,354		\$ 14,026		\$ 4,484

REIMBURSABLE DETAILS		
ITEM	SUB TASK	AMOUNT

Reimbursable Total (Check Cell E22) \$ -

MATERIAL DETAILS		
ITEM	SUB TASK	AMOUNT

Materials Total (Check Cell E23) \$ -

SUBCONTRACTOR DETAILS		
ITEM	SUB TASK	AMOUNT

Subcontractor Total (Check Cell E25) \$ -

Budget Assumptions

LABOR DETAILS		Sub Task 1 - Data Management	
Category	Hours	Assumptions	
WP/Sec			
Staff Associate	20.0	Historical data review and analysis; creating database	
CAD Operator			
Project Associate	20.0	Historical data review and analysis; creating database	
Project Manager			
Sr. Project Manager	10.0	Database review and project team management	
Program Director			
Principal	6.0	Review	

LABOR DETAILS	Sub Task 2 - GW Timeframe Eval	
Category	Hours	Assumptions
WP/Sec		
Staff Associate	40.0	Data review and degradation timeframe calculations
CAD Operator		
Project Associate	24.0	Data review and degradation timeframe calculations
Project Manager	16.0	Data review and degradation timeframe calculations
Sr. Project Manager	10.0	Data review and degradation timeframe calculations
Program Director	6.0	Review
Principal	6.0	Review

LABOR DETAILS		Sub Task 3 - Reporting
Category	Hours	Assumptions
WP/Sec	10.0	Report copy generation, editorial review
Staff Associate	32.0	Data tabulation, reporting
CAD Operator	10.0	Figures
Project Associate	28.0	Data tabulation, reporting, QA/QC
Project Manager		
Sr. Project Manager	20.0	Data analysis, data management, reporting, edits
Program Director	10.0	Document review
Principal	6.0	Document review

LABOR DETAILS		Sub Task 4 - Property Owner Notification
Category	Hours	Assumptions
WP/Sec	10.0	Prepare mailings for property owner communication
Staff Associate	16.0	Build and review property owner list and develop fact sheet for communication
CAD Operator		
Project Associate	8.0	Develop fact sheet for communication
Project Manager		
Sr. Project Manager	4.0	Review property owner notification process
Program Director		
Principal	2.0	Review property owner notification process

REIMBURSABLE DETAILS	Sub Task 1 - Data Management			
Item	# of Units	Price	Total	Assumption
TOTAL			\$ -	

REIMBURSABLE DETAILS		Sub Task 2 - GW Timeframe Eval		
Item	# of Units	Price	Total	Assumption
TOTAL			\$ -	

REIMBURSABLE DETAILS		Sub Task 3 - Reporting		
Item	# of Units	Price	Total	Assumption
CAD - Recovery Computer	10.00	\$25	\$ 250.00	Hourly CAD computer recovery rate
TOTAL			\$ 250.00	

REIMBURSABLE DETAILS	Sub Task 4 - Property Owner Notification			
Item	# of Units	Price	Total	Assumption
TOTAL			\$ -	

Task 4 - 2022 SV Field Work and Annual Reporting

SUMMARY	
Total for Job Number	\$ 20,801
Total Labor	\$ 11,428
Total Hours	101.0

				3Q19 SV Field Work Prep		3Q19 SV Sampling		Data Entry and QA/QC		Report Preparation	
PROPOSALS				Sub Task 1		Sub Task 2		Sub Task 3		Sub Task 4	
Category	Rate	Totals		Location		Location		Location		Location	
SI Number - Description		Quantity	(\$)	Quantity	(\$)	Quantity	(\$)	Quantity	(\$)	Quantity	(\$)
WP/Sec	\$ 58.13	6.0	\$ 349	-	\$ -	-	\$ -	-	\$ -	6.0	\$ 349
Staff Associate	\$ 107.97	26.0	\$ 2,807	4.0	\$ 432	16.0	\$ 1,728	4.0	\$ 432	2.0	\$ 216
CAD Operator	\$ 107.97	16.0	\$ 1,728	-	\$ -	-	\$ -	-	\$ -	16.0	\$ 1,728
Project Associate	\$ 113.51	29.0	\$ 3,292	-	\$ -	1.0	\$ 114	4.0	\$ 454	24.0	\$ 2,724
Project Manager	\$ 130.12	20.0	\$ 2,602	8.0	\$ 1,041	2.0	\$ 260	2.0	\$ 260	8.0	\$ 1,041
Sr. Project Manager	\$ 152.26	2.0	\$ 305	2.0	\$ 305	-	\$ -	-	\$ -	-	\$ -
Program Director	\$ 166.12	1.0	\$ 166	-	\$ -	-	\$ -	-	\$ -	1.0	\$ 166
Principal	\$ 179.95	1.0	\$ 180	-	\$ -	-	\$ -	-	\$ -	1.0	\$ 180
Reimbursables	Actual	-	\$ 610		\$ -		\$ 210		\$ -		\$ 400
Materials	Actual	-	\$ -				\$ -		\$ -		\$ -
Markup on Materials	5%	-	\$ -		\$ -		\$ -		\$ -		\$ -
Subcontractors	Actual	-	\$ 8,345		\$ -		\$ 8,345		\$ -		\$ -
Markup on Subs	5%	-	\$ 417		\$ -		\$ 417		\$ -		\$ -
Mileage	\$0.580	-	\$ -		\$ -				\$ -		\$ -
Per Diem	\$125.00	-	\$ -		\$ -		\$ -		\$ -		\$ -
Grand Totals			\$ 20,801		\$ 1,777		\$ 11,074		\$ 1,146		\$ 6,804

REIMBURSABLE DETAILS		
ITEM	SUB TASK	AMOUNT

Reimbursable Total (Check Cell E22) \$ -

MATERIAL DETAILS		
ITEM	SUB TASK	AMOUNT

Materials Total (Check Cell E23) \$ -

SUBCONTRACTOR DETAILS		
ITEM	SUB TASK	AMOUNT

Subcontractor Total (Check Cell E25) \$ -

Budget Assumptions

LABOR DETAILS		Sub Task 1 - 3Q19 SV Field Work Prep	
Category	Hours	Assumptions	
WP/Sec			
Staff Associate	4.0	assist prep.	
CAD Operator			
Project Associate			
Project Manager	8.0	prep time; briefing memo; field coordination	
Sr. Project Manager	2.0	oversight, project controls	
Program Director			
Principal			

LABOR DETAILS		Sub Task 2 - 3Q19 SV Sampling	
Category	Hours	Assumptions	
WP/Sec			
Staff Associate	16.0	2 days field work oversight	
CAD Operator			
Project Associate	1.0	lab QC	
Project Manager	2.0	1 hr per day, manage field work	
Sr. Project Manager			
Program Director			
Principal			

LABOR DETAILS		Sub Task 3 - Data Entry and QA/QC
Category	Hours	Assumptions
WP/Sec		
Staff Associate	4.0	data entry, data tabulaiton
CAD Operator		
Project Associate	4.0	Data QC, QC report generation
Project Manager	2.0	QC report review
Sr. Project Manager		
Program Director		
Principal		

LABOR DETAILS		Sub Task 4 - Report Preparation	
Category	Hours	Assumptions	
WP/Sec	6.0	report copy production	
Staff Associate	2.0	data tabulation	
CAD Operator	16.0	figures	
Project Associate	24.0	report preparation	
Project Manager	8.0	Data analysis, reporting	
Sr. Project Manager			
Program Director	1.0	Document review	
Principal	1.0	Document review	

REIMBURSABLE DETAILS		Sub Task 1 - 3Q19 SV Field Work Prep		
Item	# of Units	Price	Total	Assumption
TOTAL			\$ -	

REIMBURSABLE DETAILS		Sub Task 2 - 3Q19 SV Sampling		
Item	# of Units	Price	Total	Assumption
Truck	2	\$105	\$ 210.00	
TOTAL			\$ 210.00	

REIMBURSABLE DETAILS	Sub Task 3 - Data Entry and QA/QC			
Item	# of Units	Price	Total	Assumption
TOTAL			\$ -	

REIMBURSABLE DETAILS	Sub Task 4 - Report Preparation			
Item	# of Units	Price	Total	Assumption
CAD - Recovery Computer	16.00	\$25	\$ 400.00	recovery rate
TOTAL			\$ 400.00	

MATERIALS DETAILS		Sub Task 1 - 3Q19 SV Field Work Prep		
Item	# of Units	Price	Total	Assumption
TOTAL			\$ -	

MATERIALS DETAILS		Sub Task 2 - 3Q19 SV Sampling		
Item	# of Units	Price	Total	Assumption
TOTAL			\$ -	

MATERIALS DETAILS		Sub Task 3 - Data Entry and QA/QC		
Item	# of Units	Price	Total	Assumption
TOTAL			\$ -	

MATERIALS DETAILS		Sub Task 4 - Report Preparation		
Item	# of Units	Price	Total	Assumption
TOTAL			\$ -	

SUBCONTRACTOR DETAILS		Sub Task 1 - 3Q19 SV Field Work Prep		
Item	# of Units	Price	Total	Assumption
TOTAL			\$ -	

SUBCONTRACTOR DETAILS		Sub Task 2 - 3Q19 SV Sampling		
Item	# of Units	Price	Total	Assumption
Blaine Tech	1	\$4,425	\$ 4,425.00	17 wells @\$225/well; Mobe/Demobe, 2 days @\$250/day; Portovac Air Pump, 2 days @\$50/day
Pace-summa	22	\$25	\$ 550.00	17 primary, 2 FD, 1 TB, 2 contingency
Pace-flow controller	22	\$35	\$ 770.00	
Pace-VOCs TO-15	20	\$130	\$ 2,600.00	
TOTAL			\$ 8,345.00	

SUBCONTRACTOR DETAILS		Sub Task 3 - Data Entry and QA/QC		
Item	# of Units	Price	Total	Assumption
TOTAL			\$ -	

SUBCONTRACTOR DETAILS		Sub Task 4 - Report Preparation		
Item	# of Units	Price	Total	Assumption
TOTAL			\$ -	

Task 5 - 2022 Indoor Air and Reporting

SUMMARY	
Total for Job Number	\$ 23,714
Total Labor	\$ 13,507
Total Hours	127.0

PROPOSALS		Totals		Field Work Prep		Indoor Air Sampling		Reporting		Data Submittal to Residents	
				Sub Task 1		Sub Task 2		Sub Task 3		Sub Task 4	
Category		Quantity	(\$)	Location		Location		Location		Location	
SI Number - Description	Rate	Quantity	(\$)	Quantity	(\$)	Quantity	(\$)	Quantity	(\$)	Quantity	(\$)
WP/Sec	\$ 58.13	20.0	\$ 1,163	4.0	\$ 233	-	\$ -	8.0	\$ 465	8.0	\$ 465
Staff Associate	\$ 107.97	42.0	\$ 4,535	4.0	\$ 432	14.0	\$ 1,512	24.0	\$ 2,591	-	\$ -
CAD Operator	\$ 107.97	8.0	\$ 864	-	\$ -	-	\$ -	8.0	\$ 864	-	\$ -
Project Associate	\$ 113.51	37.0	\$ 4,200	7.0	\$ 795	-	\$ -	16.0	\$ 1,816	14.0	\$ 1,589
Project Manager	\$ 130.12	16.0	\$ 2,082	4.0	\$ 520	2.0	\$ 260	10.0	\$ 1,301	-	\$ -
Sr. Project Manager	\$ 152.26	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -
Program Director	\$ 166.12	4.0	\$ 664	-	\$ -	-	\$ -	4.0	\$ 664	-	\$ -
Principal	\$ 179.95	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -
Reimbursables	Actual	-	\$ 515		\$ -		\$ 315		\$ 200		\$ -
Materials	Actual	-	\$ 530		\$ 100		\$ 230		\$ 100		\$ 100
Markup on Materials	5%	-	\$ 27		\$ 5		\$ 12		\$ 5		\$ 5
Subcontractors	Actual	-	\$ 8,700		\$ -		\$ 8,700		\$ -		\$ -
Markup on Subs	5%	-	\$ 435		\$ -		\$ 435		\$ -		\$ -
Mileage	\$0.580	-	\$ -		\$ -		\$ -		\$ -		\$ -
Per Diem	\$125.00	-	\$ -		\$ -		\$ -		\$ -		\$ -
Grand Totals			\$ 23,714		\$ 2,084		\$ 11,463		\$ 8,007		\$ 2,159

REIMBURSABLE DETAILS		
ITEM	SUB TASK	AMOUNT

Reimbursable Total (Check Cell E22) \$ -

MATERIAL DETAILS		
ITEM	SUB TASK	AMOUNT

Materials Total (Check Cell E23) \$ -

SUBCONTRACTOR DETAILS		
ITEM	SUB TASK	AMOUNT

Subcontractor Total (Check Cell E25) \$ -

Budget Assumptions

LABOR DETAILS	Sub Task 1 - Field Work Prep	
Category	Hours	Assumptions
WP/Sec	4.0	access request letters, 14 homes
Staff Associate	4.0	QC supplies, prep field logs
CAD Operator		
Project Associate	7.0	0.5 hrs per home, coordination and letter prep
Project Manager	4.0	Review and coordination
Sr. Project Manager		
Program Director		
Principal		

LABOR DETAILS	Sub Task 2 - Indoor Air Sampling	
Category	Hours	Assumptions
WP/Sec		
Staff Associate	14.0	1 hr per home
CAD Operator		
Project Associate		
Project Manager	2.0	
Sr. Project Manager		
Program Director		
Principal		

LABOR DETAILS		Sub Task 3 - Reporting
Category	Hours	Assumptions
WP/Sec	8.0	Report copy generation
Staff Associate	24.0	Data tabulation, reporting
CAD Operator	8.0	Figures
Project Associate	16.0	Data tabulation, reporting, QA/QC
Project Manager	10.0	Data analysis, data management, reporting, edits
Sr. Project Manager		
Program Director	4.0	Report review
Principal		

LABOR DETAILS		Sub Task 4 - Data Submittal to Residents
Category	Hours	Assumptions
WP/Sec	8.0	letter production
Staff Associate		
CAD Operator		
Project Associate	14.0	1 hr per home (14 homes) (tables, text)
Project Manager		
Sr. Project Manager		
Program Director		
Principal		

REIMBURSABLE DETAILS	Sub Task 1 - Field Work Prep			
Item	# of Units	Price	Total	Assumption
TOTAL			\$ -	

REIMBURSABLE DETAILS		Sub Task 2 - Indoor Air Sampling		
Item	# of Units	Price	Total	Assumption
Truck	3	\$105	\$ 315.00	
TOTAL			\$ 315.00	

REIMBURSABLE DETAILS	Sub Task 3 - Reporting			
Item	# of Units	Price	Total	Assumption
CAD - Recovery Computer	8.00	\$25	\$ 200.00	Hourly CAD computer recovery rate
TOTAL			\$ 200.00	

REIMBURSABLE DETAILS	Sub Task 4 - Data Submittal to Residents			
Item	# of Units	Price	Total	Assumption
TOTAL			\$ -	

MATERIALS DETAILS		Sub Task 1 - Field Work Prep		
Item	# of Units	Price	Total	Assumption
Shipping- Access Letters	1	\$100	\$ 100.00	
TOTAL			\$ 100.00	

MATERIALS DETAILS		Sub Task 2 - Indoor Air Sampling		
Item	# of Units	Price	Total	Assumption
PID	2	\$115	\$ 230.00	
TOTAL			\$ 230.00	

MATERIALS DETAILS		Sub Task 3 - Reporting		
Item	# of Units	Price	Total	Assumption
Shipping- Reports	1	\$100	\$ 100.00	
TOTAL			\$ 100.00	

MATERIALS DETAILS		Sub Task 4 - Data Submittal to Residents		
Item	# of Units	Price	Total	Assumption
Shipping- Data packages	1	\$100	\$ 100.00	
TOTAL			\$ 100.00	

SUBCONTRACTOR DETAILS		Sub Task 1 - Field Work Prep		
Item	# of Units	Price	Total	Assumption
TOTAL			\$ -	

SUBCONTRACTOR DETAILS		Sub Task 2 - Indoor Air Sampling		
Item	# of Units	Price	Total	Assumption
Pace-summa+ flow controller	30	\$60	\$ 1,800.00	20 primary, 2 FD, 3 ambient, 5 contingency. Assumes 8 of 14 houses responded for sampling
Pace-VOCs TO-15 SIM	30	\$190	\$ 5,700.00	
				6 primary, 1 FD, 1 ambient. Assumes 2 houses for concurrent sampling to evaluate passive sampling technology
Beacon-Chlorosorber	8	\$50	\$ 400.00	
BeaconVOCs TO-15	8	\$100	\$ 800.00	
TOTAL			\$ 8,700.00	

SUBCONTRACTOR DETAILS		Sub Task 3 - Reporting		
Item	# of Units	Price	Total	Assumption
TOTAL			\$ -	

SUBCONTRACTOR DETAILS		Sub Task 4 - Data Submittal to Residents		
Item	# of Units	Price	Total	Assumption
TOTAL			\$ -	

Task 6a - Regulatory Management 2021

SUMMARY	
Total for Job Number	\$ 21,035
Total Labor	\$ 21,035
Total Hours	156.0

PROPOSALS				Sub Task 1	Project Management	Sub Task		Sub Task	
Category	Rate	Totals		Location		Location		Location	
SI Number - Description		Quantity	(\$)	Quantity	(\$)	Quantity	(\$)	Quantity	(\$)
WP/Sec	\$ 56.44	13.0	\$ 734	13.0	\$ 734	-	\$ -		\$ -
Staff Associate	\$ 104.83	-	\$ -	-	\$ -	-	\$ -		\$ -
CAD Operator	\$ 104.83	-	\$ -	-	\$ -	-	\$ -		\$ -
Project Associate	\$ 110.21	26.0	\$ 2,865	26.0	\$ 2,865	-	\$ -		\$ -
Project Manager	\$ 126.33	26.0	\$ 3,285	26.0	\$ 3,285	-	\$ -		\$ -
Sr. Project Manager	\$ 147.83	52.0	\$ 7,687	52.0	\$ 7,687	-	\$ -		\$ -
Program Director	\$ 161.28	26.0	\$ 4,193	26.0	\$ 4,193	-	\$ -		\$ -
Principal	\$ 174.71	13.0	\$ 2,271	13.0	\$ 2,271	-	\$ -		\$ -
Reimbursables	Actual	-	\$ -		\$ -				
Materials	Actual	-	\$ -		\$ -				
Markup on Materials	5%	-	\$ -		\$ -		\$ -		\$ -
Subcontractors	Actual	-	\$ -		\$ -				
Markup on Subs	5%	-	\$ -		\$ -				
Mileage	\$0.580	-	\$ -	-	\$ -		\$ -		\$ -
Per Diem	\$125.00	-	\$ -	-	\$ -		\$ -		\$ -
Grand Totals			\$ 21,035		\$ 21,035		\$ -		\$ -

REIMBURSABLE DETAILS		
ITEM	SUB TASK	AMOUNT

Reimbursable Total (Check Cell E22) \$ -

MATERIAL DETAILS		
ITEM	SUB TASK	AMOUNT

Materials Total (Check Cell E23) \$ -

SUBCONTRACTOR DETAILS		
ITEM	SUB TASK	AMOUNT

Subcontractor Total (Check Cell E25) \$ -

Budget Assumptions	
Sub Task 1 - Project Management	Assumptions
Category	Hours
	Document filing, etc.
WP/Sec	13.0
Staff Associate	-
CAD Operator	-
Project Associate	26.0
Project Manager	26.0
Sr. Project Manager	52.0
Program Director	26.0
Principal	13.0

Sub Task -		Assumptions
Category	Hours	
WP/Sec		
Staff Associate		
CAD Operator		
Project Associate		
Project Manager		
Sr. Project Manager		
Program Director		
Principal		

REIMBURSABLE DETAILS		Assumption
ITEM	SUB TASK	

MATERIAL DETAILS		Assumption
ITEM	SUB TASK	

Task 6b - Regulatory Management 2022

SUMMARY	
Total for Job Number	\$ 24,592
Total Labor	\$ 24,592
Total Hours	189.0

PROPOSALS				Sub Task 1	Project Management	Sub Task		Sub Task	
Category	Rate	Totals		Location		Location		Location	
SI Number - Description		Quantity	(\$)	Quantity	(\$)	Quantity	(\$)	Quantity	(\$)
WP/Sec	\$ 58.13	18.0	\$ 1,046	18.0	\$ 1,046	-	\$ -	-	\$ -
Staff Associate	\$ 107.97	-	\$ -	-	\$ -	-	\$ -	-	\$ -
CAD Operator	\$ 107.97	-	\$ -	-	\$ -	-	\$ -	-	\$ -
Project Associate	\$ 113.51	36.0	\$ 4,086	36.0	\$ 4,086	-	\$ -	-	\$ -
Project Manager	\$ 130.12	72.0	\$ 9,369	72.0	\$ 9,369	-	\$ -	-	\$ -
Sr. Project Manager	\$ 152.26	36.0	\$ 5,481	36.0	\$ 5,481	-	\$ -	-	\$ -
Program Director	\$ 166.12	18.0	\$ 2,990	18.0	\$ 2,990	-	\$ -	-	\$ -
Principal	\$ 179.95	9.0	\$ 1,620	9.0	\$ 1,620	-	\$ -	-	\$ -
Reimbursables	Actual	-	\$ -		\$ -				
Materials	Actual	-	\$ -		\$ -				
Markup on Materials	5%	-	\$ -		\$ -		\$ -		\$ -
Subcontractors	Actual	-	\$ -		\$ -				
Markup on Subs	5%	-	\$ -		\$ -				
Mileage	\$0.580	-	\$ -	-	\$ -		\$ -		\$ -
Per Diem	\$125.00	-	\$ -	-	\$ -		\$ -		\$ -
Grand Totals			\$ 24,592		\$ 24,592		\$ -		\$ -

REIMBURSABLE DETAILS		
ITEM	SUB TASK	AMOUNT

Reimbursable Total (Check Cell E22) \$ -

MATERIAL DETAILS		
ITEM	SUB TASK	AMOUNT

Materials Total (Check Cell E23) \$ -

SUBCONTRACTOR DETAILS		
ITEM	SUB TASK	AMOUNT

Subcontractor Total (Check Cell E25) \$ -

Budget Assumptions	
Sub Task 1 - Project Management	Assumptions
Category	Hours
	1.5 hr per month for document filing, etc.
WP/Sec	18.0
Staff Associate	-
CAD Operator	-
Project Associate	36.0
Project Manager	72.0
Sr. Project Manager	36.0
Program Director	18.0
Principal	9.0

Sub Task -		Assumptions
Category	Hours	
WP/Sec		
Staff Associate		
CAD Operator		
Project Associate		
Project Manager		
Sr. Project Manager		
Program Director		
Principal		

REIMBURSABLE DETAILS		Assumption
ITEM	SUB TASK	

MATERIAL DETAILS		Assumption
ITEM	SUB TASK	

APPENDIX B UPDATED CONTRACTING DOCUMENT

CONSULTING SERVICES AGREEMENT

This CONSULTING SERVICES AGREEMENT (the "Agreement") is entered into on _____ (the "Effective Date") between UNION PACIFIC RAILROAD COMPANY, successor by merger of Southern Pacific Transportation Company, a Delaware corporation ("UPRR"), the "Hookston Owners" as defined in the 1997 Settlement Agreement and Contra Costa County (the "County"), and ERM-WEST, INC., a California corporation ("Contractor").

IT IS MUTUALLY AGREED BY AND BETWEEN THE PARTIES HERETO as follows:

Section 1. DESCRIPTION OF THE WORK.

The Contractor will serve the role identified as the Lead Remediation Contractor as described in the 1997 Settlement Agreement which is included as Exhibit A. The work to be performed by Contractor under this Agreement for the provision of environmental remediation and related environmental services (the "Work") at or near Hookston Station, Pleasant Hill, California (the "Job Site"). The Work will be set forth in separate defined scopes of work as described in Section 4, at the request of UPRR and the Hookston Owners Representative to accomplish tasks and other requirements set forth in the Regional Water Quality Control Board Order No. R2-2007-0009 *Adoption of Final Site Cleanup Requirements and Rescission of Order Nos. R2-2003-0035 and R2-2004-0081*, dated January 30, 2007, which is incorporated into Exhibit B.

Section 2. REPRESENTATIONS AND WARRANTIES.

- Contractor shall perform the Work in conformity with the same care and skill ordinarily exercised by experienced professional performing similar services for projects of similar scope and complexity in the same jurisdiction.
- Contractor's personnel assigned by Contractor to perform the Work are experienced, qualified, and licensed (if necessary or advisable) to perform the Work.
- Contractor and its personnel assigned to perform the Work shall comply in all respects with this Agreement, and all federal, state and local laws, rules, regulations, orders, codes and ordinances applicable to the Work, including environmental, safety and health laws (if applicable) that are in effect at the time the Work is performed.
- The Work shall not infringe on any patent, copyright, trademark, or other intellectual property right.
- UPRR and the Hookston Owners use of the Work, in accordance with Contractor's instructions, shall comply with all applicable laws, rules, regulations, order, codes and ordinances.
- Contractor has the expertise necessary to perform the Work and UPRR and the Hookston Owners are entitled to rely on Contractor's expertise, reports, data and/or conclusions reached by Contractor in its performance of the Work.
- Contractor shall, at Contractor's own expense, furnish (unless herein otherwise specifically provided) all superintendence, labor, tools, equipment, materials, and supplies and all other things requisite and necessary to perform the Work.
- Contractor has all necessary permits and/or licenses required to perform the Work contemplated by this Agreement.

- Contractor warrants the Work for a period of one year from completion of the Work.
- CONTRACTOR MAKES NO REPRESENTATIONS OR WARRANTIES OTHER THAN THOSE EXPRESSLY SET FORTH HEREIN.

Section 3. AUTHORIZED REPRESENTATIVES.

In accordance with the 1997 Settlement Agreement, UPRR and the Hookston Owners each have designated one representative. These representatives are identified as follows:

UPRR Representative:

Lauren A. Mancuso
Union Pacific Railroad
Sr. Manager, Environmental Site Remediation
Mailing Address: 1408 Middle Harbor Road, Oakland, CA 94607
e-mail: lamancus@up.com|
Phone: 916-217-5086

Hookston Owners Representative:

Maureen Toms
Contra Costa County
C/O Department of Conservation and Development
Mailing Address: 30 Muir Road, Martinez, CA 94553
e-mail: Maureen.Toms@dcd.cccounty.us
Phone: 925-674-7878

Section 4. ALLOCATION OF COSTS AND ESCROW ACCOUNT MANAGEMENT

In accordance with Item 4 of the 1997 Settlement Agreement, UPRR and the Hookston Owners have agreed to bear the costs of the Work equally (50% contribution from UPRR and 50% contribution from the Hookston Owners). UPRR and the Hookston Owners have established an interest-bearing escrow account for financial contributions to fund the execution of the Work ("Escrow Account"). UPRR and the Hookston Owners Representative have appointed a third-party administrator to manage the Escrow Account; the third-party administrator role is excluded from this contract. Unless otherwise agreed to between the UPRR and the Hookston Owners, both UPRR and the Hookston Owners shall deposit payments of two hundred and fifty thousand dollars (\$250,000) each when the balance of the Escrow Account balance falls below one hundred thousand dollars (\$100,000).

Section 5. ESTIMATION OF COSTS AND COMPENSATION.

Contractor will provide a Scope of Work Cost Estimate (the "Estimate") with an estimated probable cost for each scope item requested by UPRR and the Hookston Owners Representative. Each Estimate will be itemized with estimated costs for labor, subcontractors, and materials unless a lump sum or other arrangement is agreed between the parties. The labor rates will be estimated using the current rate sheet for the calendar year when the work will occur. Contractor may adjust labor rates annually at the beginning of a new calendar year. Contractor will have the right to promote staff members across labor categories throughout the year with notice to UPRR and the Hookston Owners Representative. The Authorized Representative will verify that the Escrow Account is fully funded for each Estimate at the time of approval.

In consideration of the performance of the Work, UPRR and the Hookston Owners (as authorized by the Hookston Owners Representative) will pay to the Contractor an amount not to exceed the estimated probable cost unless Contractor has requested and received authorization from UPRR and the Hookston

Owners Representative on an increase to the cost estimate. Compensation will be provided on a monthly basis for work performed by the Contractor at the Contractor's unit or lump sum rates as set forth in the approved Estimate. UPRR and Hookston Owners will reimburse reasonable, documented expenses incurred by Contractor in performance of the Work. Fees stated herein do not include applicable taxes, including jurisdiction-specific taxes, such as sales tax, use tax, commodity tax, excise tax, valued added tax, withholding tax, transaction tax, customs, tariffs, duties and similar levies, which shall be the sole responsibility of UPRR and Hookston Owners. Contractor will be responsible for applicable taxes on Contractor's net income or taxes arising from the independent contractor relationship between Contractor and its personnel. Late payments will bear interest at 1.5% per month. Contractor will have the right to suspend performance of the work in the event of non-payment of undisputed invoices.

The third-party administrator of the Escrow Account will be responsible for seeking review and/or approvals by UPRR and the Hookston Owners Representative at their direction. Compensation will be issued from the Escrow Account by the third-party administrator.

The amount specified in each invoice will be payable within thirty (30) days after presentation of an invoice to the third-party administrator of the Escrow Account to cover the Work with reference to this Agreement.

Section 6. TERM; TERMINATION.

This Agreement shall continue for a period of three (3) years from the Effective Date, unless terminated sooner as provided herein (the "Term").

Either Contractor or UPRR and the Hookston Owners Representative, may terminate this Agreement at any time during the Term, with or without cause, by providing the other party thirty (30) days written notice of termination. Termination by UPRR and the Hookston Owners Representative may only occur by agreement between the parties as established in the 1997 Settlement Agreement. Upon termination, UPRR and the Hookston Owners sole obligation to Contractor shall be to pay for Work performed through the date of termination at the rates set forth in the approved Estimate, together with all reasonable costs incurred by Contractor after termination that are necessary to conclude Contractor's performance under the Agreement including, without limitation, demobilization and demurrage costs.

The Term of this Agreement may be extended by addendum with the written concurrence of UPRR, the Hookston Owners Representative, and the Contractor

Section 7. INSURANCE REQUIREMENTS.

Contractor shall, at its sole cost and expense, procure and maintain during the life of this Agreement (except as otherwise provided in this Agreement) the following insurance coverage:

Commercial General Liability Insurance. Commercial general liability (CGL) with a limit of \$1,000,000 each occurrence and an aggregate limit of \$2,000,000.

Business Automobile Coverage Insurance. Business auto coverage with a combined single limit of \$1,000,000 for each accident and coverage must include liability arising out of any auto (including owned, hired, and non-owned autos).

Worker's Compensation and Employer's Liability Insurance. Coverage must include but not limited to:

- Contractor's statutory liability under the worker's compensation laws of the state(s) affected by this Agreement.
- Employer's liability (Part B) with limits of \$1,000,000.00 each accident, \$1, 000,000.00 disease policy limit, \$1,000,000.00 each employee.

If Contractor is self-insured, evidence of state approval and excess worker's compensation coverage must be provided. Coverage must include liability arising out of the U.S. Longshoremen's and Harbor Workers' Act, the Jones Act, and the Outer Continental Shelf Land Act, if applicable.

Alternate Employer Endorsement. Worker's compensation and employer's liability insurance must be endorsed with ISO form WC 00 03 01 A (or a substitute form providing equivalent coverage) showing the parties comprising Hookston in the schedule as the alternate employer, which must be stated on the certificate of insurance.

Umbrella or Excess Insurance. If Contractor utilizes umbrella or excess policies, these policies must "follow form" and afford no less coverage than the primary policy.

Other Requirements

All policy(ies) required above (except worker's compensation and employer's liability and professional liability) must include the parties comprising the Hookston Owners as "Additional Insured" using ISO Additional Insured Endorsements CG 20 10 04 13 and CG 20 37 04 13 (or substitute forms providing equivalent coverage),, which must be stated on the certificate of insurance. The coverage provided to the parties comprising UPRR and the Hookston Owners as additional named insured shall, to the extent provided under ISO Additional Insured Endorsement CG 20 10 04 13 and CG 20 37 04 13,, provide coverage for the parties comprising UPRR or the Hookston Owners negligence whether sole or partial, active or passive, and shall not be limited by Contractor's liability under the indemnity provisions of this Agreement.

The fact that insurance is obtained by Contractor or by UPRR and/or the Hookston Owners on behalf of Contractor will not be deemed to release or diminish the liability of Contractor, including, without limitation, liability under the indemnity provisions of this Agreement. Damages recoverable by UPRR or Hookston Owners from Contractor or any third party will not be limited by the amount of the required insurance coverage.

Contractor waives all rights against UPRR and Hookston Owners and their agents, officers, directors and employees, where permitted by law, for recovery of damages to the extent these damages are covered by the worker's compensation and employer's liability or commercial umbrella/excess liability insurance obtained by Contractor required by this Agreement, which must be stated on the certificate of insurance.

Prior to commencing the Work, Contractor shall furnish UPRR and Hookston Owners with a certificate(s) of insurance, executed by a duly authorized representative of each insurer, showing compliance with the insurance requirements in this Agreement.

All insurance policies must be written by a reputable insurance company acceptable to Hookston or with a current Best's Insurance Guide Rating of A- and Class VII or better, and authorized to do business in the state(s) in which the Work is to be performed.

Section 8. ENFORCEABILITY; CHOICE OF LAW; CHOICE OF FORUM.

This Agreement shall be governed, construed, and enforced in accordance with the Laws of the State of California. The arbitration mechanism set forth in this Agreement shall be instituted and maintained only in the State of California and the parties consent to their participation in such arbitration procedures in that forum. All claims must be brought within one year of completion of Work.

Section 9. INDEPENDENT CONTRACTOR.

The Contractor and the agents and employees of the Contractor are not and shall not be considered as employees of the parties comprising UPRR and the Hookston Owners. The Contractor shall be and remain an independent contractor and nothing herein contained shall be construed inconsistent with that status. If UPRR and the Hookston Owners Representative determines, in their joint discretion, that any

person employed by Contractor or any subcontractor is not performing the Work in accordance with Contractor representations and warranties set forth herein, then, upon the request of the Authorized Representative, Contractor shall permanently remove such person from the Work unless otherwise agreed to in writing by the Authorized Representative.

Section 10. PAYMENT OF WAGES AND PAYROLL TAXES.

The Contractor shall pay the wages and salaries of the officers and employees of the Contractor in strict accordance with all applicable law, including those relating to wages, prevailing wages, minimum wages, working hours, overtime, and working conditions. The Contractor agrees to accept exclusive liability for the payment of any and all payroll taxes or contributions for unemployment insurance or old age pensions or annuities which are measured by the wages, salaries or other remuneration paid to the employees of the Contractor or measured by the performance by Contractor of the services, or the furnishing of equipment, tools, or materials, as provided herein. The Contractor further agrees to reimburse UPRR and the Hookston Owners for any of such of the aforesaid taxes and contributions as by law UPRR and the Hookston Owners may be required to pay. The Contractor agrees to comply with all valid administrative regulations respecting the assumption of liability for the aforesaid taxes and contributions and the supplying of information to the proper authorities.

The Contractor agrees to comply with the provisions of 29 Code of Federal Regulations (CFR), Part 470, if applicable.

Section 11. GENERAL INDEMNITY AND LIABILITY.

Contractor shall defend, indemnify, and hold harmless UPRR and the Hookston Owners from all fines, judgments, awards, claims, demands, liability, losses, damages and expenses (including attorney fees and costs) ("Claims") to the extent arising out of Contractor's negligent actions or omissions or willful misconduct in the performance of this Agreement, including but not limited to those Claims based on injury or death to third parties persons and loss or damage to property belonging to third parties (including environmental claims). If a Claim is brought by an employee of Contractor, then except to the extent finally determined through the arbitration mechanism set forth herein (the "Arbitration") as being caused by the intentional misconduct or negligence of UPRR or the Hookston Owners and/or its employees, Contractor shall defend, indemnify, and hold harmless UPRR and the Hookston Owners from such employee's Claim. **EXCEPT AS OTHERWISE SET FORTH HEREIN, CONTRACTOR'S INDEMNIFICATION OBLIGATION WITH RESPECT TO CLAIMS BROUGHT BY CONTRACTOR'S EMPLOYEES HEREUNDER IS EXPRESSLY INTENDED TO INCLUDE INDEMNIFICATION FOR ALL CLAIMS, INCLUDING THOSE CAUSED OR ALLEGED TO BE CAUSED BY THE PARTIAL OR SOLE NEGLIGENCE OF UPRR AND THE HOOKSTON OWNERS AND/OR ITS EMPLOYEES, WHETHER ACTIVE OR PASSIVE. TO THE EXTENT IT MAY LAWFULLY DO SO, CONTRACTOR WAIVES ANY AND ALL DEFENSES UNDER WORKERS' COMPENSATION OR INDUSTRIAL INSURANCE ACTS TO SO INDEMNIFY UPRR AND THE HOOKSTON OWNERS.**

THE INDEMNIFICATION OBLIGATION ASSUMED BY CONTRACTOR SHALL INCLUDE ANY CLAIMS, SUITS OR JUDGMENTS BROUGHT AGAINST UPRR OR HOOKSTON OWNERS UNDER THE FEDERAL EMPLOYER'S LIABILITY ACT, INCLUDING CLAIMS FOR STRICT LIABILITY UNDER THE SAFETY APPLIANCE ACT OR THE BOILER INSPECTION ACT.

UPRR and Hookston Owners shall give notice to Contractor, in writing, of the receipt or pendency of any Claims, and there upon Contractor shall defend UPRR and Hookston Owners, at their discretion, from and against all such Claims for which Contractor has an indemnification obligation with counsel reasonably satisfactory to UPRR and Hookston Owners. Contractor shall not settle any Claim in any manner that would impose any expense, penalty, obligation or limitation on UPRR and Hookston Owners without the prior written consent of each of the parties comprising UPRR and Hookston Owners. UPRR and Hookston Owners shall have the right, but not the obligation, to defend any Claim, and if UPRR and Hookston Owners opts to defend, Contractor shall remain obligated to indemnify, and save harmless UPRR and Hookston Owners from and against all Claims. If Contractor disputes its indemnification

obligation with regard to a particular Claim, Contractor shall nevertheless defend UPRR and Hookston Owners, and UPRR and Hookston Owners shall reimburse Contractor for any portion of the damages, judgments, decrees, attorney fees, costs, and expenses that is determined attributable to UPRR and Hookston Owners through Arbitration.

Contractor's obligations to defend, indemnify, and hold harmless exist whether the claims giving rise to these obligations are made against the parties comprising UPRR and Hookston Owners individually or collectively as a whole.

EXCEPT FOR GROSS NEGLIGENCE, WILLFUL MISCONDUCT AND BREACH OF CONFIDENTIALITY, (A) NEITHER PARTY WILL BE LIABLE FOR ANY INDIRECT, INCIDENTAL, CONSEQUENTIAL, SPECIAL OR PUNITIVE DAMAGES, ECONOMIC LOSSES OR LOST PROFITS, AND (B) CONTRACTOR WILL NOT BE LIABLE IN THE AGGREGATE FOR ANY DAMAGES IN EXCESS OF \$1,000,000.

The obligations and limitations of this Section shall survive any termination of this Agreement.

Section 12. CONFIDENTIAL INFORMATION, USE RESTRICTIONS, AND NONDISCLOSURE OBLIGATIONS.

County is a political subdivision of the State of California and is, therefore, subject to the California Public Records Act (California Government Code Sections 6250 *et seq.*, the "Act"). Subject to the procedures set forth below, any confidential information provided to or by Contractor in connection with Contractor's performance of Work under this Agreement that County may be obligated to disclose under California law may be released and disclosed by Contractor pursuant to the Act, and any such release or disclosure shall not in any way constitute a breach of this Agreement, nor shall County, UPRR, and the other parties comprising Hookston Owners be liable to Contractor for such release or disclosure. In the event County receives a request for disclosure of confidential information which Contractor, UPRR or Hookston Owner has specifically marked "Confidential" or "Proprietary," County shall provide Contractor, UPRR and the other parties comprising Hookston Owners with written notice of such request (the "Notice of Request for Disclosure"). In the event Contractor or any of the other parties comprising UPRR and Hookston Owners has a reasonable basis for contending that the disclosure of such confidential information is not required by the Act, Contractor, UPRR or any of the other parties comprising Hookston Owners shall, within ten (10) days of the date of the Notice of Request for Disclosure, notify County in writing of its objection to disclosure and the basis therefore. In the event County determines that the information requested is not exempt from disclosure and intends to release the requested information in compliance with the Act, then it shall provide written notice of such intent to Contractor, UPRR and the other parties comprising Hookston Owners ("Notice of Disclosure"), and Contractor, UPRR, or any of the other parties comprising Hookston Owners shall then have fourteen (14) days from the date of the Notice of Disclosure to seek relief from disclosure required under the Act in Superior Court of California, County of Contra Costa. If County receives no written objection from Contractor, UPRR, or any of the other parties comprising Hookston Owners within fourteen (14) days of the date of the Notice of Disclosure, County may disclose the Confidential Information referenced in the Notice of Disclosure.

Unless directed by court order, neither the Contractor nor its agents or employees will act as an expert witness or consultant or otherwise assist, aid or render services in any way for any attorney, consultant, expert or party associated with litigation against UPRR or Hookston Owners as it pertains to the Work provided under this Agreement, whether such services are rendered gratuitously or for compensation.

Section 13. RIGHT TO STOP WORK; EXTRA WORK.

It is understood and agreed that UPRR Representative and Hookston Owners Representative shall have the right to stop the Work or make changes in the amount, dimensions or character of the Work as, in the opinion of the Authorized Representative, the interests of the Work or of UPRR and the Hookston Owners may require; and if any such stoppage, changes or alterations should diminish the quantity of the Work,

they shall not constitute a claim for damages for anticipated profits on the Work so dispensed with. Any increase in the amount of the Work that may result from such changes, shall be paid for at the same rates as similar work is herein contracted to be paid for; and, if such work is not similar to that herein contracted for, the Contractor shall submit information concerning the nature of the same to UPRR and the Hookston Owners before such work is commenced and provided that UPRR and the Hookston Owners agree that the work is dissimilar, it shall be classified as "Extra Work" and paid for at prices to be agreed upon between Hookston and the Contractor prior to the commencement of the same; but, if the Contractor and UPRR and the Hookston Owners are unable to agree upon a price for such Extra Work, UPRR and the Hookston Owners may enter into a contract with any other party or parties for its execution or may itself perform any and all such Extra Work without any liability or obligation to Contractor with respect to such work.

Contractor shall have the right to suspend performance of the Work, or terminate this Agreement, without liability, immediately upon notice to the UPRR and the Hookston Owners Authorized Representatives, if Contractor determines in its sole discretion, based on circumstances surrounding the Work, that the health and safety of its personnel or its subcontractors' personnel is or may be at risk in performing the Work.

Section 14. CONTRACTOR'S BOOKS AND RECORDS – AUDITING.

The Contractor agrees that it will maintain comprehensive records of its employees, its equipment and the Work performed under this Agreement. The Contractor will keep these records available for inspection by UPRR or Hookston Owners auditors or its Authorized Representatives once a year for a period of three (3) years following completion of the Work or expiration or termination howsoever of this Agreement.

Once a year during the 3-year period, during which the records are maintained by the Contractor, UPRR or Hookston Owners or their respective Authorized Representatives shall have the right to audit the Contractor's records to determine the accuracy of bills submitted by the Contractor under the Compensation section hereof. The Contractor agrees to reimburse UPRR and Hookston Owners for amounts that are not supported by the records maintained by the Contractor.

Contractor will have the right to exclude any trade secrets, proprietary information, confidential data, non-reimbursable costs or derivation of rates or profit margins from any audit conducted hereunder, and no such audit will unreasonably interfere with Contractor's business operations.

Section 15. ASSIGNMENT – SUBCONTRACTING.

The Contractor shall not assign or subcontract this Agreement or any interest therein, except as either approved in the Estimate or with the written consent of UPRR and the Hookston Owners Authorized Representatives. If the approved Estimate or the UPRR and Hookston Owners Authorized Representatives gives the Contractor permission to subcontract all or any portion of the Work, the Contractor is and shall remain responsible for all work of subcontractors and all work of subcontractors shall be governed by the terms of this Agreement.

The Contractor agrees to comply with the provisions of 29 CFR, Part 470, if applicable.

Section 16. PATENT, COPYRIGHT, AND OTHER INFRINGEMENTS.

The Contractor shall indemnify, defend, and hold harmless UPRR and the Hookston Owners from and against any and all claims, lawsuits, judgments, losses, costs, and expenses (including attorneys' fees) arising out of any claims or action made or brought against UPRR and the Hookston Owners to the extent that it is based on a claim that any product, equipment, design, or any other material or thing furnished by the Contractor, or used by the Contractor in performing the Work under this Agreement, including without limitation, any computer software or related equipment or products, infringes upon patent, copyright, trademark, or other proprietary right of any third party, constitutes misappropriation of a trade secret, or constitutes misuse of a license. This indemnification obligation shall not apply in the case where

Authorized Representative, UPRR, or Hookston Owners directed Contractor to incorporate infringed third party intellectual property rights into the Work.

Section 17. MODIFICATION – WAIVER OF DEFAULT – ENTIRE AGREEMENT.

No modification or amendment of this Agreement shall be of any force or effect unless made in writing, signed by the Contractor and the UPRR and Hookston Owners Authorized Representatives and specifying with particularity the nature and extent of such waiver, modification or amendment. Any waiver by UPRR and the Hookston Owners Authorized Representatives of any default by Contractor shall not affect or impair any right arising from any subsequent default. This Agreement and the attachments attached hereto and made a part hereof constitute the entire understanding between Contractor and UPRR and the Hookston Owners for the Work and cancel and supersede any prior negotiations, understandings or Agreements (including any Master Agreement for similar services, if applicable), whether written or oral, with respect to the Work or any part thereof. The terms and conditions of this Agreement are not subject to any previous agreements between the parties, including any Master Agreements for similar services provided by Contractor for Work on the Job Site. The parties agree that the terms of this Agreement shall govern.

Section 18. ARBITRATION.

In the event of a disagreement between the parties as to the interpretation or implementation of this Agreement, UPRR, Hookston Owners, and Contractor will follow the procedures set forth below:

Either party may initiate arbitration of an unresolved dispute by providing the other party written notice that specifically identifies the question(s) to be submitted for arbitration.

Arbitration shall be governed by the rules of the American Arbitration Association applying to commercial disputes, but such arbitration shall not occur under the auspices of the American Arbitration Association.

Venue for the arbitration shall be in Contra Costa County, California. UPRR, Hookston Owners, and Contractor shall confer in an effort to agree on a former federal judge or magistrate judge as an arbitrator (the "Arbitrator"). If the parties are unable to agree on the Arbitrator, any party may request that the Arbitrator be selected by the Chief Judge of the United States District Court for the State of California.

UPRR and Hookston Owners and Contractor shall follow such rules of discovery as are set by the Arbitrator. The Arbitrator may issue the arbitration decision, which shall be in writing and delivered to both parties. The Arbitrator is empowered to award injunctive or other equitable relief, damages, or such other remedies as the Arbitrator concludes are just and equitable, provided that a court could have provided such a remedy, and further provided that the remedy does not impact/affect Hookston's operations. The arbitration decision shall be conclusively binding on the parties. Payment of damages or awards pursuant to the arbitration decision shall be made within thirty (30) days after the decision is published. The parties may enforce arbitration decisions in an appropriate court.

Unless otherwise directed by the Authorized Representative, Contractor shall continue performance under this Agreement during any arbitration.

The parties shall each bear their own attorney fees and other costs or arbitration unless the Arbitrator concludes that either party has been dilatory or otherwise not participated in the arbitration procedure in good faith, in which case attorney fees and costs may be awarded against such party.

The parties intend that this arbitration procedure shall be conducted to assure that no third person in any other proceeding will be able to assert that either party herein has made an admission of fault or negligence or is collaterally estopped to deny such fault or negligence. UPRR, Hookston Owners, and Contractor agree to cooperate in the defense of any lawsuit brought against either or both of them by a third party (including employees).

Section 19. ENFORCEABILITY.

In the event any provision of this Agreement shall be deemed to be unenforceable for any reason, including without limitation as a result of a decision of an applicable court, legislative enactment or regulatory order, the parties agree that the provision shall either, at the election of the parties, be severed from the Agreement or reformed in Arbitration to make it enforceable.

The parties hereto do not intend to grant rights *to* any third party *that* allow such party to rely on the work product of Contractor.

Section 20. RETAINED RIGHTS.

The parties acknowledge and agree that Contractor retains all right, title and interest in and to any invention, whether patentable or not, including but not limited to compositions, formulas, designs, products, and methods, together with any data, and any know-how, copyrights, software programs, trade secrets, patents, copyrightable materials, and other intellectual property ("Intellectual Property") (a) owned, made, conceived, authored, reduced to practice, or otherwise developed by Contractor prior to the Effective Date of this Agreement, or (b) developed by Contractor outside the scope of Work under this Agreement (collectively (a) and (b), the "Retained Rights").

Section 21. MISCELLANEOUS.

UPRR and Hookston Owners represents and warrant that (i) they will provide access to Job Site, including access to public and private property as required for Contractor to perform Work, (ii) they will provide complete and accurate information as necessary for Contractor's performance of the Work, (iii) they will approve or direct each specific location for boring, drilling, excavation or other intrusive work and identify concealed or underground utilities, structures, obstructions or sensitive conditions before Contractor performs Work, (iv) Contractor will have the right to rely on all information provided by UPRR and Hookston Owners in order for Contractor to perform Work, (v) Contractor is not responsible for any conditions existing at Job Site prior to performance of the Work ("Pre-Existing Conditions"), (vi) Contractor is not responsible for handling or transporting hazardous materials or other waste from the Job Site, for which UPRR and Hookston Owners agree they will remain liable, and (vii) UPRR and Hookston Owners agree they will remain liable for the acts or omissions of any third parties that UPRR and Hookston Owners may engage, directly or indirectly, to perform services, including, but not limited to, the Authorized Representative (collectively, "Third-Party Contractors") in connection with one or more projects for which Contractor is performing Work for UPRR and Hookston Owners.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement in duplicate as of the date first herein written.

UNION PACIFIC RAILROAD: UNION PACIFIC RAILROAD COMPANY

By: _____

Title: _____

Printed Name: _____

HOOKSTON OWNERS REPRESENTATIVE

By: _____

Title: _____

Printed Name: _____

CONTRACTOR: ERM-West, Inc.

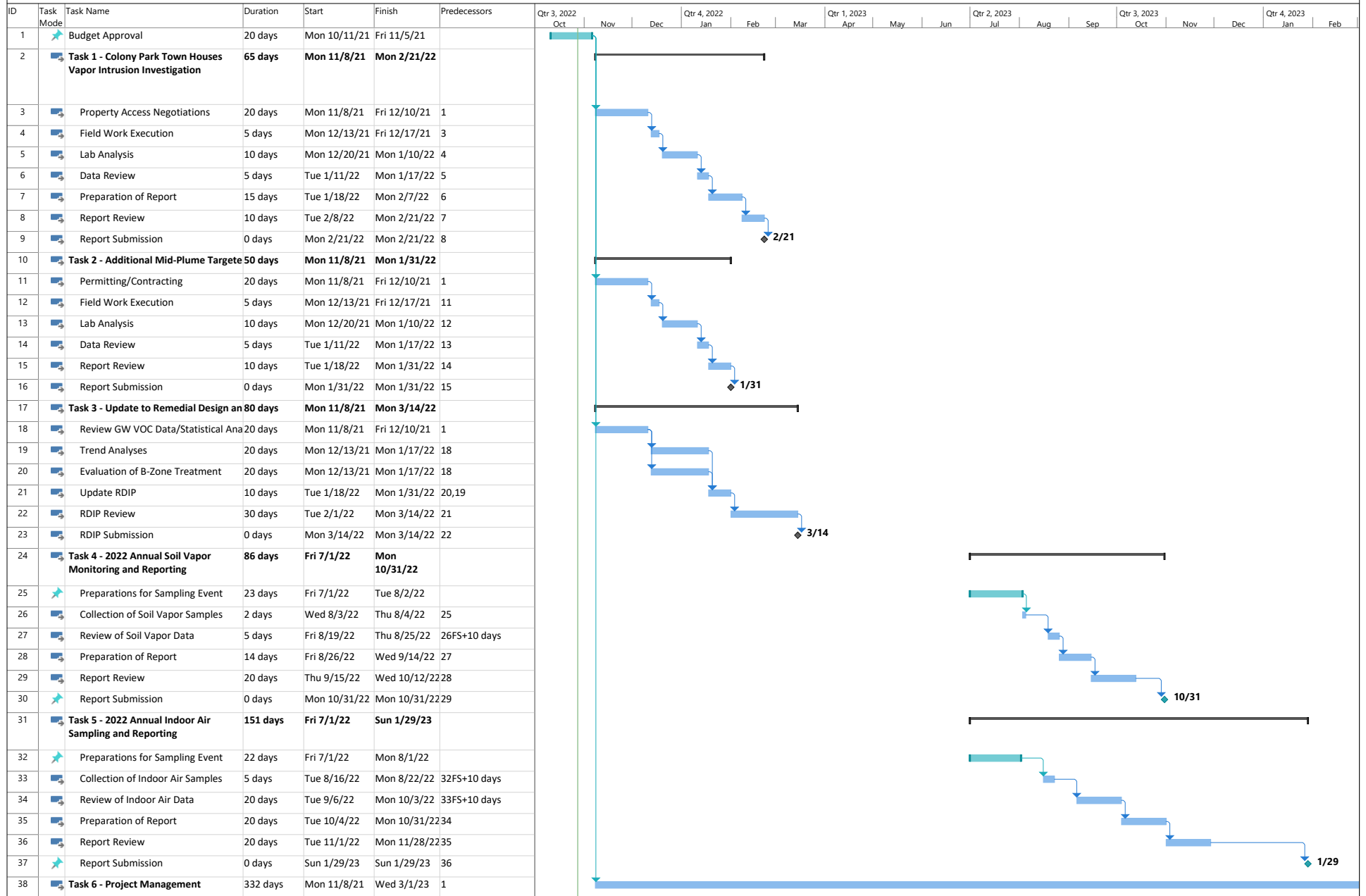
By: _____

Title: _____

Printed Name: _____

APPENDIX C ESTIMATED PROJECT SCHEDULE

Appendix C: Project Schedule
Hookston Station Site
Pleasant Hill, California



Project: Hookston 2020 Tasks G Date: Thu 10/28/21	Task	Project Summary	Manual Task	Start-only	Deadline	Progress
	Split	Inactive Task	Duration-only	Finish-only	Progress	Progress
	Milestone	Inactive Milestone	Manual Summary Rollup	External Tasks	Manual Progress	Manual Progress
	Summary	Inactive Summary	Manual Summary	External Milestone	Manual Progress	Manual Progress