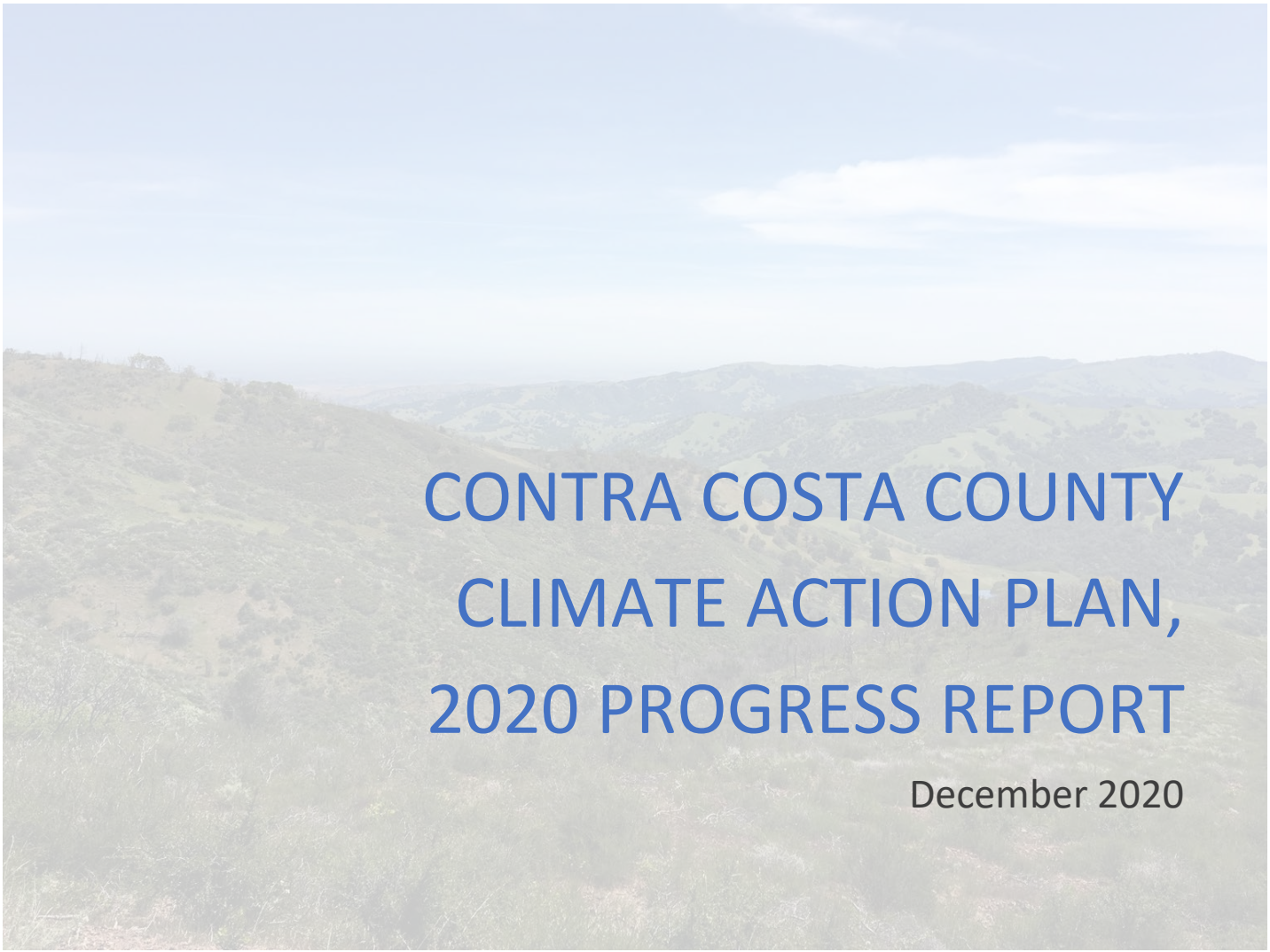

CONTRA COSTA COUNTY CLIMATE ACTION PLAN, 2020 PROGRESS REPORT

December 2020

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Contra Costa County Sustainability Commission
2020 *Climate Action Plan* Progress Report

Introduction

The 2020 Climate Action Plan (CAP) progress report provides information on the actions Contra Costa County has taken in the past year to advance the goals of the County's 2015 Climate Action Plan. Due to the events that have transpired over the course of 2020, the data that is enclosed in this report reflects the unusual year.

Information on County operations is included in the attached progress report from the County's Public Works Department.

Energy Efficiency

Measures EE 1: Energy-Efficient Retrofits – Residential Buildings, EE 2: Energy-Efficient Retrofits – Nonresidential Buildings and EE 3: Energy Conservation Awareness

Overview of GHG Emissions Targets as Established by 2015 CAP

GHG Emissions Reductions Target by 2035 for All EE Measures[1]	GHG Emissions Reductions Expected by 2020 for All EE Measures	Percentage of 2020 GHG Emissions Reduction Target Achieved to Date
14,000 MTCO2e[2]	7,510 MTCO2e	88%

Breakdown of 2020 GHG Emission Totals and CAP Targets for Measures EE 1, EE 2, and EE 3

	Measure	2020 GHG Reduction Target (MTCO2e)	Total GHG Emissions Reduction Completed by 2020[3] (MTCO2e)
EE 1	Provide opportunities for residential buildings to become more energy efficient.	2,140	937

[1] Refers to Measures EE 1, EE 2, EE 3, EE 4, EE 5, and EE 6

[2] MTCO2e[2] = carbon dioxide equivalent

[3] Percentages are calculated using the 2015 Contra Costa CAP Monitoring Tool provided by Michael Baker International. The percentages included remain tentative until additional requested data is provided.

	Measure	2020 GHG Reduction Target (MTCO2e)	Total GHG Emissions Reduction Completed by 2020[3] (MTCO2e)
EE 2	Provide opportunities for nonresidential buildings to become more energy efficient.	4,630	332
EE 3	Provide education and outreach highlighting the benefits of energy conservation	430	5,358

The CAP calls for continued expansion of single-family and multi-family participation in established energy efficiency rebate programs to retrofit 3,000 single-family and 700 multi-family homes. In 2019 and 2020, under the BayREN Home+ and Multifamily programs, 57 single-family and 14 multi-family units were retrofitted.

All estimated emission reductions are dependent on multiple data sets from various energy efficiency programs, such as the Bay Area Regional Energy Network (BayREN) program, County Weatherization program, PG&E Commercial Business program, and Property Assessed Clean Energy (PACE) projects. County staff is working with PG&E and the California Public Utilities Commission (CPUC) to obtain outstanding data for Commercial customers that is not yet available. There are also additional PACE projects for which data is still being collected. Therefore, GHG emissions reductions (expected percent to be completed by 2020) may be higher than is estimated in this report.

For Measure EE 1, there was a significant drop in energy efficiency home retrofits completed for calendar year 2020, likely due to COVID-19. Actual expected GHG reductions under Measure EE 3 are much higher than originally expected/allocated under the current CAP, due to extensive community outreach conducted by County staff to educate residents on the benefits of energy conservation.

A geographic breakdown of where projects qualifying for energy efficiency rebate programs were carried out in the unincorporated County is provided below. The data on the single-family energy efficiency retrofits completed in unincorporated Contra Costa County for 2020 was last updated on November 4, 2020.

2019 Energy Efficiency Single-Family Homes Completed - Unincorporated			
Community	**# Homes Retrofitted**	**Total kWh Savings**	**Total Therms Savings**
Alamo	49	2698.3	985.18
Bay Point	2	0	47.38
Byron	9	672.44	109.88
Crockett	9	542.47	49.78
Discovery Bay	3	203	79.53
El Sobrante	21	843.91	749.99
Kensington	33	824.56	719.38
Rodeo	20	491.37	489.96
PACE Projects - HERO	15	not available	not available
Totals	**161**	**6276.05**	**3231.08**

2020 Energy Efficiency Single-Family Homes Completed -- Unincorporated			
Community	**# Homes Retrofitted**	**Total kWh Savings**	**Total Therms Savings**
Alamo	25	2479.13	493.46
Diablo	1	192.3	24.49
El Sobrante	2	1888.97	49.94
Rodeo	3	116.42	116.64
PACE Projects - HERO	11	not available	not available
Totals thru Nov 2020	**42**	**4676.82**	**684.53**

Below is the data for multi-family projects in the unincorporated County in 2019 and 2020; to-date there are no multi-family projects in the unincorporated County in 2020. Data on the specific communities in which multi-family projects were implemented is not available; PG&E claims that providing this information violates consumer privacy rules.

Multi-Family Projects completed			
	Units	**kWh Savings**	**Therms Savings**
2019-Unincorporated	14	5951	492.9
2020-Unincorporated	0	0	0
Totals thru Nov 2020	**14**	**5951**	**492.9**

Measure EE 4: Urban Forestry and Paving and Roofing Materials

The CAP sets a goal to plant 500 new shade trees by 2018. The exact number of trees planted and removed is not currently tracked by the County, so it is not possible to conclude if this measure has been met. However, actions being developed this year by County staff will make it easier to maintain the number of trees in the County.

The County Off-Street Parking Ordinance (Chapter 82-16) contains provisions for parking lots of a certain size to provide landscaping and shade trees. The County's Tree Ordinance is in the process of being updated where an in-lieu tree planting fee program will be considered. County staff is exploring other models that allow in-lieu fees to be paid when replanting is infeasible. Said fees would be used to plant trees in other areas of the County. Factors for determining how plantings from in-lieu fees are designated are also being developed.

The CAP aimed to have 1,790 existing homes and 9 existing businesses complete cool roof retrofits by 2018. From January 1, 2020 to November 30, 2020, 600 homes and 15 businesses have completed cool roof retrofits. The target for cool roof installations has been well-exceeded.

Residential Cool Roof Installations

Year	# Cool Roofs Installed
2010	54
2011	46
2012	31
2013	10
2014	44
2015	73
2016	226
2017	335
2018	482
2019	527
2020	600
Total	2,328

Commercial Cool Roof Installations

Year	# Cool Roofs Installed
2014	2
2016	3
2017	2
2018	8
2019	15
2020	15
Total	45

Renewable Energy

Measure RE 1: Alternative Energy Installations

The CAP sets a goal of 50 new homes, 2,500 existing homes, 10 new businesses, and 60 existing businesses with solar arrays by 2020. This target has been far exceeded with over 5,000 residential PV permits issued in the past three years alone. From January 1, 2020 to November 30, 2020, 966 residences and 4 businesses in the unincorporated County installed solar PV.

In 2015, the County implemented the online permitting tool. Because of COVID-19, the majority of applicants this year took advantage of this service with 83% of permits being issued online.

Year	Total # Residential PV Permits	# Residential PV E-Permits
2018	1482	414
2019	1759	323
2020	1829	1525

Measure RE 2: Alternative Energy Facilities

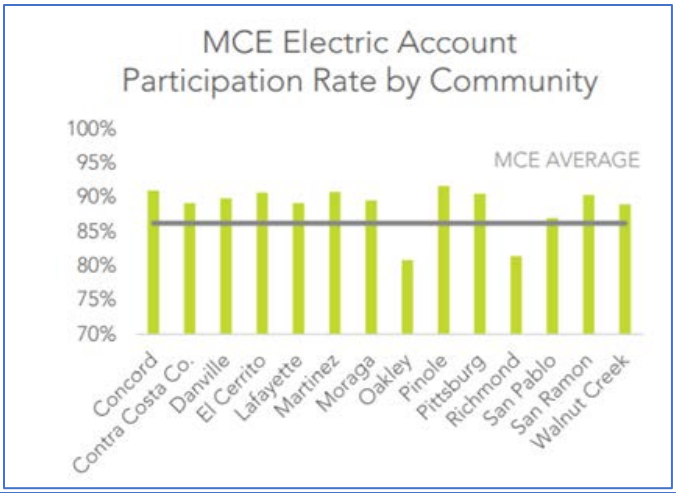
The CAP sets a goal to install 1 MW of solar on public facilities in the unincorporated area by 2018. As noted in past CAP progress reports, this target has long been surpassed. The County continues to increase its solar photovoltaic (PV) capacity with installation at various sites around the county.

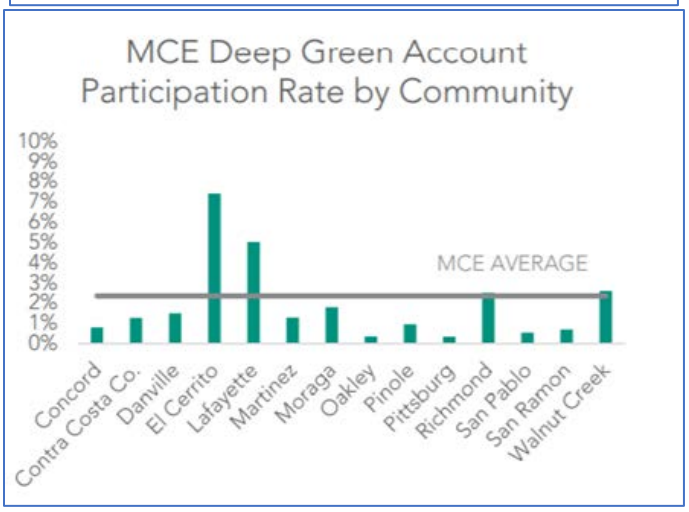
Currently, the County has 22 PV systems that have a total capacity of 4.5 MW and produce 6.5 million kilowatt-hours per year (6,500,000 kWh/year). In 2019, Contra Costa County signed a Power Purchase Agreement for the installation of an additional nine solar PV systems; three of these solar PV systems include energy storage. The first phase of this new Distributed Energy Resources project will be completed by the end of 2020 and the second phase by mid-year 2021. When complete, the County will have added that will produce an additional 6,000,000 kWh/year. Over the 25-year contractual period the County is estimated to save $16,000,000.

Measure RE 3: Alternative Energy Financing

Measure RE 3 is supportive and does not have a quantitative target. The CAP identifies community choice aggregation as a strategy for increasing the amount of renewable energy consumed in the County.

Unincorporated Contra Costa has reduced a total of 3,554 MTCO2e through its participation with MCE since 2018. Unincorporated County has an 89.1% participation rate with a Deep Green participation rate of 1.3% as of October 1, 2020.





Community	Joined MCE	MT CO_2 Reduced[1]	Participation Rate	Deep Green Rate	Deep Green[2]
Concord	2018	2,474	91%	0.8%	N/A
Contra Costa	2018	3,554	89.1%	1.3%	2021
Danville	2018	846	89.9%	1.5%	2019
El Cerrito	2015	4,605	90.7%	7.4%	2017
Lafayette	2016	4,412	89.2%	5%	2017
Martinez	2018	730	90.8%	1.3%	2019
Moraga	2018	230	89.6%	1.8%	N/A
Oakley	2018	560	80.9%	0.4%	N/A
Pinole	2018	307	91.7%	1%	N/A
Pittsburg	2018	2,032	90.5%	0.4%	N/A
Richmond	2013	64,504	81.4%	2.5%	2017
San Pablo	2015	4,536	87%	0.6%	2016
San Ramon	2018	1,458	90.3%	0.7%	N/A
Walnut Creek	2016	15,774	89%	2.6%	2018

Municipal Accounts Opted Up to Deep Green (As of October 1, 2020)

The CAP also calls for improving participation in programs that help financial investments in renewable energy and energy storage systems which includes programs such as Property Assessed Clean Energy (PACE) and BayREN. PACE in particular allows property owners to voluntarily join an assessment district and borrow money for the purpose of making energy or water efficiency improvements to their project.

In 2019, the Sustainability Commission suggested the County identify financing mechanisms that would be more accessible to low- and medium-income homeowners. This fall staff submitted a proposal to the UC Berkeley Goldman School of Public Policy to perform this research. Starting in January, this topic will be the capstone project for a Goldman School student, to be completed by May 2021.

Land Use and Transportation

Measure LUT 1: Mobility and Land Uses

The CAP calls for 33,630 countywide bike trips per weekday on average by 2020. This is not a metric that staff has explicitly tracked due to the cost of data collection and the inherent limitations of this data across the unincorporated County. The following studies and programs directed by County staff facilitate easier access to transportation alternatives and improved safety conditions, which both encourage non-vehicular mobility.

Bike and Pedestrian Access

In June 2020, the Board of Supervisors accepted the Iron Horse Corridor Active Transportation Study, which identifies improvements throughout the 22-mile Corridor for increasing safety, access, and the trail user experience. The County collaborated with all Corridor cities, the Contra Costa Transportation Authority, East Bay Park District and local communities and trail users to develop the Study.

County staff is currently developing the Marsh Creek Corridor Multi-Use Trail Feasibility Study which explores the concept of a new multi-use trail within the 12+ mile corridor from Clayton to the Round Valley Regional Preserve (near Brentwood). The purpose of the path would be to provide a safe, useful and enjoyable transportation corridor for various forms of non-motorized travel, including pedestrian, equestrian and bicycle users (including serious bicycle enthusiasts).

Vision Zero

The County' Vision Zero Program, which seeks to reduce fatalities and significant injuries on unincorporated roadways is currently in development. The Program will result in engineering, education and enforcement strategies that will be implemented to help reduce roadway incidents and increase user safety.

Active Transportation Plan

The Contra Costa County Active Transportation Action Plan ("ATP") will create a detailed inventory of the County's roadways and identify opportunities to build active transportation facilities with an emphasis on projects that can be installed quickly through re-striping and repaving. Staff will create a three-tiered priority list of projects based on ease of implementation, location in disadvantaged communities, and overlap with a travel demand model. Staff will conduct extensive public outreach in each of the 13 unincorporated communities and develop an interactive web map tool for ongoing outreach and evaluation.

With more detailed data on roadway opportunities and constraints, staff can expand upon CCTA's 2018 Countywide Bicycle and Pedestrian Plan and support concurrent planning efforts such as the County's Vision Zero program, which will in turn support regional and state planning goals. The County was awarded a $380,000 Caltrans Sustainable Communities Grant to develop the ATP.

Measure LUT 2: Alternative-Fuel Infrastructure

The CAP targets specific outcomes regarding electric vehicle (EV) charging station use, including 14,220 vehicle miles traveled (VMT) per EV by 2020.

MCE has contributed to the network of EV charging stations distributed throughout the county through its rebate program. Through this rebate program, as of October 4, 2020, MCE has installed 317 charging stations within the county.

The number of EV charging stations around the county has grown tremendously thanks to the Contra Costa Transportation Authority's (CCTA) work on the Electric Vehicle Readiness Blueprint completed in July 2019 and the Board of Supervisors' adoption of a streamlined permitting process for electric vehicle chargers on December 17, 2019 (Ordinance No. 2019-39). These two efforts contributed to the 1,325 charging stations currently distributed throughout the county.

Measure LUT 4: Vehicle Miles Traveled Reduction

This measure establishes targets for BART and bus trips taken by residents of the unincorporated County, and decreases in vehicle miles travelled in high occupancy vehicle lanes to be met by 2035. For reasons similar to bike trip data, this is not something staff tracks. Such an effort would require significant coordination with BART, bus operators, and other agencies to measure.

In June 2020, the Board of Supervisors adopted new guidelines for evaluating transportation impacts under the California Environmental Quality Act (CEQA). Specifically, the new guidelines implemented Senate Bill (SB) 743 which shifted the transportation analysis metric for measuring environmental impacts from congestion and delay-based metrics (e.g. Level of Service or LOS) to Vehicle Miles Traveled (VMT). The guidelines introduced new thresholds of significance for land use and transportation projects. Transportation Demand Management (TDM) strategies are typically required mitigation where necessary. County staff is also working with the Contra Costa Transportation Authority on development of a regional VMT mitigation program.

Solid Waste

Measure W 1: Waste Reduction and Recycling

Since 2007, the State measures jurisdictional waste reduction based on the amount disposed using a pounds of disposal Per Person per Day (PPD) metric. In 2019, the unincorporated County area disposal was 2.46 PPD, which is a reduction of 0.74 PPD from the 2007 baseline of 3.2 PPD, equivalent to an overall diversion rate of 77%. The CAP set a goal to achieve a local waste diversion rate of 75% and reduce tons of waste by 90,850, so the goal was achieved.

Water Conservation

Measure WE 1: Water Conservation

Contra Costa County is served by a number of water purveyors. The majority of residents receive service from the East Bay Municipal Utility District (EBMUD), which serves the southern and western areas, and the Contra Costa Water District, which serves central and eastern areas.

The CAP aims to reduce potable water use by 20% from 2013 water use by 2020. The East Bay Municipal Utility District has provided high-level data on water use in the unincorporated County. As of 2019, unincorporated county's water use was 3,681,827 CCF[4] for non-residential use and 5,394,742 CCF for residential use. Total potable water use for the county was 9,076,569 CCF, or a 7.86% increase in water

[4] Each CCF is 748 gallons of water

consumption from 2015 levels. In future reports, staff will try to include more information on the amount of rainfall in the year being measured, at the suggestion of the Sustainability Commission.

See table below.

Total CCF	Years					
Unincorporated Area	2015	2016	2017	2018	2019	Grand Total
Non-Residential	3,783,241	3,432,147	3,489,074	3,683,351	3,681,827	18,069,640
Residential	4,631,907	4,787,355	5,350,131	5,488,289	5,394,742	25,652,424
Grand Total	8,415,148	8,219,502	8,839,205	9,171,640	9,076,569	43,722,064

Contra Costa County
Public Works Department

2020 Sustainability Report

December 2020

Contents

Sustainability Efforts at Public Works Summary Report

(As of December 2020)

Introduction

The Public Works Department is responsible for several programs that have been identified as opportunities for more sustainable operations to help reduce our impact on the environment. The Department is responsible for programs that deliver services directly to the public, such as the Road Program, Flood Control Program, Airports, and Parks and Recreation. The Department is also responsible for programs that deliver services to other County Departments, such as County Buildings, Fleet Services, Recycle and Surplus (Materials Management), Purchasing, and Print & Mail. Below is a summary of some efforts that have been accomplished, are in process, or are planned to address the County's Climate Action Plan.

Road Program

Traffic Signals

- All 88 unincorporated County Traffic Control Signals and 27 warning flashers have been converted to LEDs resulting in energy savings. We are exploring using fuel cell technology for power backup during Public Safety Power Shutdowns (PSPS) and other power outages at critical intersections. We currently have one signal that has a diesel generator back up and some signals that have battery backup. The battery backup system only lasts a couple of hours and is not sufficient for an average PSPS event. The diesel system can last 24 hours and then needs to be refueled. The diesel system also requires more on-going maintenance versus the fuel cell technology and emits diesel emissions into the environment. The fuel cell technology will provide 6-9 days of uninterrupted power before needing to refuel. The only byproduct is heat and water as long as we use hydrogen fuel, making it better for the environment.

CAP Reference:
1.1 Increase the number of carbon neutral building in Contra Costa County – Energy Efficiency and weatherization programs;
1.2 Replace fossil fuel electricity with renewable electricity

Street Lights – All county owned street lights have been retrofitted with LED bulbs. PG&E street lights in unincorporated Contra Costa County have been replaced with LED bulbs. The retrofit has reduced energy consumption.

CAP Reference:
1.1 Increase the number of carbon neutral building in Contra Costa County – Energy Efficiency and weatherization programs

Street Tree Program - We currently don't have an official street tree program. We have worked with specific community members wishing to place trees in the road right-of-way in areas such as Byron and Tara Hills. There are various Landscape Districts that fund the maintenance of landscaping, including trees, either in the road right-of-way or adjacent to the road. There are currently no plans to develop and implement a Street Tree Program for unincorporated County roads. Special Districts has several parks and Landscape Zones that have trees. To help manage the trees, Special District staff is implementing a tree inventory program for parks.

CAP Reference: 2.2 Sequester carbon in natural lands in CCC. Track number of native trees planted by County and public and private partners

Complete Streets – The Board of Supervisors adopted a Complete Streets policy and the Public Works Department has been implementing this policy where it is realistic, beneficial, and resources are available. Complete Streets facilitate opportunities for various modes of travel, such as pedestrian, bicycles, transit, and vehicles, within the public road right-of-way. The Public Works Department has numerous completed, on-going, and planned projects that implement the various components of complete streets. The projects are listed below.

In 2020, we added only 0.10 miles of bike lanes and 0.10 miles of sidewalk. Although this may seem insignificant, these additions were gap closures that now create a longer uninterrupted bike or pedestrian facility. Although we are adding to our inventory of sidewalks and bike lanes, we are lacking good metrics and goals to show our progress on achieving the goals of the Board of Supervisors Complete Streets policy. To address this shortfall, we are developing metrics to show our progress for curb ramps, sidewalks, and bike lanes. We plan to develop GIS layers that show sidewalks, bike lanes, and ADA ramps to help keep inventory of our existing and newly constructed facilities. We need to show which streets have all modes of travel or two modes of travel. We may color code roads with Red (Vehicles only), Yellow (Vehicles, Bike Lanes), Orange (Vehicles, Sidewalk), and Green (Vehicles, Sidewalks, Bike Lanes). We may want to couple this information with the "stress level" information from CCTA. The inventory of sidewalks and bike lanes is currently being worked on by our Transportation Engineering Division. Transportation Engineering has contracted with a company through CCTA to map pedestrian and bicycle facilities into GIS.

To prioritize funding for the most likely routes to be used by pedestrian and bicyclists, we are looking to develop a **Local Access Score** (http://localaccess.mapc.org/) for roads that will prioritize the development of certain roads into complete streets. We feel that by addressing the high target routes, we will see the greatest decline in Vehicle Miles Traveled. If we develop the Local Access Score, a metric to measure progress in implementing complete streets might be the percentage of those roads with a High Local Access Score that have been improved to allow for multi-modal travel. Overall, the goal is to reduce Vehicle Miles Traveled. The Local Access Score metric would be the lead measure and the Vehicle Miles Traveled metric would be the lag measure.

The following are recent examples of complete street projects completed and planned projects for the near future.

Completed 2018

- Tice Valley Linear Park and Pedestrian Improvements (2018?)

Completed 2019

- Tara Hills Pedestrian Infrastructure Project

- Camino Tassajara Bike Lane Gap Closure Project

Completed 2020

- San Pablo Dam Road Sidewalk Gap Project

- Walnut Creek Crosswalk Improvements

- Rodeo Downtown Infrastructure Improvements (includes green infrastructure – bio-swale)



Upcoming 2021

- Fred Jackson Way First Mile/Last Mile Connection Project
- Marsh Drive Bridge Replacement (includes EBRPD trail on new bridge/partnership, bike lanes and sidewalk)
- Bailey Road/SR4 Interchange Pedestrian and Bicycle Access Improvements
- Bel Air Trail Crossing Safety Improvements
- Oak Road Bikeway Project
- Rodeo Pedestrian Enhancement Project

Upcoming 2022-2024

- Danville Boulevard/Orchard Court Complete Streets Improvements (2022)
- Alves Lane Trail Crossing (2022)
- Imhoff Drive Bicycle Shoulder Restriping (2022)
- Westminster and Kenyon Avenue Accessibility Project (2022)
- Central County AOB Pedestrian Project (2023)
- Mayhew Way and Cherry Lane Trail Crossing Enhancement (2023)
- Treat Boulevard Corridor Improvements (2024)
- Appian Way Complete Streets Project – submitted ATP grant for partial project (TBD)

CAP Reference: 5.1 – Reduce vehicle miles traveled in Contra Costa County by increasing number of people who bike, walk, and take public transit.

Increase multi-modal access to parks and open space

– As mentioned in the Complete Streets section above, we are considering developing a Local Access Score for our road network. The process of developing the score requires input of destinations. We would make sure that parks and open spaces are included in the model when calculating the Local Access Score. This will help us prioritize which facilities would most likely be used and which facilities we need to improve. The following links provide additional detail on how the State of Massachusetts implemented a statewide Local Access Score to help prioritize funding for complete street components. All jurisdictions were included; therefore, an equal evaluation method was in place to target the high priority areas.

http://localaccess.mapc.org/methodology.html
http://localaccess.mapc.org/assets/pdfs/LocalAccess_Technical_Report.pdf

CAP Reference: 6.3 – Increase access of County residents to parks and open space.

Vision Zero - The idea is that if we have safer streets, then more people will use bikes and walk or other non-vehicle modes to travel. The program is currently underway with the High Incident Network identified. We are working on finalizing the countermeasures to address the HIN roads. Metrics for this is overall collisions, Major Injury and Fatal collisions, bike collisions, and pedestrian collisions. There was a suggestion of the low-stress designation. This metric may be incorporated into the complete streets effort and/or the Vision Zero effort.

Completed 2019

- Byron Highway Traffic Safety Improvements
- Marsh Creek Road Traffic Safety Improvements

Completed 2020

- Kirker Pass Road Northbound Truck Climbing Lane
- Crockett Area Guardrail Upgrade
- San Pablo Dam Road Traffic Safety Improvements

Upcoming 2021

- Byron Highway/Byer Road Safety Improvements (near school)

Upcoming 2022-2024

- Norris Canyon Road Safety Improvements (includes shoulders for bikes)
- Kirker Pass Road Safety Project
- Vasco Road Safety Project (Phase II)
- Camino Tassajara Safety Improvements – South of Windemere Pkwy to County Line (includes bicycle facilities)

CAP Reference: 5.1 – Reduce vehicle miles traveled in Contra Costa County by increasing number of people who bike, walk, and take public transit.

Green Infrastructure – The County is a permittee under the San Francisco Bay Region Municipal Regional Stormwater NPDES Permit (MRP). All of our new projects comply with the requirements as set forth in the MRP. For example, we just completed a multi-million dollar safety project on Kirker Pass Road that incorporated two large bio-retention facilities to filter and slow the flow of rainwater from the impervious pavement added by the project. The facilities were oversized to go above the required permit requirements. In addition to Kirker Pass Road, we have completed the Rodeo Pedestrian Improvements Project that incorporated an oversized bio-retention facility to treat and slow rainwater runoff in the area. The project also included landscaping.



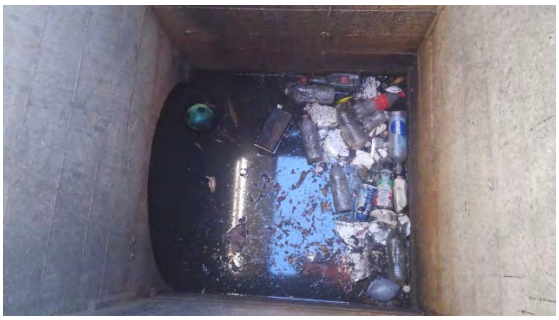


As part of our efforts to incorporate greener infrastructure into our projects, we have tested pervious concrete on a sidewalk project in Bay Point. We will evaluate how it performs and will need to direct staff on whether to continue to use this method of water treatment and slowing. Another possible application of pervious pavement would be in parking lanes along roadways.

The County was required to put together a **Green Infrastructure Plan**. We will need to review the plan and educate staff on the requirements of the plan. We have discussed this issue with Transportation Engineering on allocating a set amount of budget towards implementation of the Green Infrastructure Plan. We are trying to incorporate as many green components into our road projects as required by the Clean Water Permit.

One area of concern is that some green infrastructure, such as bio-swales, require vegetation. The vegetation will increase water usage to keep the plants alive. One of the Climate Action Plan goals is to reduce water usage which conflicts with adding more landscaping that requires irrigation. We will need to research what types of low-irrigation landscaping we could use to meet clean water filtration specifications while keeping operations and maintenance costs down.

The MRP requires 100% reduction of trash flowing from the municipal separate storm sewer system to creeks and the San Francisco Bay by 2022. As part of the County's Trash Reduction Program, the County has installed full trash capture devices in individual storm drain inlets to capture trash and debris carried by rain water before it flows to creeks and the Bay. In the past 2 years, Contra Costa County has installed 177 trash capture devices that collect rain water from 518 acres.



In addition, Contra Costa County entered into a Cooperative Implementation Agreement (CIA) with Caltrans in June 2020 to install large full trash capture devices in a section of unincorporated San Pablo. This project will be designed and constructed over the next several years. The trash capture devices will collect trash flowing through the storm sewer system from both Caltrans Interstate 80 and the County right-of-way.

CAP Reference: 2.2 Sequester carbon in natural lands in CCC. Install Green Infrastructure

Cool Pavements – The County currently does not have a Cool Pavement Program. We have looked into the topic and have found some concerns that need to be addressed prior to recommending such a program.

The City of Los Angeles has a cool pavement program. Studies by UCLA are showing that the benefit of white pavement may not be all that beneficial. Although the surface may be cooler, the air temperatures in the vicinity of the road may have increased. We would like to continue to monitor cool pavements performance before we implement this program since it will be an additional cost to implement and may not necessarily yield desirable outcomes.

https://www.bloomberg.com/news/articles/2019-10-03/reflective-pavement-may-be-less-cool-than-it-seems

Public Works inquired to the City and County Pavement Improvement Center (John Harvey) asking for his expertise on cool pavements and specifically the use of hydrated lime to improve the albedo of asphalt concrete and reduce heat island effects. Mr. Harvey confirmed that cool pavements may actually increase the air temperature in the area and that more studies need to happen. The benefits of cool pavements may also be location-specific.

The Public Works Department, through its Engineering Services Division, will need to look at Sustainable standards for roads to make sure the development community is constructing sustainable infrastructure that can be maintained.

CAP Reference: 2.3 Address impacts of heat islands

Irrigation/Landscaping – The Public Works Department is working on creative solutions to reduce water usage and meet community expectations for landscaping. We have completed two projects that installed artificial turf that allows stormwater to percolate through to recharge groundwater, while reducing water use for irrigation and meeting community desires for pleasant landscaping. The following pictures are examples of projects completed in Bay Point and Pacheco. The project in Pacheco (picture on the right) was installed approximately 10 years ago and has weathered well. The Pacheco project was done as a pilot project to determine how the installation would do through time. Aside from someone trying to pull up the turf the first week it was installed, the island still looks great.

CAP Reference: 4.1 – Reduce water use in unincorporated County and in County facilities.

Cold-in-Place Recycling – The Public Works Department is using cold-in-place recycling as a method to rehabilitate unincorporated County Roads. Cold-in-place recycling grinds up the existing roadway, adds rejuvenating oil, and is placed back down on the roadway. This layer is usually capped with a thin layer of new asphalt concrete. This technique is less expensive and reduces the need for natural resources (rock) and reduces the overall truck trips during construction. We have completed three large projects using cold-in-place recycling: Buchanan Field Airport Taxiway, Kirker Pass Road Rehabilitation, and Balfour Road (approximately a three mile stretch of road).

County Buildings

(Facilities/Capital Projects/Custodial Services/Materials Management)

MCE Deep Green Program – The County participates in MCE's renewable electricity program. The Board of Supervisors approved moving to MCE's Deep Green Program starting in FY 21/22.

Distributed Energy Resources Plan - Contra Costa County is a pioneer and leader in the distributed energy resource arena having started in nearly two decades ago with two rooftop solar energy photovoltaic systems on two of its most important buildings. Since then the County has added 20 more

ground-mounted, rooftop and parking lot canopy solar energy systems. These PV systems have a total capacity of 4.5 MW and produce 6.5 million kilowatt-hours per year (6,500,000 kWh/year).

Looking forward, in 2019 Contra Costa County signed a Power Purchase Agreement for the installation of an additional nine solar PV systems, three of which include energy storage. The first phase of this new DER project will be completed by the end of 2020 and the second phase by mid-year 2021. When complete, the County will have added an additional 6,000,000 kWh per year of solar production potential. Over the 25-year contractual period the County is estimated to save $16,000,000.

The County's latest two major construction projects resulted in all-electric solar powered buildings that include 30 new Level 2 electric vehicle chargers. Both buildings were certified LEED Gold status. Projects pursuing LEED certification earn points for various green building strategies across several categories based on the number of points achieved, a project earns one of four LEED rating levels: Certified, Silver, Gold or Platinum.

The County Public Works department has been methodically retrofitting LED lighting and associated lighting controls for interior and exterior building lighting. The most recent lighting project completed in 2020 is a fluorescent-to-LED lighting retrofit project using a Job Order Contractor (JOC) at the County's DOiT Headquarters at 30 Douglas. The building has the County's highest electricity user per square foot, usage associated with the servicers and requisite cooling. Nearly five hundred new fixtures were installed in the 35,000 square foot building. At an installed cost of approximately $200,000, the LED retrofit will save over $40,000/year in reduced electricity, maintenance and cooling costs (LED lights put of significantly less heat per lumen than fluorescent). The project will pay for itself in five years.

In addition to saving money and energy, the new lighting is brighter, more evenly distributed, and dimmable through a wall switch. Each overhead LED light fixture has a built-in sensor for motion and light detection and is programmable through a phone app so customization is straight-forward. LED fixtures near to windows automatically dim when sunlight is high, clearly the most efficient mode of operation. The County's intention is to systematically continue the retrofit process until all County-owned buildings have the best available and most efficient lighting technology.

CAP Reference: 1.1 Increase the number of carbon neutral buildings in CCC

Recycle - The Materials Management Division of Public Works provides collection of recyclable materials generated by County department operations to reduce waste that goes to landfills and to help preserve our natural resources. An average of 750 tons per year of paper, cardboard, and scrap metal is collected, baled, and recycled from County operations.

- Horizontal balers and bales of cardboard bales

Green Products for Custodial Services – One goal of the Department is to construct County buildings to Leadership in Energy and Environmental Design (LEED) standard and continue to follow green practices to keep building operations clean once occupied by staff. The County is considered a Green Cleaning Agency. Green Cleaning refers to using cleaning methods and products with environmentally friendly ingredients and procedures which are designed to preserve health and environmental quality. Green Cleaning techniques and products avoid the use of products which contain toxic chemicals and other conditions. Green Cleaning can also describe the way industrial

cleaning products are manufactured, packaged and distributed. If the manufacturing process is environmentally friendly and the products are biodegradable, then the term “Green” or “Eco-Friendly” may apply.

The Custodial Services Division of Public Works ensures that the County follows Green Cleaning practices when purchasing cleaning supplies and following proper procedures for cleaning buildings.

CAP Reference: 3.2 – Reduce waste from County operations, including contracts for services and products.

Cool Roofs – The Public Works Facilities Services continues to take the opportunity to incorporate “cool roofs” on county facilities as roof replacements are needed. Below are just two examples of “cool roofs” being installed at 40 and 50 Douglas Drive in Martinez.

CAP Reference: 2.3 – Address impacts of heat islands.

Low Impact Development/Green Infrastructure (GI) - The Clean Water Act Municipal Regional Permit (MRP) requires new projects that create or replace 10,000 square feet of impervious surface and other special categories such as uncovered, stand-alone parking lots that create 5,000 square feet of impervious surface to install stormwater treatment facilities. These facilities often include native grasses, shrubs, and trees. The acreage of added GI will be tracked and reported annually through the use of GIS. The goal is to reduce stormwater pollutants and erosion of our creeks and channels.

CAP Reference: 2.2 Sequester carbon in natural lands in CCC. Install Green Infrastructure

Purchasing Services

Environmentally Preferable Purchasing Policy – The Purchasing Division will work with the Sustainability Coordinator and the Sustainability Commission to update the policy. Work will begin in early 2021. Environmentally preferable procurement (EPP) involves purchasing products or services that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose.

Attributes can include a long list of factors that evaluate the purchaser's need, the cost and functionality of the product, and its environmental effect. Attributes to consider are:

- Recycled content
- Durability
- Maintenance
- Recyclability
- Disposal
- Energy efficiency
- Water efficiency
- Raw materials acquisition
- Production
- Manufacturing
- Packaging
- Distribution and transportation methods
- Operation

Fleet Services

Vehicles are the main source of greenhouse gases that impact our global environment. Through guidance provided by the Board of Supervisors, the Fleet Services Division's goal is to green the County's fleet by acquiring alternative fuel vehicles and ensuring that the infrastructure is available to support these vehicles, such as charging stations.

Electric Vehicles – Fleet Services continues to promote building a "Green Fleet" by purchasing 5 electric and 3 plug-in hybrid vehicles as replacement vehicles in FY 2019-20. The Chevy Bolts purchased have a range in excess of 200 miles which has helped staff overcome range anxiety.

Charging Stations – To date the County has installed 39 smart EV charge ports for employees, the public and fleet and pool vehicles. In addition, it has 10 non-billable EV charges used for fleet and pool at the maintenance yard and Public Works headquarters. The County is piggy-backing on the new solar PPA program to get EV charger infrastructure installed in conjunction with the parking lot solar canopy projects, significantly reducing the economic and logistical impacts of this work that involves concrete

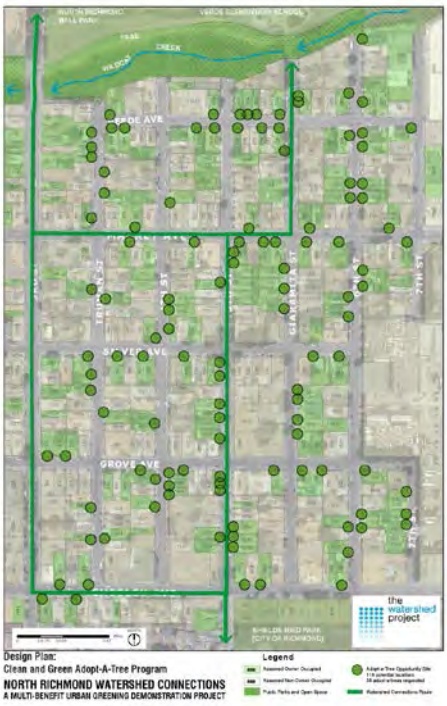
trenching and subsequent patching. This new effort will lead to a potential quadrupling of EV charge capacity in the County within the next 12 months.

County Watershed Program

The MRP requires projects that create new impervious surfaces such as buildings, parking lots, and streets of a certain size to install stormwater treatment facilities (low impact development/GI). The County Watershed Program ensures that the design, installation, and maintenance of GI for County and developer projects complies with the Permit. The data for those facilities is reported to the San Francisco Regional Water Quality Control Board each fall with our Annual Report.

The County's Municipal Stormwater Permit required development of a long-term GI Plan. This plan was submitted on 8/30/19 and included projects not only adding new GI at County facilities, but also retrofitting existing County facilities to provide additional GI. We are currently prioritizing the project list and pursuing grant opportunities.

Our first pilot project is the North Richmond Watershed Connections Project in North Richmond. One component of the project is to plant approximately 90 trees in the community with State Coastal Conservancy Grant funds. The tree plantings are scheduled for 2022.



The North Richmond Watershed Connections Project is also installing approximately 1,700 square feet of green infrastructure bio-swales along Fred Jackson Way with State Coastal Conservancy Grant funds. The work is scheduled for 2021.

CAP Reference: 2.2 Sequester carbon in natural lands in CCC. Track number of native trees planted by County and public and private partners

Flood Control Program

The Flood Control District has adopted a “50-year Plan” which encourages investigating opportunities to convert concrete flood control channels into earthen channels as the infrastructure reaches the end of its life, or as redevelopment occurs. The District works with cities on this effort. No city has proposed a project that fits the 50-year Plan model yet.

District Hydrology data collection units use batteries with solar panels for operating power rather than fossil fuel power sources.

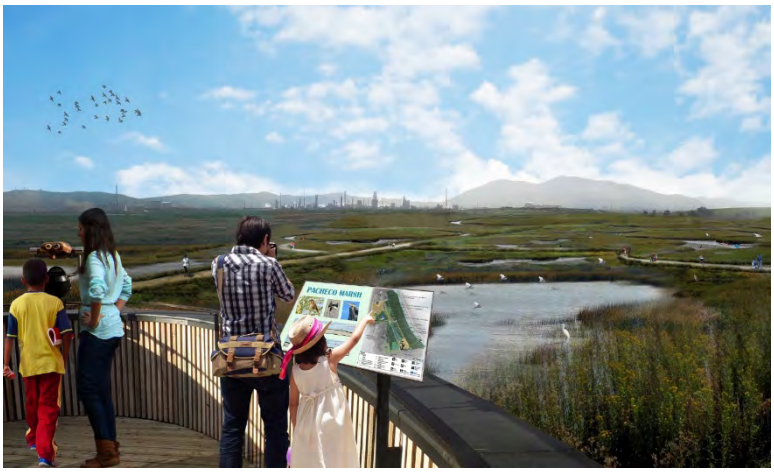
CAP Reference: 1.2 Replace fossil fuel electricity with renewable electricity

Rain Gauge Setup

The **Three Creeks Parkway Restoration Project** on Marsh Creek in Brentwood is planting 71 15-gallon native trees, 953 1-gallon native trees, 772 willow poles, and 255 cottonwood poles. EPA, State Coastal Conservancy, and Delta Conservancy grant funding was obtained. Plantings will be done between 2020 and 2023.

CAP Reference: 2.2 Sequester carbon in natural lands in CCC. Track number of native trees planted by County and public and private partners

One of the main objectives of the District's Lower Walnut Creek Restoration Project is the sustainability of benefits in the face of sea level rise. The project has been designed with accommodation space for upslope habitat migration, and with ample room for new wetland establishment. This project, scheduled for construction in 2021, restores and enhances approximately 303 acres of coastal habitat, including 89 acres of tidal wetlands and 15 acres of non-tidal wetlands, 12 acres of tidal waters. The project is located in unincorporated County just east of the City of Martinez.



CAP Reference: 2.2 Sequester carbon in natural lands in CCC. Track number of native trees planted by County and public and private partners

Improving Watersheds

Giving Natives a Chance Native Planting

Since 2013, the Flood Control District has coordinated annual native plantings at Clayton Valley Drain in Concord to promote native plant populations. Working with the non-profit, The Restoration Trust, typically 5,000 or more grass plugs of native creeping wild rye, Santa Barbara sedge, or Baltic rush are planted each year by volunteers or a contractor. These species provide natural erosion control, fire suppression, and are compatible with flood control objectives. They spread from underground rhizomes that anchor the soil and are all perennial species, meaning they stay green all year. They do not have woody stems, so during floods, they lay down on the slope, which does not impede the flow of water during high-flow events. These species also provide carbon sequestration, unlike non-native annuals, and remove as much as 500,000 gC/acre a year or about ½ ton of carbon per acre per year. The planted areas are approximately ¾ of an acre. Prior to 2013 and the annual restoration work, the site had less than 5% native cover. Native cover is now over 50% and is likely to continue to increase as the native vegetation grows and expands.

Arundo Removal

Since 2019, the Flood Control District partnered with the Contra Costa Resource Conservation District and the Walnut Creek Watershed Council to support removal of the invasive plant, arundo donax, from the Walnut Creek Watershed. The member groups of the Council focus on removal within each of their respective sub-watersheds (e.g. Lafayette, San Ramon Creeks) while the District focused on removing

arundo at its Kubicek Basin facility on Pine Creek in Walnut Creek. Multiple visits are necessary to effectively remove this invasive plant. This aggressive plant can grow four inches a day and up to 30 feet tall crowding out native plants very quickly. They consume large amounts of water without providing food or habitat for insects, birds or other wildlife, and are flammable year-round which makes them a constant fire hazard.