



Agenda

TRANSPORTATION, WATER & INFRASTRUCTURE COMMITTEE

July 18, 2019

1:00 P.M.

651 Pine Street, Room 101, Martinez

Supervisor Karen Mitchoff, Chair
Supervisor Candace Andersen, Vice Chair

Agenda Items:

Items may be taken out of order based on the business of the day and preference of the Committee

1. Introductions
2. Public comment on any item under the jurisdiction of the Committee and not on this agenda (speakers may be limited to three minutes).
3. **Administrative Items, if applicable.** (John Cunningham, Department of Conservation and Development)
4. **REVIEW record of meeting for June 10, 2019 Transportation, Water and Infrastructure Committee Meeting.** This record was prepared pursuant to the Better Government Ordinance 95-6, Article 25-205 (d) of the Contra Costa County Ordinance Code. Any handouts or printed copies of testimony distributed at the meeting will be attached to this meeting record. (John Cunningham, Department of Conservation and Development).
5. **RECEIVE update from staff on the recruitment effort for the two Contra Costa County appointments to the Regional Measure 3 Independent Oversight Committee, and DIRECT staff as appropriate.** (Colin Piethe, Department of Conservation and Development)
6. **RECEIVE report, DISCUSS County priorities for the Contra Costa Transportation Authority's 2020 Transportation Expenditure Plan/Sales Tax and DIRECT staff as appropriate.** (John Cunningham, Department of Conservation and Development).
7. **ACCEPT report from the Public Works Department providing an update on the status of the Contra Costa County Green Infrastructure Plan and refer to Board of Supervisors for approval.**(John Steere, Department of Public Works)

8. **ACCEPT report from the Public Works Department on authorization of a grant by the State Coastal Conservancy and refer the North Richmond Watershed Connections to the Board of Supervisors for their resolution to accept the grant.** (John Steere, Department of Public Works)
9. **CONSIDER report on Local, State, Regional, and Federal Transportation Related Legislative Issues and take ACTION as appropriate.** (John Cunningham, Department of Conservation and Development)
10. **RECOMMEND to the Board of Supervisors that "Transportation/Circulation Issues: General Plan Update" be referred to the Transportation, Water, and Infrastructure Committee.** (John Cunningham, Department of Conservation and Development)
11. The next meeting is currently scheduled for Monday, August 9, 2019 9:00 A.M.
12. Adjourn

The Transportation, Water & Infrastructure Committee (TWIC) will provide reasonable accommodations for persons with disabilities planning to attend TWIC meetings. Contact the staff person listed below at least 72 hours before the meeting.

Any disclosable public records related to an open session item on a regular meeting agenda and distributed by the County to a majority of members of the TWIC less than 96 hours prior to that meeting are available for public inspection at the County Department of Conservation and Development, 30 Muir Road, Martinez during normal business hours.

Public comment may be submitted via electronic mail on agenda items at least one full work day prior to the published meeting time.

For Additional Information Contact:

John Cunningham, Committee Staff
Phone (925) 674-7833, Fax (925) 674-7250
john.cunningham@dcd.cccounty.us

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 meetings of its Board of Supervisors and Committees. Following is a list of commonly used abbreviations that may appear in presentations and written materials at meetings of the Transportation, Water and Infrastructure Committee:

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ABAG Association of Bay Area Governments	HOV High-Occupancy-Vehicle
ACA Assembly Constitutional Amendment	HSD Contra Costa County Health Services Department
ADA Americans with Disabilities Act of 1990	HUD United States Department of Housing and Urban Development
ALUC Airport Land Use Commission	IPM Integrated Pest Management
AOB Area of Benefit	ISO Industrial Safety Ordinance
BAAQMD Bay Area Air Quality Management District	JPA/JEPA Joint (Exercise of) Powers Authority or Agreement
BART Bay Area Rapid Transit District	Lamorinda Lafayette-Moraga-Orinda Area
BATA Bay Area Toll Authority	LAFCo Local Agency Formation Commission
BCDC Bay Conservation & Development Commission	LCC League of California Cities
BDCP Bay-Delta Conservation Plan	LTMS Long-Term Management Strategy
BGO Better Government Ordinance (Contra Costa County)	MAC Municipal Advisory Council
BOS Board of Supervisors	MAF Million Acre Feet (of water)
CALTRANS California Department of Transportation	MBE Minority Business Enterprise
CalWIN California Works Information Network	MOA Memorandum of Agreement
CalWORKS California Work Opportunity and Responsibility to Kids	MOE Maintenance of Effort
CAER Community Awareness Emergency Response	MOU Memorandum of Understanding
CAO County Administrative Officer or Office	MTC Metropolitan Transportation Commission
CCTA Contra Costa Transportation Authority	NACo National Association of Counties
CCWD Contra Costa Water District	NEPA National Environmental Protection Act
CDBG Community Development Block Grant	OES-EOC Office of Emergency Services-Emergency Operations Center
CEQA California Environmental Quality Act	PDA Priority Development Area
CFS Cubic Feet per Second (of water)	PWD Contra Costa County Public Works Department
CPI Consumer Price Index	RCRC Regional Council of Rural Counties
CSA County Service Area	RDA Redevelopment Agency or Area
CSAC California State Association of Counties	RFI Request For Information
CTC California Transportation Commission	RFP Request For Proposals
DCC Delta Counties Coalition	RFQ Request For Qualifications
DCD Contra Costa County Dept. of Conservation & Development	SB Senate Bill
DPC Delta Protection Commission	SBE Small Business Enterprise
DSC Delta Stewardship Council	SR2S Safe Routes to Schools
DWR California Department of Water Resources	STIP State Transportation Improvement Program
EBMUD East Bay Municipal Utility District	SWAT Southwest Area Transportation Committee
EIR Environmental Impact Report (a state requirement)	TRANSPAC Transportation Partnership & Cooperation (Central)
EIS Environmental Impact Statement (a federal requirement)	TRANSPLAN Transportation Planning Committee (East County)
EPA Environmental Protection Agency	TWIC Transportation, Water and Infrastructure Committee
FAA Federal Aviation Administration	USACE United States Army Corps of Engineers
FEMA Federal Emergency Management Agency	WBE Women-Owned Business Enterprise
FTE Full Time Equivalent	WCCTAC West Contra Costa Transportation Advisory Committee
FY Fiscal Year	WETA Water Emergency Transportation Authority
GHAD Geologic Hazard Abatement District	WRDA Water Resources Development Act
GIS Geographic Information System	
HBRR Highway Bridge Replacement and Rehabilitation	



Contra Costa County Board of Supervisors

Subcommittee Report

TRANSPORTATION, WATER & INFRASTRUCTURE COMMITTEE

3.

Meeting Date: 07/18/2019
Subject: Administrative Items, if applicable.
Submitted For: TRANSPORTATION, WATER & INFRASTRUCTURE
COMMITTEE,
Department: Conservation & Development
Referral No.: N/A
Referral Name: N/A
Presenter: John Cunningham, DCD **Contact:** John Cunningham
(925)674-7833

Referral History:

This is an Administrative Item of the Committee.

Referral Update:

Staff will review any items related to the conduct of Committee business.

Recommendation(s)/Next Step(s):

CONSIDER Administrative items and Take ACTION as appropriate.

Fiscal Impact (if any):

N/A

Attachments

No file(s) attached.



Contra Costa County Board of Supervisors

Subcommittee Report

TRANSPORTATION, WATER & INFRASTRUCTURE COMMITTEE

4.

Meeting Date: 07/18/2019
Subject: REVIEW record of meeting for June 10, 2019 Transportation, Water and Infrastructure Meeting.
Submitted For: TRANSPORTATION, WATER & INFRASTRUCTURE COMMITTEE,
Department: Conservation & Development
Referral No.: N/A
Referral Name: N/A
Presenter: John Cunningham, DCD **Contact:** John Cunningham
(925)674-7833

Referral History:

County Ordinance (Better Government Ordinance 95-6, Article 25-205, [d]) requires that each County Body keep a record of its meetings. Though the record need not be verbatim, it must accurately reflect the agenda and the decisions made in the meeting.

Referral Update:

Any handouts or printed copies of testimony distributed at the meeting will be attached to this meeting record. Links to the agenda and minutes will be available at the TWI Committee web page: <http://www.cccounty.us/4327/Transportation-Water-Infrastructure>

Recommendation(s)/Next Step(s):

Staff recommends approval of the attached Record of Action for the June 10, 2019 Committee Meeting with any necessary corrections.

Fiscal Impact (if any):

N/A

Attachments

June 2019 TWIC Meeting Record

DRAFT



TRANSPORTATION, WATER & INFRASTRUCTURE COMMITTEE

June 10, 2019

9:00 A.M.

651 Pine Street, Room 101, Martinez

Supervisor Karen Mitchoff, Chair
Supervisor Candace Andersen, Vice Chair

Agenda Items:

Items may be taken out of order based on the business of the day and preference of the Committee

Present: Karen Mitchoff, Chair
Candace Andersen, Vice Chair

Attendees: Stephen Kowalewski, CCCPWD
Brian Balbas, CCCPWD
Carl Roner, CCCPWD
Tim Haile, CCTA
Jody London, DCD Sustainability
John Cunningham, DCD Transportation

1. Introductions
2. Public comment on any item under the jurisdiction of the Committee and not on this agenda (speakers may be limited to three minutes).
3. CONSIDER Administrative items and Take ACTION as appropriate.
4. Staff recommends approval of the attached Record of Action for the April 8, 2019, Committee Meeting with any necessary corrections.

The Committee unanimously APPROVED the meeting record

5. CONSIDER a proposed ban of polystyrene food and beverage containers and the policy implications and objectives of a ban, PROVIDE staff with policy direction to develop a draft ordinance, and, if necessary, FORWARD the recommended policy direction to the full Board for consideration and concurrence.

This item was erroneously included in the agenda and will be taken up by the Committee at a later meeting date.

6. CONSIDER report on Local, Regional, State, and Federal Transportation Related Legislative Issues and take ACTION as appropriate.

The Committee RECEIVED the report and directed staff to bring the following recommended positions to the Board of Supervisors, OPPOSE AB 1568 (McCarty), SUPPORT SB 137 (Dodd), SUPPORT SB 228 (Jackson), and OPPOSE SB 336 (Dodd).

Staff note: Positions were approved by the Board of Supervisors at the June 18th meeting.

7. **APPROVE & AUTHORIZE the Proposition 68 grant application, and DIRECT staff as appropriate including sending the application to the full Board of Supervisors with a recommendation to approve and authorize the Public Works Director, or designee, to execute grant application documents to secure grant funding with the California Natural Resources Agency, not to exceed \$1,100,000, for the Montarabay Green Infrastructure and Drainage Project.**

The Committee unanimously APPROVED the recommendations and further directed staff to bring the issue to the Board of Supervisors on Consent.

8. RECEIVE report, DISCUSS County priorities for the Contra Costa Transportation Authority's 2020 Transportation Expenditure Plan/Sales Tax and DIRECT staff as appropriate.

The Committee RECEIVED the report and further directed staff to consult with County Counsel as needed on the process.

9. **The next meeting date is Thursday, July 18, 1:00 p.m. Please note this is outside the regular 2nd Monday monthly schedule.**

10. Adjourn

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John Cunningham, Committee Staff

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- The oversight committee shall include two representatives from each county within the jurisdiction of the commission.
- Each representative shall be appointed by the applicable county board of supervisors and serve a four-year term and shall be limited to two terms.
- The oversight committee shall annually review the expenditure of funds by BATA for the projects and programs specified in Section 30914.7 and prepare and submit a report to the transportation committee of each house of the Legislature summarizing its findings.
- The oversight committee may request any documents from BATA to assist the committee in performing its functions.

In addition, an amendment to the law specifies eligibility restrictions for the committee: A representative appointed to the oversight committee shall not be a member, former member, staff, or former staff of the Metropolitan Transportation Commission (MTC) or BATA, shall not be employed by any organization or person that has received or is receiving funding from MTC or BATA, and shall not be a former employee or a person who has contracted with any organization or person that has received or is receiving funding from MTC or BATA within one year of having worked for or contracted with that organization or person. (See Streets and Highways Code Section 30923 (h) (3).)

Further, BATA anticipates providing the following support functions to the committee:

- Making meeting space available at the Bay Area Metro Center
- General administrative and clerk support
- Stipend to members for meeting attendance

BATA anticipates that committee matters such as meeting dates, frequency, and length will be established by the members of the committee. The County was asked to notify BATA in writing within sixty (60) days from BATA's initial request (May 3, 2019) with the name of two individuals from Contra Costa County appointed by the Board to the RM3 Independent Oversight Committee.

Update:

Per the Maddy Act (Government Code 54970), the County shall give its residents equal opportunity to participate in this recruitment process. To make this process public and easily accessible, staff recommends, per guidance from the Clerk of the Board, TWIC should open its application window for a minimum of two weeks and accept applications online, via mail, and in-person delivery. Staff recommends opening the application window for 25 days; until the next TWIC meeting. An online application form has been set up. From the link below, select the "Apply Online!" link and select RM3 in the "Boards and Interest" drop down menu:

<http://www.co.contra-costa.ca.us/3418/Appointed-Bodies-Committees-and-Commissi>

Staff intends on distributing the press release through the following channels:

- Public posting outside of Clerk of the Board Office
- Supervisorial District Office Newsletters
- County Website and Department of Conservation and Development Website
- County Facebook page BATA is requesting that Counties provide names of representatives prior to their September 2nd Board Meeting. Staff recommends pursuing the following schedule to meet this deadline:

Date	Action
7/18/19	Publish press release detailing the recruitment, set deadline for 8/12/19.
7/18/19 – 8/12/19	TWIC and staff advertise the recruitment, contact relevant groups and networks to share the announcement.
8/12/19	Review applications and make recommendations to the full BOS at the 8/12/19 TWIC meeting.
9/2/19	BATA Board Meeting and preferred deadline for submitting appointed members.
9/10/19	BOS meeting to consider TWIC recommendations and to appoint members.
TBD	Submit representatives' names prior to October BATA Board Meeting (not published on MTC calendar, though meetings are usually held the 4th Wednesday of each month).

Staff is seeking input from the Committee on how to expand and enhance the recruitment effort, specifically feedback on:

1. The proposed schedule;
 - a. Staff is consulting with BATA staff regarding the need to make a temporary, interim appointment in order to meet the 9/2 deadline.
2. Additional recruitment/outreach methods;
3. Suggestions for application form revisions;
4. The criteria or process by which TWIC and the Board of Supervisors will use to make selections and recommendations?

Recommendation(s)/Next Step(s):

RECEIVE update from staff on the recruitment effort for the two Contra Costa County appointments to the Regional Measure 3 Independent Oversight Committee, and DIRECT staff as appropriate.

Fiscal Impact (if any):

N/A

Attachments

7/9/19 BOS referral to TWIC

Bay Area Toll Authority letter to John Gioia



Contra
Costa
County

To: Board of Supervisors
From: David Twa, County Administrator
Date: July 9, 2019

Subject: REFERRAL TO THE TRANSPORTATION, WATER & INFRASTRUCTURE COMMITTEE FOR
RECRUITMENT OF INDEPENDENT OVERSIGHT CTE REPRESENTATIVES FOR REGIONAL
MEASURE 3

RECOMMENDATION(S):

REFER to the Transportation, Water & Infrastructure Committee the recruitment of individuals to represent Contra Costa County on the Regional Measure 3 (Bridge Tolls) Independent Oversight Committee, as recommended by Supervisor Gioia.

FISCAL IMPACT:

No fiscal impact to the County. Stipends to committee members will be paid by the Bay Area Toll Authority.

BACKGROUND:

Senate Bill 595 (SB 595) required the nine Bay Area counties to conduct a special election, known as Regional Measure 3 (RM3), on a proposed increase to toll rates on state-owned bridges in the region. This election took place on June 5, 2018, with voters approving a three dollar toll increase, phased in one dollar at a time over the course of six years. Effective January 1, 2019, the base toll rate on these bridges was increased by one dollar. Due to ongoing lawsuits against the measure, collected RM3 revenue is currently being held in an escrow account.

SB 595 also required, if voters approved the RM3 toll increase, that the Bay Area Toll Authority (BATA) establish an independent oversight committee within six months of the effective date of the toll increase.

DRAFT

-
- APPROVE OTHER
 RECOMMENDATION OF CNTY ADMINISTRATOR RECOMMENDATION OF BOARD COMMITTEE
-

Action of Board On: 07/09/2019 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: July 9, 2019

Contact: Julie DiMaggio Enea
(925) 335-1077

David J. Twa, County Administrator and Clerk of the Board of Supervisors

By: , Deputy

cc: TWIC Staff, DCD Director

BACKGROUND: (CONT'D)

Therefore, BATA will establish the RM3 independent oversight committee by July 1, 2019. This committee will be subject to the Brown Act. SB 595 specifies the following regarding the functions and membership of the independent oversight committee (Streets and Highways Code Section 30923 (h)):

- BATA shall establish an independent oversight committee to ensure that any toll revenues generated pursuant to the RM3 toll increase are expended consistent with the applicable requirements of the RM3 expenditure plan set forth in Streets and Highways Code Section 30914.7.
- The oversight committee shall include two representatives from each county within the jurisdiction of the commission.
- Each representative shall be appointed by the applicable county board of supervisors and serve a four-year term and shall be limited to two terms.
- The oversight committee shall annually review the expenditure of funds by BATA for the projects and programs specified in Section 30914.7 and prepare and submit a report to the transportation committee of each house of the Legislature summarizing its findings.
- The oversight committee may request any documents from BATA to assist the committee in performing its functions.

In addition, an amendment to the law specifies eligibility restrictions for the committee: A representative appointed to the oversight committee shall not be a member, former member, staff, or former staff of the Metropolitan Transportation Commission (MTC) or BATA, shall not be employed by any organization or person that has received or is receiving funding from MTC or BATA, and shall not be a former employee or a person who has contracted with any organization or person that has received or is receiving funding from MTC or BATA within one year of having worked for or contracted with that organization or person. (See Streets and Highways Code Section 30923 (h) (3).)

Further, BATA anticipates providing the following support functions to the committee:

- Making meeting space available at the Bay Area Metro Center
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BATA anticipates that committee matters such as meeting dates, frequency, and length will be established by the members of the committee.

The County is asked to notify BATA in writing within sixty (60) days with the name of two individuals from Contra Costa County appointed by the Board to the RM3 Independent Oversight Committee. It is recommended that this matter be referred to the Transportation, Water & Infrastructure Committee to allow recruitment to begin as soon as possible.



SCOTT HAGGERTY, CHAIR
Alameda County

ALFREDO PEDROZA, VICE CHAIR
Napa County and Cities

JEANNIE BRUINS
Cities of Santa Clara County

DAMON CONNOLLY
Marin County and Cities

DAVE CORTESE
Santa Clara County

CAROL DUTRA-VERNACI
Cities of Alameda County

DORENE M. GIACOPINI
U.S. Department of Transportation

FEDERAL D. GLOVER
Contra Costa County

ANNE W. HALSTED
San Francisco Bay Conservation
and Development Commission

JANEA JACKSON
U.S. Department of Housing
and Urban Development

NICK JOSEFOWITZ
San Francisco Mayor's Appointee

SAM LICCARDO
San Jose Mayor's Appointee

JAKE MACKENZIE
Sonoma County and Cities

GINA PAPAN
Cities of San Mateo County

DAVID RABBITT
Association of Bay Area Governments

HILLARY RONEN
City and County of San Francisco

LIBBY SCHAAF
Oakland Mayor's Appointee

WARREN SLOCUM
San Mateo County

JAMES P. SPERING
Solano County and Cities

TONY TAVARES
California State
Transportation Agency

AMY R. WORTH
Cities of Contra Costa County

THERESE W. MCMILLAN
Executive Director

ALIX BOCKELMAN
Deputy Executive Director, Policy

ANDREW B. FREMIER
Deputy Executive Director, Operations

BRAD PAUL
Deputy Executive Director
Local Government Services

May 3, 2019

The Honorable John Gioia
Chair, Contra Costa County Board of Supervisors
651 Pine Street, Room 106
Martinez, CA 94553-1229

RE: Amended Request for Regional Measure 3 Independent Oversight Committee
Representatives from Contra Costa County

Dear Supervisor Gioia:

This letter presents additional information regarding the request for representatives, in follow up to related correspondence sent to you on May 1. Please see below for further details including a new section on page 2 containing information that was inadvertently omitted from the original letter.

Senate Bill 595 (SB 595) required the nine Bay Area counties to conduct a special election, known as Regional Measure 3 (RM3), on a proposed increase to toll rates on state-owned bridges in the region. This election took place on June 5, 2018, with voters approving a three-dollar toll increase, phased in one dollar at a time over the course of six years. Effective January 1, 2019, the base toll rate on these bridges was increased by one dollar. Due to ongoing lawsuits against the measure, collected RM3 revenue is currently being held in an escrow account.

SB 595 also required, if voters approved the RM3 toll increase, that the Bay Area Toll Authority (BATA) establish an independent oversight committee within six months of the effective date of the toll increase. Therefore, BATA will establish the RM3 independent oversight committee by July 1, 2019. This committee will be subject to the Brown Act.

SB 595 specifies the following regarding the functions and membership of the independent oversight committee (Streets and Highways Code Section 30923 (h)):

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Please notify BATA in writing within sixty (60) days with the name of two individuals from Contra Costa County appointed by your board to the RM3 Independent Oversight Committee. Thank you for your assistance in the implementation of Regional Measure 3. Please contact Kimberly Ward at (415) 778-5367 with any questions, and do not hesitate to contact me for further discussion.

Sincerely,



Therese W. McMillan
Executive Director

cc: Clerk of the Board of Supervisors

TM:cb

j_drive\PROJECT_RM3\Implementation Planning\Independent Oversight Committee\RM3 Independent Oversight Committee - Request to County BOS for appointees.Updated.docx



Contra Costa County Board of Supervisors

Subcommittee Report

TRANSPORTATION, WATER & INFRASTRUCTURE COMMITTEE

6.

Meeting Date: 07/18/2019

Subject: RECEIVE report, DISCUSS County priorities for CCTA's 2020 Transportation Expenditure Plan (TEP)/Sales Tax and DIRECT staff as appropriate.

Submitted For: TRANSPORTATION, WATER & INFRASTRUCTURE COMMITTEE,

Department: Conservation & Development

Referral No.: 3

Referral Name: Monitor the Contra Costa Transportation Authority including efforts to implement Measure J

Presenter: John Cunningham, DCD

Contact: John Cunningham
(925)674-7833

Referral History:

The Contra Costa Transportation Authority (CCTA) has initiated an effort to bring a sales tax/transportation expenditure plan (TEP) to the ballot in 2020. The full Board of Supervisors discussed the item at their May 21, 2019 meeting, and directed staff to use the 2016 Measure X TEP and the County's priorities for that effort to guide input for the current 2020 effort. TWIC subsequently took the issue up at their June 10, 2019 meeting.

Staff has developed input based on direction provided at the May 21 BOS meeting and the June 10 TWIC meeting, and is bringing it to TWIC for discussion and refinement. The direction has been to monitor and prioritize the following programs and associated funding levels: local streets maintenance & improvements (aka "return-to-source"), transit (conventional and accessible), improved land use coordination, and safe routes to school.

Staff Note: A new version of the Transportation Expenditure Plan was posted just as this agenda was being distributed. The document (CCTA TEP Draft 7-11-19) is attached but staff has not had time to review the document or formulate recommendations. A review of the new material will be provided at the July TWIC Meeting.

Referral Update:

The new TEP has a substantial amount of new policy language in addition to what may come out of the CCTA Special TEP Board meeting on the July 17th. Staff will review the new material and report out on the CCTA Special TEP meetings.

We anticipate the coming update will reflect two priorities where there is an active dialogue: land use coordination, and transit. Preliminary summary information is provided below.

Land Use Coordination: While there is no longer a line item for "Community Development" as in Measure X, or "Focused Growth" that was seen in the June Draft TEP, the July 11 TEP does mention "job access" in several places. Staff is reviewing how this addresses the reverse/reduced commute incentives discussion during the Measure X dialogue.

Transit: The TEP has substantial new language related to transit integration, both with conventional and accessible systems.

Anticipated Schedule

July 23, 2019: BOS Receives report from TWIC on TEP and considers draft comment letter.

July 30, 2019: BOS: Action TBD

August 6: BOS: Action TBD

August 12, 2019: TWIC: Action TBD

August 21, 2019: CCTA adoption of proposed TEP, approve circulation to Cities and County for Approval.

September 10, 17, 24/October 8, 15, 22: BOS: Dates available to consider TEP

Oct. 30, 2019: CCTA approves TEP and the authorization to put Measure on ballot.

November 12, 2016: BOS: Introduce Ordinance calling for the election.

November 19, 2016: BOS: Adopt Ordinance

March 3, 2020: Election Day

Recommendation(s)/Next Step(s):

RECEIVE report, DISCUSS County priorities for the Contra Costa Transportation Authority's 2020 Transportation Expenditure Plan/Sales Tax and DIRECT staff as appropriate.

Fiscal Impact (if any):

None.

Attachments

CCTA TEP Draft 7-11-19

History of Paratransit Related Policies



CONTRA COSTA
transportation
authority

Initial Draft

Published July 11, 2019

A PLAN FOR CONTRA COSTA'S FUTURE

2020 Transportation Expenditure Plan



JULY 2019

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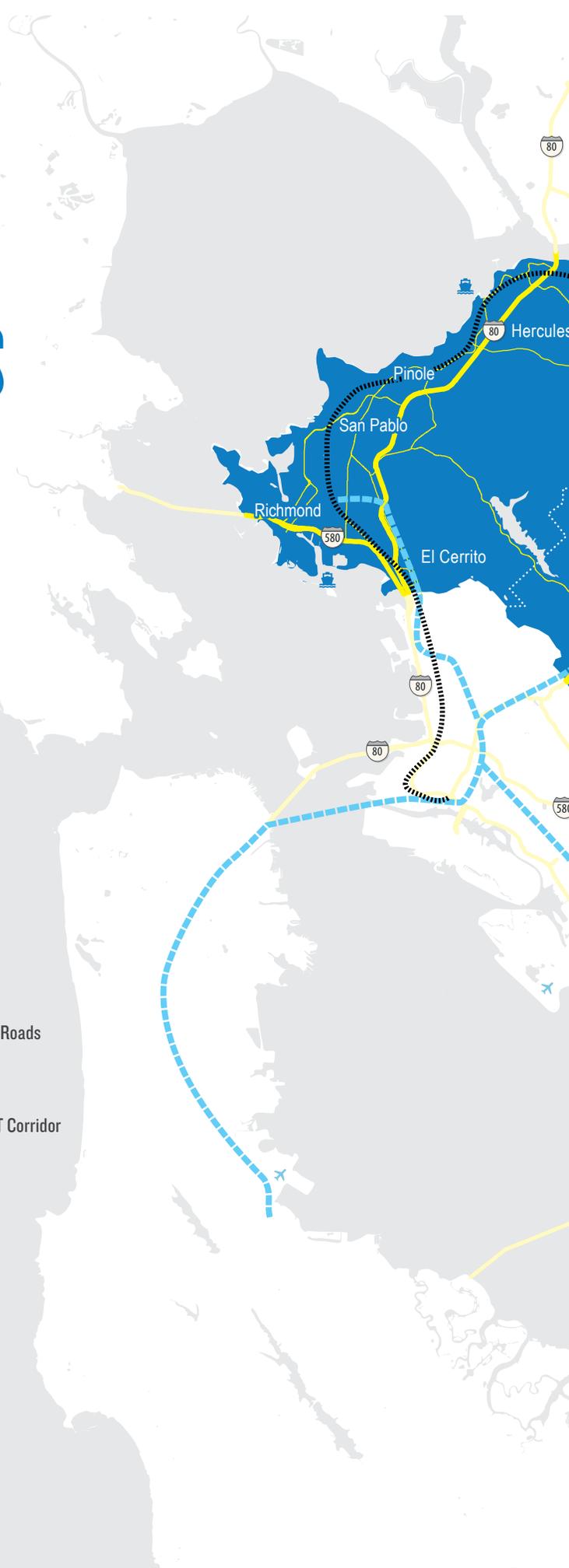
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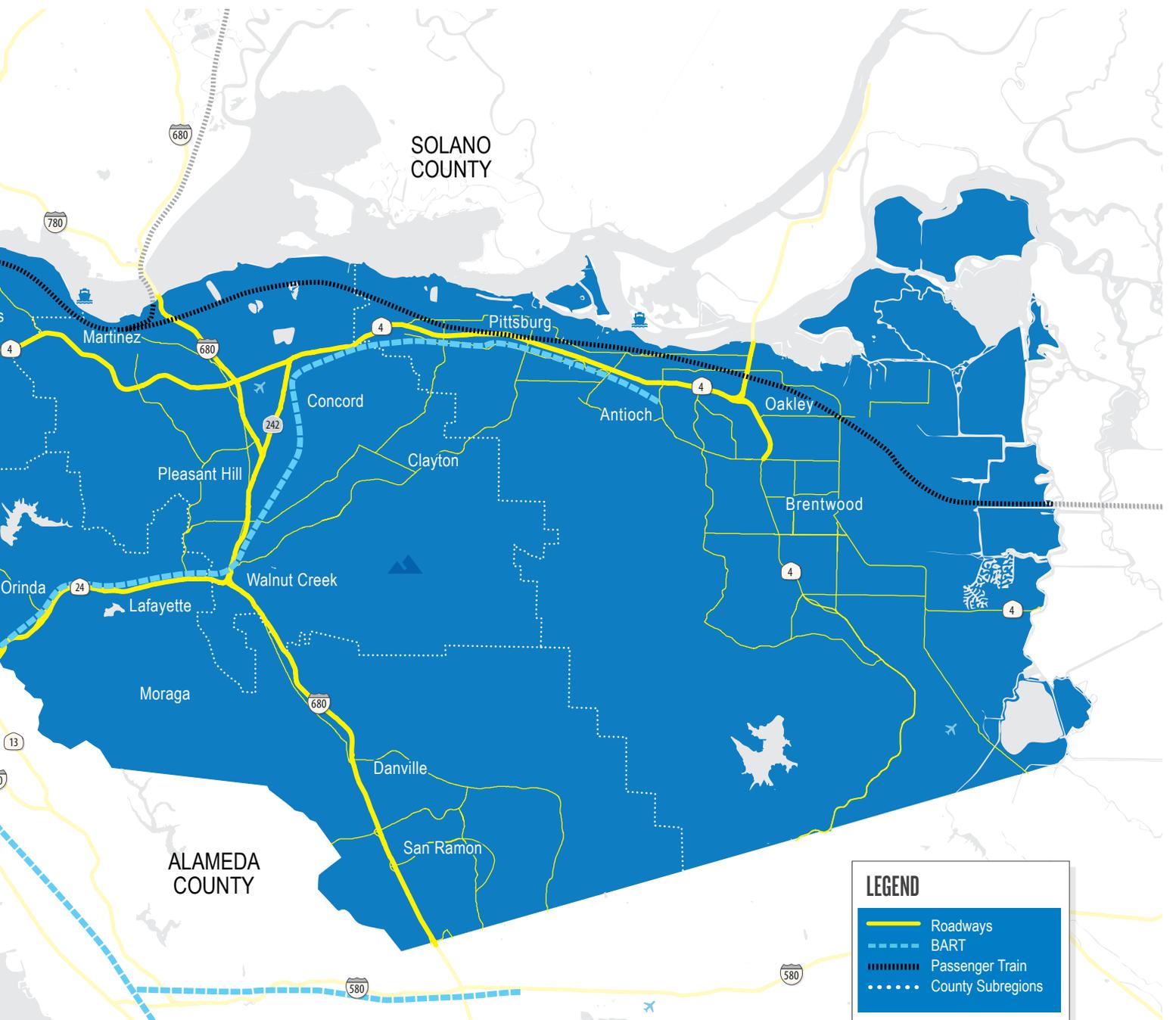
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» Contra Costa is a county as unique and diverse as its residents. Our communities stretch from the Richmond coastline to Discovery Bay, from Port Chicago to the San Ramon Valley, and from Mount Diablo to Crockett Hills.

» **ALL FUNDING AMOUNTS** presented in this Transportation Expenditure Plan are rounded.

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A NEW TRANSPORTATION FUTURE FOR CONTRA COSTA COUNTY

TRANSPORTATION EXPENDITURE PLAN FUNDING SUMMARY

The Contra Costa Transportation Authority (CCTA) envisions a future where all of our transportation systems work together for more streamlined, safe, efficient, and convenient travel. We envision strong cooperation and mutual support across all of Contra Costa's cities, towns, and communities to make it easier for people in Contra Costa County to get around. We envision transportation networks that support a healthy environment and protect Contra Costa County's unique landscapes.

This 2020 Transportation Expenditure Plan (TEP) focuses on innovative strategies and new technologies that will relieve congestion, promote a strong economy, protect the environment, and enhance the quality of life for all of Contra Costa County's diverse communities. In order to offer a wide range of transportation options, CCTA will continue to deliver projects that integrate and optimize transit and vehicular travel in a more balanced way. This plan outlines projects that will achieve a broad range of goals:

- **Relieve Traffic Congestion on Highways and Interchanges.** CCTA's goal is to improve the movement of people and goods through major corridors, to address bottlenecks and hot spots, and to make commutes smoother and more predictable. Contra Costa County's residents and travelers will see smoother traffic flow and less congestion with the implementation of this TEP.
- **Make Bus, Ferry, Passenger Train, and BART Safer, Cleaner, and More Reliable.** Contra Costa County's residents and travelers value safe, clean, convenient, and affordable transit options. CCTA's goal is to support transit operators in providing more frequent and reliable transit service and to plan and build the infrastructure that enables travelers to make quick and convenient transit connections between their homes, work, and recreational activities.
- **Provide Affordable and Safe Transportation for Children, Seniors, Veterans, and People with Disabilities.** CCTA is committed to supporting mobility and transportation options for all Contra Costa County residents.
- **Improve Transportation in Our Communities.** CCTA supports livable communities and quality of life in Contra Costa County by providing local cities and towns with funding to fix and modernize local streets, offer safer places to walk and cycle, and improve air quality. CCTA also helps manage urban sprawl through its transportation-related growth policies.

For planning purposes, CCTA divides the county into four subregions: central, east, southwest, and west. The TEP is intentionally designed to be equitable across all subregions based on the number of people who live in each subregion. **All locally generated transportation revenue—plus any additional grant funding CCTA receives—will be spent on local projects in Contra Costa County.**

EXPENDITURE PLAN SUMMARY

FUNDING CATEGORIES	SUBTOTALS	
	\$ (millions)*	%
RELIEVING CONGESTION ON HIGHWAYS, INTERCHANGES, AND MAJOR ROADS	\$1408	
Improve State Route 242 (SR-242), Highway 4, and eBART Corridor		
Relieve Congestion and Improve Access to Jobs Along Highway 4 and SR-242	200	6.5
Improve Local Access to Highway 4 and Byron Airport	150	4.9
East County Transit Extension to Brentwood and Connectivity to Transit, Rail, and Parking	100	3.3
Improve Traffic Flow on Major Roads in East County	75	2.5
Enhance Ferry Service and Commuter Rail in East and Central County	50	1.6
Improve Transit Reliability Along SR-242, Highway 4, and Vasco Road	50	1.6
Seamless Connected Transportation Options	36	1.2
Additional eBART Trains Cars	28	0.9
Modernize I-680, Highway 24, and BART Corridor		
Relieve Congestion, Ease Bottlenecks, and Improve Local Access Along the I-680 Corridor	200	6.5
Improve Traffic Flow on Major Roads in the Central County and Lamorinda	103	3.4
Improve Transit Reliability along the I-680 and Highway 24 Corridors	50	1.6
Provide Greater Access to BART Stations Along I-680 and Highway 24	49	1.6
Seamless Connected Transportation Options	36	1.2
Improve Traffic Flow on Highway 24 and Modernize the Old Bores of Caldecott Tunnel	35	1.1
Improve Traffic Flow on Major Roads in San Ramon Valley	20	0.6
Upgrade I-80, I-580 (Richmond-San Rafael Bridge), and BART Corridor		
Improve Transit Reliability Along the I-80 Corridor	90	3.0
Relieve Congestion and Improve Local Access Along the I-80 Corridor	57	1.9
Enhance Ferry Service and Commuter Rail in West County	34	1.1
Improved Traffic Flow and Local Access to Richmond-San Rafael Bridge Along I-580 and Richmond Parkway	19	0.6
Seamless Connected Transportation Options	16	0.5
Improve Traffic Flow on Major Roads in West County	10	0.3
IMPROVING TRANSPORTATION COUNTYWIDE IN ALL OUR COMMUNITIES	\$1530	
Modernize Local Roads and Improve Access to Job Centers and Housing	532	17.4
Improve Walking and Biking on Streets and Trails	215	7.0
Provide Convenient and Reliable Transit Services in Central, East, and Southwest Contra Costa	192	6.3
Increase Bus Services and Reliability in West Contra Costa	187	6.1
Affordable Transportation for Seniors, Veterans, and People with Disabilities	154	5.0
Cleaner, Safer BART	120	3.9
Safe Transportation for Youth and Students	87	2.9
Reduce Emissions and Improve Air Quality	43	1.4
SUBTOTAL	\$2938	96%
Transportation Planning, Facilities & Services	\$92	3.0
Administration	\$31	1.0
TOTAL	\$3061	100%

*Funding amounts are rounded



WHAT THESE PROJECTS MEAN FOR CONTRA COSTA COUNTY

The investments described in this TEP have been carefully selected to offer a broad array of tangible benefits to the residents and travelers in Contra Costa County. Here are just a few:

- » Smooth-flowing traffic along highways and roads
- » Quicker trips and less time sitting in traffic
- » Smoother pavement and fewer potholes
- » Transit, where and when it's needed
- » Easier ways to get from home or work to transit stops and back home again
- » Cleaner air due to reduced vehicle emissions
- » More bicycle lanes and walking paths to support an active lifestyle
- » Free or reduced transit fares for students

THREE DECADES OF TRANSPORTATION IMPROVEMENTS

WHO WE ARE AND WHAT WE DO

Contra Costa Transportation Authority (CCTA) is responsible for **maintaining and improving the county's transportation system by planning, funding, and delivering critical transportation projects that connect our communities**, foster a strong economy, increase sustainability, and safely and efficiently get people where they need to go. CCTA is also responsible for putting solutions in place to help manage traffic by providing and connecting a wide range of transportation options.

We are proud of our accomplishments and we also recognize the immense transportation challenges still faced by county residents and businesses—particularly considering population growth, continued development, and threats to the environment. CCTA works to advance transportation solutions, ease congestion, and prepare Contra Costa County for safe future mobility.

CCTA is evolving with the times and presenting innovative solutions while protecting the qualities that make Contra Costa a wonderful place to call home. We present this Transportation Expenditure Plan (TEP), which reflects where we are now and, more importantly, our commitment to pursuing transportation policies, planning, and investments that will get us to where we want to be in the future.

FULFILLING OUR PROMISE TO CONTRA COSTA COUNTY VOTERS

Contra Costa County voters passed **Measure C** in 1988 sending a clear message that recognized the immense need to improve the way people travel around Contra Costa County. Voters authorized a 20-year (1989-2009) half-cent transportation sales tax to finance improvements to the county's overburdened transportation infrastructure. In 1989, the CCTA was born.

Measure C expired in 2009 but much was accomplished including Highway 4 widening from Hercules to Martinez; BART extension to Pittsburg/Bay Point; Richmond Parkway construction; and new transit programs for seniors and people with disabilities.

In 2004, Contra Costa County voters approved **Measure J**. The measure provided for the continuation of the county's half-cent transportation sales tax for 25 more years (2009-2034) beyond the Measure C expiration date. Without Measures C and J funding, CCTA would not have qualified to receive additional federal, state, or regional funds. With a total of \$1.4 billion in Measure C and J project funds, a total of more than \$5.5 billion will be invested in vital transportation projects in Contra Costa County through 2034, leveraging Measure C and J funding at about a three-to-one ratio.

CCTA has delivered most of the major infrastructure improvements projects in Measure J—such as the fourth bore of the Caldecott Tunnels, Highway 4 East widening, eBART extension from the Pittsburg/Bay Point BART station to Antioch and I-680 and I-80 corridor improvements—on an accelerated timeline to deliver its promises to voters. CCTA periodically issues bonds to provide advance funding to design and build major infrastructure projects. Then, the revenue generated from the transportation sales tax is used to pay back the bonds. By turning future Measure J revenue into capital dollars and accelerating design and construction, transportation projects are put into place sooner to alleviate transportation challenges. Designing and building the projects earlier costs less money, because the added cost of future inflation is avoided.

As of 2018, about 80 percent of the Measure J project funds were expended. Remaining revenues are now going toward repayment of bonds, fixing local streets, continuing programs, and supporting public transportation. Without a new TEP, the county will be unable to fund any new major projects to address pressing mobility needs.

TRANSPORTATION FOR THE NEXT THREE DECADES

While the existing Measure J will remain intact through 2034, this new TEP has been developed for several reasons:

- All of the planned major capital improvement projects funded by Measure J are either complete or in construction, ahead of schedule.
- New transportation technology is offering unprecedented opportunities to streamline travel and traffic, and reduce emissions.
- The gap between transportation needs and available funding is at an all-time high. The new TEP will allow local funding to keep needed services in place and alleviate congestion by attracting other funding sources.



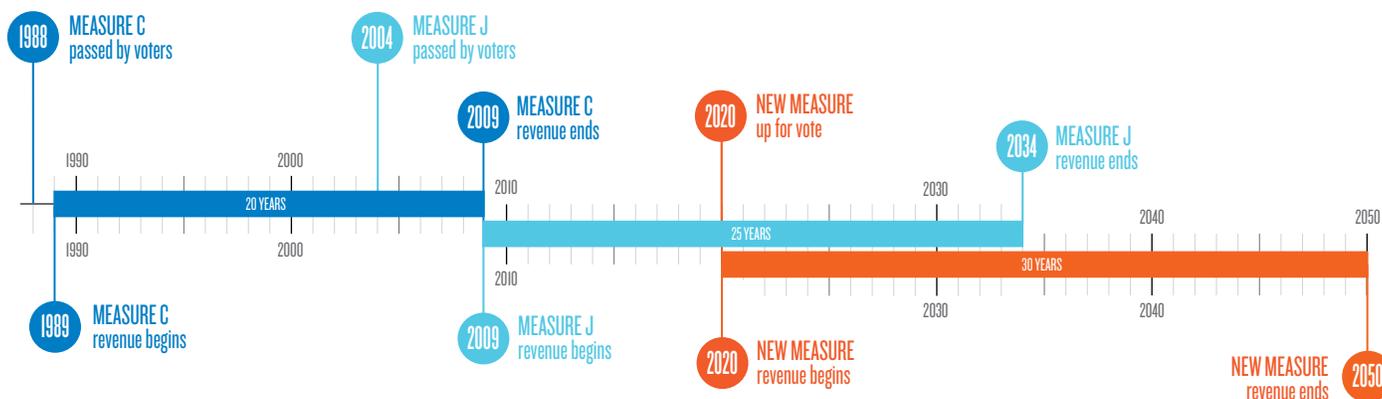
- The demand on Contra Costa County's roads, highways, BART stations, and buses is increasing. The county's population is growing and more people are using roads and transit. Investments are needed to maintain and improve the current transportation system to ensure it can effectively accommodate growth and prepare the system for the future.
- People are increasingly valuing alternative ways to get around, such as transit, walking and biking. Our roads need to safely accommodate all users.
- Contra Costa County's population is aging. Currently, about 14 percent of the population is age 65 or older.* By 2035, this population is expected to double to about 30 percent. New and different transportation solutions are needed to keep our older residents mobile and maintain quality of life.

LOCAL FUNDING FOR LOCAL PROJECTS

Measures C and J local transportation sales taxes have provided a substantial and steady share of the total funding available for transportation projects in Contra Costa County. State and federal sources have targeted some major projects, but local funding is needed to attract and supplement those sources. Our local transportation sales tax has been indispensable in helping to meet the county's growing needs in an era of unpredictable resources.

* Population based on Association of Bay Area Governments (ABAG) Projections 2013

Timeline of Local Funding Contra Costa County Transportation Improvements



The funding for this TEP will augment the existing Contra Costa County Measure J half-cent transportation sales tax by a half-cent until Measure J expires in 2034, then continue the half-cent transportation sales tax until 2050. A sales tax will generate approximately \$3 billion for essential transportation improvements that touch every city, town, and community in Contra Costa County.

These local funds have allowed CCTA to compete effectively for outside funds by providing a local matching fund source, as required by most grants. Measures C and J, for example, will attract \$4.1 billion of additional funds for Contra Costa County transportation projects through 2034, providing a total investment of \$5.5 billion in vital transportation improvements.

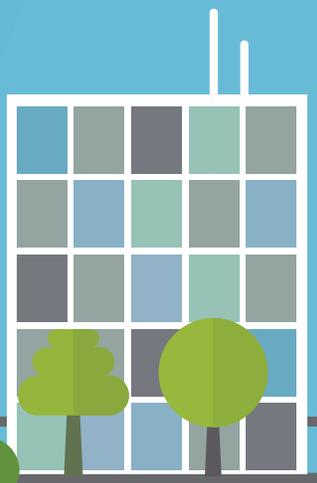
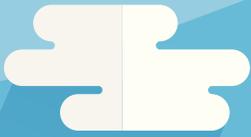
CCTA will continue to use local transportation sales tax revenue to attract outside funds for projects already identified in regional and state funding measures. In fiscal year 2017-2018 alone, more than \$77 million of California's Senate Bill 1 (SB-1), the Road Repair and Accountability Act of 2017 transportation funding was earmarked for projects sponsored by CCTA. The required local match for the grant was \$35 million. In other words, for every dollar Contra Costa County taxpayers paid for these projects, the state paid two more dollars.

Similarly, voters approved Regional Measure 3 (RM-3), which was authorized and signed into law in 2018 to fund major roadway and public transit improvements via an increase in tolls on the Bay Area's seven state-owned toll bridges. Contra Costa County projects that may benefit from RM 3 include:

- Interstate 80 Transit Improvements: expand bus service along the Interstate 80 corridor
- Interstate 680 Transit Improvements: enhance transit service along the Interstate 680 corridor, including bus operations, transit centers, and real-time travel information
- East Contra Costa County Transit Intermodal Station: construct a transit intermodal center to enhance access to eBART and the Mokelumne Bike Trail/Pedestrian Overcrossing at Highway 4
- Contra Costa Interstate 680/Highway 4 Interchange Improvements: reduce congestion and improve safety by widening Highway 4 and adding new direct connectors between I-680 and Highway 4
- Richmond-San Rafael Bridge Access (Contra Costa approach): make improvements to reduce delays on bridge approaches and at the toll plaza, including improvements to the Richmond Parkway
- Byron Highway-Vasco Road Airport Connector: improve access, safety, and economic development with a new connector between Byron Highway and Vasco Road

RM 3 provides only partial funding for these projects. Additional funding is needed to make them a reality.

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A ROADMAP FOR THE FUTURE

WHAT THIS TRANSPORTATION EXPENDITURE PLAN WILL ACCOMPLISH

Contra Costa Transportation Authority's (CCTA's) 2020 Transportation Expenditure Plan (TEP) serves as both a roadmap and an itinerary that will guide transportation investments for the coming 30 years. Throughout the 30-year duration of this plan, Contra Costa County's population is expected to grow and change, infrastructure will continue to age and wear out, new forms of travel will emerge, and the environment needs continued protection. Such changes will place even more strain on the county's transportation systems. **Without new investment in transportation, Contra Costa will face a future with distressed and outdated infrastructure, increased traffic on already-congested roadways, and a decrease in critical transportation services to those with the greatest need.**

CCTA strives to preserve and enhance an excellent quality of life for Contra Costa County's residents, businesses, and communities with convenient, reliable, and accessible transportation. We do this through optimizing the existing transportation system, leveraging emerging technologies, offering meaningful programs and services, and providing seamless connections between various forms of transportation (for example, cars, transit, cycling, and walking).

The projects in this plan will benefit all who live and travel within Contra Costa County. The projects will help improve the transportation network over the coming decades to meet growing needs, while supporting economic vitality and an environmentally sustainable future.

Transportation-related technological solutions will continue to evolve to help ease traffic congestion, offer alternative mobility options for travel, provide valuable information to travelers, make it easier and more efficient to maintain our transportation infrastructure, and many other applications that may be currently under development. This TEP reflects CCTA's commitment to fully integrate applicable transportation technologies with traditional infrastructure for the benefit of residents and travelers.

When implemented, the projects in this TEP will accomplish an array of major transportation improvements throughout the county. These projects serve to enhance people's transportation options and reduce congestion on every major transportation corridor in the county. The funding will also reach deep into the local communities to improve residents' quality of life and protect the county's natural environment.

HOW THE TEP WAS CREATED

The 2020 TEP was created for Contra Costa County residents, businesses, and travelers by the communities and people it is intended to serve. Key stakeholder groups were convened and community outreach conducted to understand what outcomes and results are most important to the residents and businesses of Contra Costa County. Through this outreach process, a number of desired outcomes were determined to be of highest priority.

These outcomes served as the basis for high-level funding categories that shape the framework for the TEP. The plan presents a suite of transportation projects and programs that align with guiding principles and will offer a transportation system that supports a vibrant, modern, and livable Contra Costa County.

This TEP is "performance-based," meaning that projects must have defined and measurable outcomes that benefit residents and travelers. Every project with a total project cost more than \$10 million in funding must undergo a performance analysis and review prior to funding being allocated. In this way, county taxpayers can be assured that the funding is well spent to meet the county's transportation goals.

TAXPAYER SAFEGUARDS

Over the past 30 years, CCTA has operated under a system of rigorous taxpayer safeguards to protect the county's investments and to ensure that transportation sales tax revenue is invested wisely, equitably, and transparently. CCTA consistently achieves the highest standards in its governmental accounting and financial reporting and ensures full accountability in its programs and projects.

With the 2020 TEP, CCTA is fully committed to continuing our strong accountability to Contra Costa taxpayers through many safeguards. For example:

- CCTA will continue to publish an annual budget and strategic plan that estimates expected transportation sales tax receipts, other anticipated revenue, and planned expenditures for the year.
- CCTA's public oversight committee will continue to provide diligent oversight of all CCTA expenditures and report its oversight activities and findings to the public through annual audits that focus on the allocation of funding, project performance, local jurisdiction compliance, and growth management performance.
- CCTA will routinely inform, communicate with, and engage its partner organizations, advisory committees, and the county's residents and businesses to ensure that its programs and projects are fully transparent and best meet the needs of its residents.
- CCTA will strive to balance the needs of all people and areas of Contra Costa County to support an equitable and sustainable transportation system for all.
- CCTA's regional transportation planning committees will continue to ensure cohesion with local and subregion planning and implementation efforts and adherence to adopted policies.

PERTINENT POLICIES

CCTA implements and follows several key policies to ensure that Contra Costa's transportation systems are in alignment with the county's established future vision. Full text of these policies is included in the Policy Statements section at the end of this document. In summary, these key policies are as follows:

Growth Management Program: establishes principles that preserve and enhance the county's quality of life and promote a healthy and strong economy through a cooperative, multi-jurisdictional process for managing growth while maintaining local authority over land use decisions.

Urban Limit Line Compliance Policy: requires each jurisdiction to adopt and comply with a voter-approved Urban Limit Line, which defines the physical limits of a jurisdiction's future urban development.

The Growth Management Program and Urban Line Limit Compliance policies in place since Measure J began in 2009 have been enhanced in this TEP.

CCTA, with input from many stakeholders, has developed the following additional four policies to ensure that projects align with the vision, guidelines, and requirements for fund expenditures.

Transit Policy: sets out goals for improving, coordinating, and modernizing transit service—along with first- and last-mile connections to transit—thereby increasing the percentage of residents and commuters that may travel conveniently by public transit.

Complete Streets Policy: encourages making local streets more efficient and safe for all users—including

drivers, pedestrians, bicyclists, and transit riders—and giving travelers convenient options while minimizing the need to widen roadways.

Advanced Mitigation Program: provides innovative ways to advance needed infrastructure projects more efficiently and provides more effective conservation of natural resources, watersheds and wetlands, and agricultural lands.

Vision Zero: requires all funding recipients to systemically apply planning and design practices that quantifiably reduce the risk of traffic-related deaths and severe injuries.

GUIDING PRINCIPLES USED TO DEVELOP THE TEP

CCTA is fully committed to planning, funding, and delivering transportation solutions that meet the transportation needs of Contra Costa County's residents, businesses, and travelers, through a strong set of guiding principles including:



DEFINED BENEFITS

CCTA will use transportation sales tax revenue to achieve defined outcomes and benefits.



PUBLIC PARTICIPATION

CCTA will conduct a public outreach program that collects input from stakeholders, residents, and communities throughout Contra Costa County and responds accordingly with meaningful action.



ACCOUNTABILITY AND TRANSPARENCY

CCTA strives for excellence in protecting the public's investments. We aim to routinely engage with partner organizations, advisory committees, and the county's residents and businesses to ensure full transparency.



BALANCED AND EQUITABLE APPROACH

CCTA will balance the needs and benefits for all people and all areas of Contra Costa County to provide an equitable and sustainable transportation system.



MAXIMIZE AVAILABLE FUNDING

CCTA will proactively seek regional, state, and federal funding and private investments to supplement the county's local transportation sales tax revenue, thereby maximizing the total amount of funding for transportation projects in Contra Costa County.



COMMITMENT TO TECHNOLOGY AND INNOVATION

CCTA is committed to keeping Contra Costa County on the cutting edge of transportation technology by continuing to incorporate advanced technologies and emerging innovations into the transportation system.



COMMITMENT TO GROWTH MANAGEMENT

CCTA administers countywide policies that support thoughtful growth management to sustain Contra Costa's economy, preserve its environment, and support its communities.



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BIKE ROUTE

PROPOSED TRANSPORTATION INVESTMENTS

PLANNING FOR THE FUTURE

This Transportation Expenditure Plan (TEP) includes transportation-related projects and programs to be planned, designed, funded, constructed, and/or delivered in Contra Costa County over the next thirty years. This plan anticipates an investment of approximately \$3 billion of revenue generated from the half-cent transportation sales tax. Contra Costa County's local sales tax revenue will help Contra Costa Transportation Authority (CCTA) attract additional local, regional, state, and federal funding to augment the sales tax revenue.

The project descriptions that follow are purposefully brief and offer general overviews of the purpose and nature of the projects. Several projects (such as affordable transit for students, seniors, and people with disabilities) are continuations or enhancements to ongoing work performed under Measure J. Many other projects included in this plan are still in the concept or planning stages. Stakeholders and the public will have plenty of future opportunities to help shape these projects so that they are most useful and beneficial to residents, commuters, and visitors.

In its role as the administrator of Contra Costa County's transportation sales tax revenue, CCTA has instituted requirements so that taxpayer's revenue is invested per established policies, as presented in the Policy Statements section of this TEP. The policy statements generally require that recipients of funding perform advance performance assessments and comply with applicable laws and other CCTA policies. The Taxpayer Safeguards and Accountability Policy in the Policy Statements section includes the full statement of funding requirements and restrictions, as applicable.

CCTA sets aside funding to implement the countywide Growth Management Program, prepare the countywide transportation plan, and support the programming and monitoring of federal and state funds, as well as CCTA's Congestion Management Agency functions. A very small percentage of the funding also covers basic administrative functions (such as salaries) and basic expenses (such as rent).

▶ \$1.41 BILLION

IN 2017, THREE MAJOR
FREEWAYS IN CONTRA
COSTA COUNTY RANK IN THE
TOP 10 WORST COMMUTES:
I-680, HIGHWAY 24 AND
HIGHWAY 4.*

RELIEVING CONGESTION ON HIGHWAYS, INTERCHANGES, AND MAJOR ROADS

More than 79 percent of Contra Costa County's residents drive to work; several of Contra Costa County's highways have the been identified as the "most congested in the San Francisco Bay Area."**

Easing traffic congestion is one of Contra Costa County residents' highest priorities. Accordingly, CCTA will invest nearly half of the new transportation sales tax revenue toward new, modern tools and strategies to improve traffic flow and reduce traffic congestion on the county's major corridors and roads. These strategies include highway and road improvements thoughtfully integrated with transit improvements and alternative modes.

Improving transit and transit connections will lessen traffic congestion on the county's highways; as transit service is improved and more people take transit, fewer cars on the road translates to less traffic.

CCTA is committed to improving access to jobs and the development of the Northern Waterfront and throughout Contra Costa. Transportation programs and projects will promote affordable housing and housing within planned or established job centers that are supported by transit, or that support economic development and job creation. CCTA's strategies will also incentivize employers to create local jobs, and promote transit, shared trips, telecommuting, and shifting work schedules, all with the intent of reducing commuter traffic at peak commute times.

Projects will be subject to applicable policies as presented in the Policy Statements section at the end of this document.

*SOURCE: Metropolitan Transportation Commission, Vital Signs - <https://mtc.ca.gov/whats-happening/newsbay-area-vital-signs-freeway-congestion-hits-new-record-0>

**SOURCE: Metropolitan Transportation Commission, Vital Signs, 2016-2017 data

WHAT'S A CORRIDOR?

A corridor is a swath or belt of land that contains one or more types of transportation infrastructure, such as a road or railway. Each of Contra Costa County's corridors contains a major interstate or highway as well as a major transit line; roads, streets, paths, bus lines, and transit stations.

Everyone is impacted by the performance of corridors, and this impact is felt each and every day, whether you're doing your daily commute, heading to a medical appointment, or traveling to a youth soccer game. CCTA is focused on optimizing all transportation within a corridor so that traffic is smooth, transit is convenient, and all systems work together to support travel across communities and throughout the region. For purposes of this Transportation Expenditure Plan, CCTA is focused on three major transportation corridor improvement categories:

- » Improve State Route 242, Highway 4, and eBART Corridor
- » Modernize I-680, Highway 4, and BART Corridor
- » Enhance I-80, I-580 (Richmond-San Rafael Bridge), and BART Corridor



» Improve SR-242, Highway 4, and eBART Corridor

4 242

RELIEVE CONGESTION AND IMPROVE ACCESS TO JOBS ALONG HIGHWAY 4 AND SR-242

CCTA is continuing its work in **easing traffic congestion**, smoothing traffic flow, and reducing travel time along Highway 4 and SR-242 with a blend of projects that may be considered such as:

- Improve access to jobs and development along the Northern Waterfront
- Improving access to local key destinations, including business districts and BART stations
- Reconfiguring interchanges along SR-242
- Managing traffic flow on Highway 4 by connecting and **synchronizing traffic on freeway**, local roads and freeway ramps.
- Completing operational improvements at the I-680/ Highway 4 interchange
- Addressing bottlenecks and cooling hot spots caused by high-volume weaving areas and **adding auxiliary lanes** and improving ramps between SR-242 and Bailey Road
- Providing incentives to encourage the use of transit and alternative transportation options.

5th most
CONGESTED
HIGHWAY
in the Bay Area
*Eastbound Martinez to Pittsburg**



IMPROVE LOCAL ACCESS TO HIGHWAY 4 AND BYRON AIRPORT

CCTA has developed a multi-pronged approach to **reducing traffic congestion and improving safety and travel time reliability** on the roads through and around Byron. These projects will also facilitate economic development and goods movement in east Contra Costa County. Key projects may consider:

- A new limited-access connector between Byron Highway and Vasco Road south of Camino Diablo to **improve access to Byron Airport**, making it a more useful transportation hub
- Improvements to Vasco Road and Byron Highway, and other safety improvements
- Interchange improvements along Highway 4 at Balfour Road, Marsh Creek Road, Walnut Boulevard; and Camino Diablo
- Enhancements to the Byron Airport
- Improve access to jobs and development along the Northern Waterfront

These projects will include measures to prevent growth outside pre-defined urban limit lines, for example, prohibitions on roadway access from adjacent properties, permanent protection and/or acquisition of agricultural lands or critical habitat, and habitat conservation measures.



ADDITIONAL eBART TRAIN CARS

Trains are full with standing room only during commute hours. Funding will be considered for allocation toward **purchasing additional eBART train cars** so that trains can run more frequently, thereby carrying more passengers on this popular route.

*Source: Metropolitan Transportation Commission, "Vital Signs: Bay Area Freeway Locations with most Weekday Traffic Congestion, 2017" - https://mtc.ca.gov/sites/default/files/top_10_congestion_locations-2017.pdf



SEAMLESS CONNECTED TRANSPORTATION OPTIONS

Contra Costa County's transportation system is a mix of freeways to bike paths, trains to shuttles, and many other modes in between. Providing **seamless connectivity among these many travel options** will ensure that our system can meet the future needs of our growing and aging population.

CCTA will develop guidelines and implement systems to promote connectivity between all users of the transportation network (vehicles, pedestrians, bicycles, buses, trucks, etc.) using automation technology and taking advantage of future transportation technology trends.

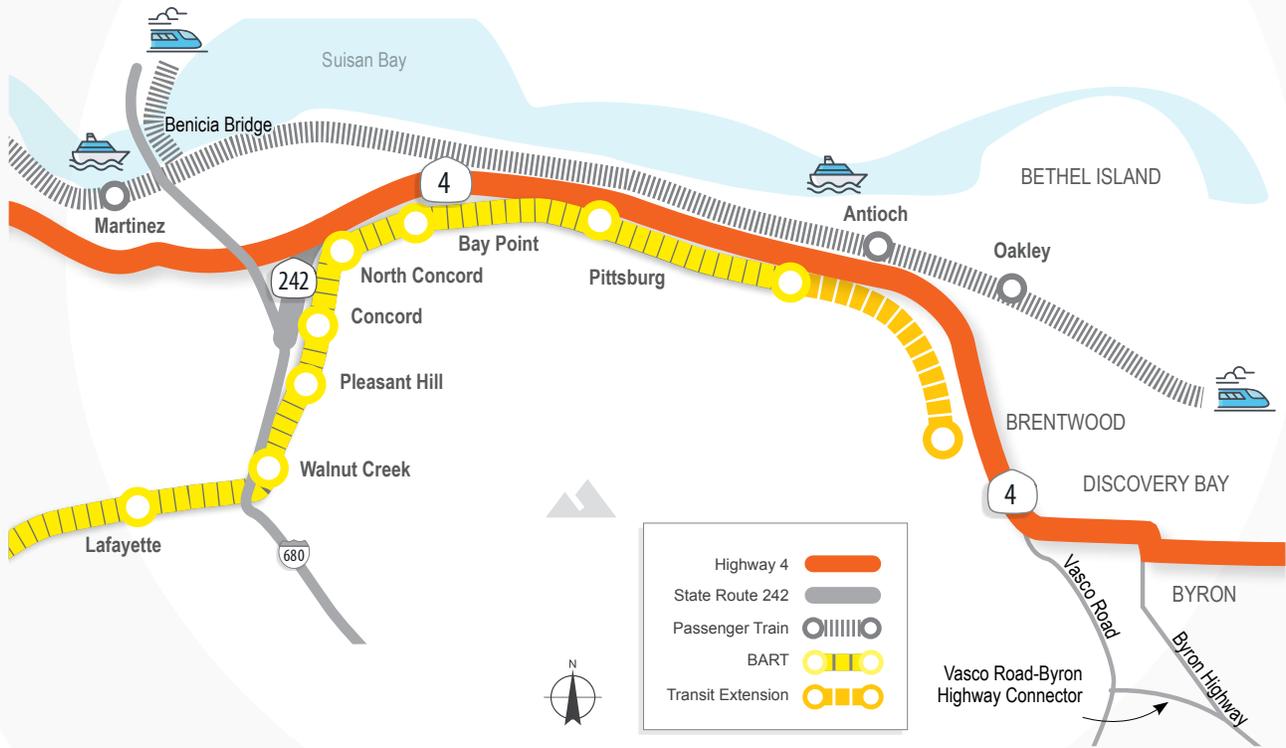


ENHANCE FERRY SERVICE AND COMMUTER RAIL IN EAST AND CENTRAL COUNTY

To help travelers make convenient connections between the Capitol Corridor and San Joaquin train system and the BART system, CCTA proposes to **fund new stations and improvements to existing stations** and rail facilities. Some example projects may include a new train station for the San Joaquin line and a park-and-ride lot in Oakley; new connections between the new Oakley station and Antioch eBART; and a transit connection from the Martinez Amtrak station to the North Concord/ Martinez BART station.

CCTA is also considering expanding ferry service between Martinez and Antioch. As more people use ferries and the passenger train, traffic congestion on Contra Costa County's roads and highways will decrease, **traffic will flow more smoothly, and air emissions will decrease**, thereby improving the county's air quality.

» TOTAL INVESTMENTS: \$689 million



IMPROVE TRAFFIC FLOW ON MAJOR ROADS IN EAST COUNTY

CCTA is committed to relieving congestion on major roads and **implementing modern systems** that provide safe, efficient, and reliable movement of buses, vehicles, bicyclists, and pedestrians. Projects will range in size and type, and may consider, for example:

- New and/or wider lanes or shoulders
- **New bicycle and pedestrian facilities**
- Installation of “smart” parking management programs
- **Traffic signal synchronization** and other innovative technologies
- Traffic calming measures and roundabouts
- Shoulders, sidewalks, curbs and gutters, and streetscapes
- Bus transit facility enhancements such as bus turnouts and passenger amenities
- Close gaps and extend major roads to relieve congestion and improve safety



EAST COUNTY TRANSIT EXTENSION TO BRENTWOOD AND CONNECTIVITY TO TRANSIT, RAIL, AND PARKING

Expanding transit service throughout east Contra Costa County will enable more people to travel conveniently to the Antioch eBART station and other destinations served by transit. The TEP may consider funding a direct link between a new intermodal center in Brentwood to the Antioch eBART station.

Funding will also be considered to **improve transit service throughout Brentwood, Oakley and nearby communities** via new shuttle service, bus service, and transit hubs such as a new Tri Delta park-and-ride lot to service eBART and a new Amtrak San Joaquin station in Oakley. Funding will help integrate existing transit services using new technologies, so that people have smooth and convenient connections with less wait time.



IMPROVE TRANSIT RELIABILITY ALONG SR-242, HIGHWAY 4, AND VASCO ROAD

One of CCTA’s strategies to smoothing traffic along SR-242, Highway 4, and Vasco Road is to **improve and enhance transit service** to give travelers viable and convenient options to driving. When more people take transit, there will be fewer cars on the road and traffic congestion will be reduced. Possible projects may consider:

- Increased express bus service
- Improved interchanges and local access for buses so they can access the highways more efficiently
- **Dedicated part-time transit lanes** to bypass congestion
- Improved transit connections between transit stations (including BART stations and ferry terminals), schools, housing, and employment centers, thereby addressing transit users’ first-mile/last-mile challenges

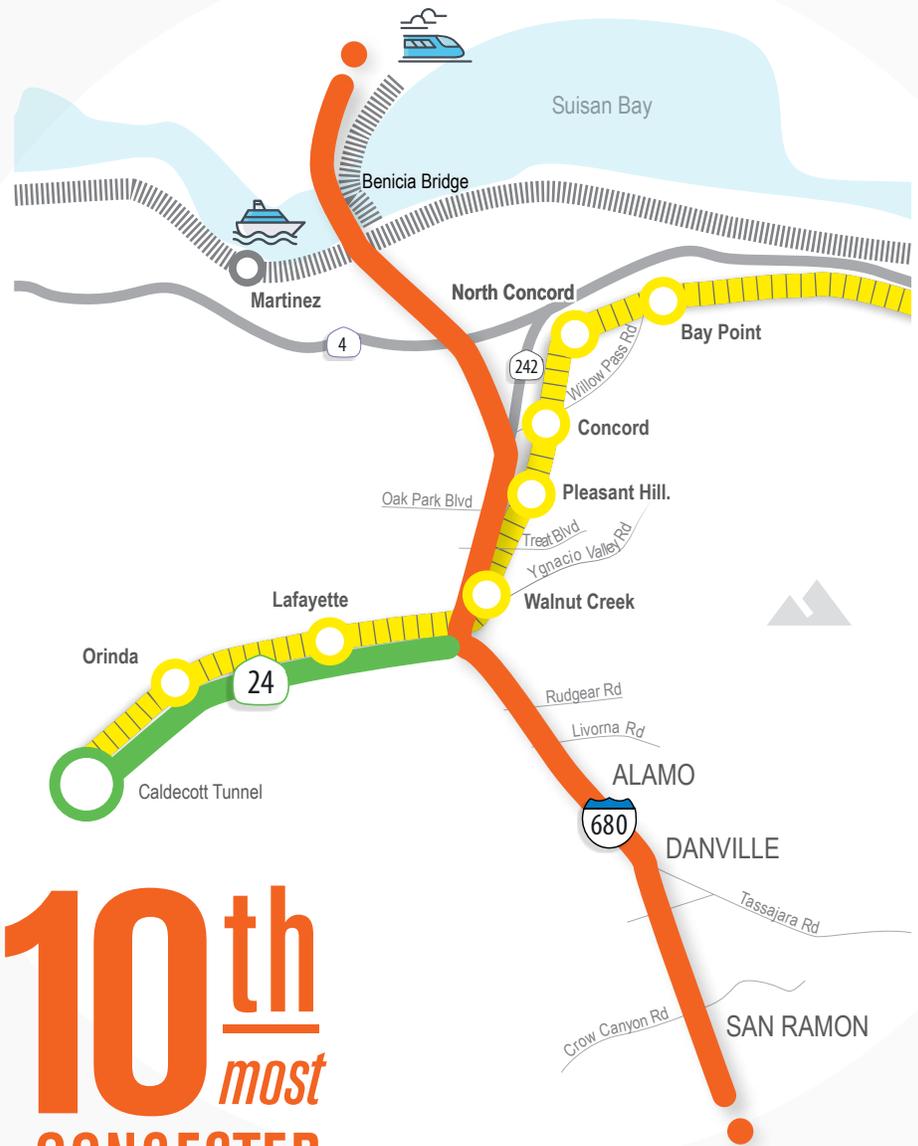
» Modernize I-680, Highway 24, and BART Corridor



RELIEVE CONGESTION, EASE BOTTLENECKS, AND IMPROVE LOCAL ACCESS ALONG THE I-680 CORRIDOR

Improvements to the I-680 corridor will work together to address bottlenecks, **relieve traffic congestion**, smooth traffic flow, reduce travel times, **improve air quality**, and offer efficient transportation choices to all travelers. Key strategies to be considered include:

- **Complete express lanes** in both directions from Rudgear Road in Walnut Creek to the Benicia Bridge to provide 25 miles of continuous southbound express lanes and nearly continuous northbound express lanes
- Address congestion hot spots caused by high-volume weaving areas between Livorna Road and Treat Blvd. Additional merge lanes and ramp improvements at these locations **will provide safe merging for motorists and ease bottlenecks** that currently create chronic delays
- Implement innovative technology solutions to manage traffic flow by connecting and synchronizing traffic on local arterials, freeway ramps, and freeways
- **Expand park-and-ride facilities** to enable people to use transit more often
- Implement transportation demand management programs to reduce single-occupancy vehicle travel
- Provide incentives for using alternative transportation options



10th most CONGESTED HIGHWAY in the Bay Area Northbound Danville to Walnut Creek*



I-680	
Highway 24	
Passenger Train	
BART	

*Source: Metropolitan Transportation Commission, "Vital Signs: Bay Area Freeway Locations with most Weekday Traffic Congestion, 2017" - https://mtc.ca.gov/sites/default/files/top_10_congestion_locations-2017.pdf

» TOTAL INVESTMENTS: \$493 million



IMPROVE TRAFFIC FLOW ON MAJOR ROADS IN CENTRAL COUNTY AND LAMORINDA

CCTA is committed to relieving congestion on major roads and implementing modern systems that provide **safe, efficient, and reliable movement of buses, vehicles, bicyclists, and pedestrians**. Projects will range in size and type, and may consider, for example:

- New and/or wider lanes or shoulders
- New bicycle and pedestrian facilities
- Installation of “smart” parking management programs
- Traffic signal synchronization and other innovative technologies
- Traffic calming measures and roundabouts
- Shoulders, sidewalks, curbs, gutters, and streetscapes
- Bus transit facility enhancements such as bus turnouts and passenger amenities



IMPROVE TRAFFIC FLOW ON HIGHWAY 24 AND MODERNIZE THE OLD BORES OF CALDECOTT TUNNEL

CCTA has plans to improve traffic flow and access along Highway 24 in Orinda, Lafayette, and Moraga through a suite of projects that could include improving interchanges, modifying major roads to reduce highway access delays, and other congestion-reducing improvements. CCTA will also **develop transit and shared trip incentives** for drivers in lieu of single-occupant vehicle travel.

The original two-bore Caldecott Tunnel opened in 1937. CCTA will implement improvements that could include increase lighting and visibility, improved traffic alerts for crashes or stalled vehicles, and other physical or technological solutions to improve safety, and help improve traffic flow in the tunnels.



IMPROVE TRANSIT RELIABILITY ALONG THE I-680 AND HIGHWAY 24 CORRIDORS

One of CCTA’s strategies to smoothing traffic along the I-680 and Highway 24 corridors is to improve and **enhance transit service** to give travelers viable and convenient alternatives to driving in their vehicles. When more people take transit, there will be fewer cars on the road and traffic will be reduced. Funding may consider the following:

- Implement and increase express bus service along the I-680 and Highway 24 corridors
- Improve interchanges and local access so buses can access the highways more efficiently
- Provide **dedicated part-time transit lanes** along I-680 to bypass congestion
- **Improve transit connections** between transit stations, schools, housing, and employment centers, thereby addressing first-mile/last-mile challenges for transit users



PROVIDE GREATER ACCESS TO BART STATIONS ALONG I-680 AND HIGHWAY 24

In addition to making shuttle service to and from BART more frequent, CCTA will consider allocating funding toward making **parking and access improvements** that serve BART stations, so that buses and people in vehicles—along with people arriving by walking or bicycling—can get to the station more easily and conveniently. Funding may be considered for constructing satellite parking lots with frequent direct shuttle service to BART.



SEAMLESS CONNECTED TRANSPORTATION OPTIONS

Contra Costa County’s transportation system is a mix of freeways to bike paths, trains to shuttles, and many other modes in between. **Providing seamless connectivity** among these many travel options will ensure that our system can meet the future needs of our growing and aging population.

CCTA will develop guidelines and implement systems to promote connectivity between all users of the transportation network (vehicles, pedestrians, bicycles, buses, trucks, etc.) using automation technology and **taking advantage of future transportation technology trends**.



IMPROVE TRAFFIC FLOW ON MAJOR ROADS IN SAN RAMON VALLEY

CCTA is committed to relieving congestion on major roads and implementing modern systems that provide **safe, efficient, and reliable movement of buses, vehicles, bicyclists, and pedestrians**. Projects will range in size and type, and may consider, for example:

- New and/or wider lanes or shoulders
- New bicycle and pedestrian facilities
- Installation of “smart” parking management programs
- Traffic signal synchronization and other innovative technologies
- Traffic calming measures and roundabouts
- Shoulders, sidewalks, curbs, gutters, and streetscapes
- Bus transit facility enhancements such as bus turnouts and passenger amenities

» Enhance I-80, I-580, and BART Corridor



RELIEVE CONGESTION AND IMPROVE LOCAL ACCESS ALONG THE I-80 CORRIDOR

Improvements to the I-80 corridor will address bottlenecks, relieve traffic congestion, smooth traffic flow, reduce travel times, improve air quality, and offer efficient transportation choices to all travelers. Key improvements may include:

- Several innovative strategies and operational improvements will be implemented to **reduce travel time, improve air quality, reduce weaving at interchanges**, and smooth traffic flow
- Expand intelligent transportation systems and advanced technology strategies along I-80 to **maximize system efficiency** and prepare the corridor for future advances in transportation technology
- Increase travel time reliability in the carpool lanes through cost-effective **managed lane strategies** and enforcement
- Improve and expand express transit service through the corridor
- Transform park-and-ride facilities into **shared mobility hubs** that provide multi-modal transportation options and amenities to encourage transit use
- Provide incentives to encourage the use of transit and alternative transportation options.



\$187M



WILL BE SPENT TO INCREASE BUS SERVICES AND RELIABILITY IN WEST CONTRA COSTA COUNTY.

» TOTAL INVESTMENTS: \$226 million



IMPROVE TRAFFIC FLOW ON MAJOR ROADS IN WEST COUNTY

CCTA is committed to relieving congestion on major roads and implementing modern systems that provide safe, efficient, and reliable movement of buses, vehicles, bicyclists, and pedestrians. Projects will range in size and type, and may consider, for example:

- Railroad grade separations
- New and/or wider lanes or shoulders
- **New bicycle and pedestrian facilities**
- Installation of “smart” parking management programs
- **Traffic signal synchronization** and other innovative technologies
- Traffic calming measures and roundabouts
- Shoulders, sidewalks, curbs and gutters, and streetscapes
- Bus **transit facility enhancements** such as bus turnouts and passenger amenities



ENHANCE FERRY SERVICE AND COMMUTER RAIL IN WEST COUNTY

To help travelers make convenient connections with the Capitol Corridor and San Joaquin train systems, CCTA will consider funding a **new regional intermodal station** in Hercules, along with new or improved ferry services in Hercules with connections to the train. As more people use ferries and the train, traffic congestion on Contra Costa County's roads and highways will be less, traffic will flow more smoothly, and air emissions will decrease thereby improving the county's air quality.



SEAMLESS CONNECTED TRANSPORTATION OPTIONS

Contra Costa County's transportation system is a mix of freeways to bike paths, trains to shuttles, and many other modes in between. **Providing seamless connectivity** among these many travel options will ensure that our system can meet the future needs of our growing and aging population.

CCTA will develop guidelines and implement systems to promote connectivity between all users of the transportation network (vehicles, pedestrians, bicycles, buses, trucks, etc.) using automation technology and **taking advantage of future transportation technology trends.**



IMPROVED TRAFFIC FLOW AND LOCAL ACCESS TO RICHMOND-SAN RAFAEL BRIDGE ALONG I-580 AND RICHMOND PARKWAY

CCTA plans to relieve traffic congestion and reduce traffic delays by **modernizing facilities**, expanding pedestrian and bicycling options, improving transit reliability, and encouraging the use of carpools and buses.

Specific improvements to be considered:

- **Extending the carpool lane along I-580** from the toll plaza to Central Avenue in El Cerrito
- Making improvements so that pedestrians and cyclists can better access the Richmond-San Rafael bridge, Richmond Parkway, Richmond Ferry Terminal, and Richmond BART Station
- Improving interchange at Richmond Parkway and I-580
- **Providing incentives** for using alternative transportation options



IMPROVE TRANSIT RELIABILITY ALONG THE I-80 CORRIDOR

One of CCTA's strategies to smoothing traffic along the I-80 corridor is to improve and **enhance transit service** to give travelers viable and convenient options to driving. When more people take transit, there will be fewer cars on the road and traffic will be reduced. Funding is planned to:

- Increase express bus service along the corridor
- Improving interchanges and local access for buses so they can access the highways more efficiently
- Provide dedicated part-time transit lanes along I-80 to bypass congestion
- **Improve transit connections** between transit stations (including BART stations and ferry terminals), schools, housing, and employment centers, thereby addressing first-mile/last-mile challenges for transit users
- Provide incentives to travelers to use alternative transportation options

Several of these projects are earmarked for RM-3 funding, with CCTA providing matching funds.

▶ **\$1.53 BILLION**



IMPROVING TRANSPORTATION COUNTYWIDE IN ALL OUR COMMUNITIES

The quality of roads and availability of transportation options are two major factors in making our communities great places to live, as are the availability of jobs, safety, access to parks and trails, and good clean air and water. CCTA will implement many projects throughout the county to improve our local communities and **protect Contra Costa County's environment and quality of life.**

The previous section of this TEP presented investments focused on Contra Costa County's major corridors. This section describes funding that spreads into every community, through local projects and programs that improve the county's vast transportation network.

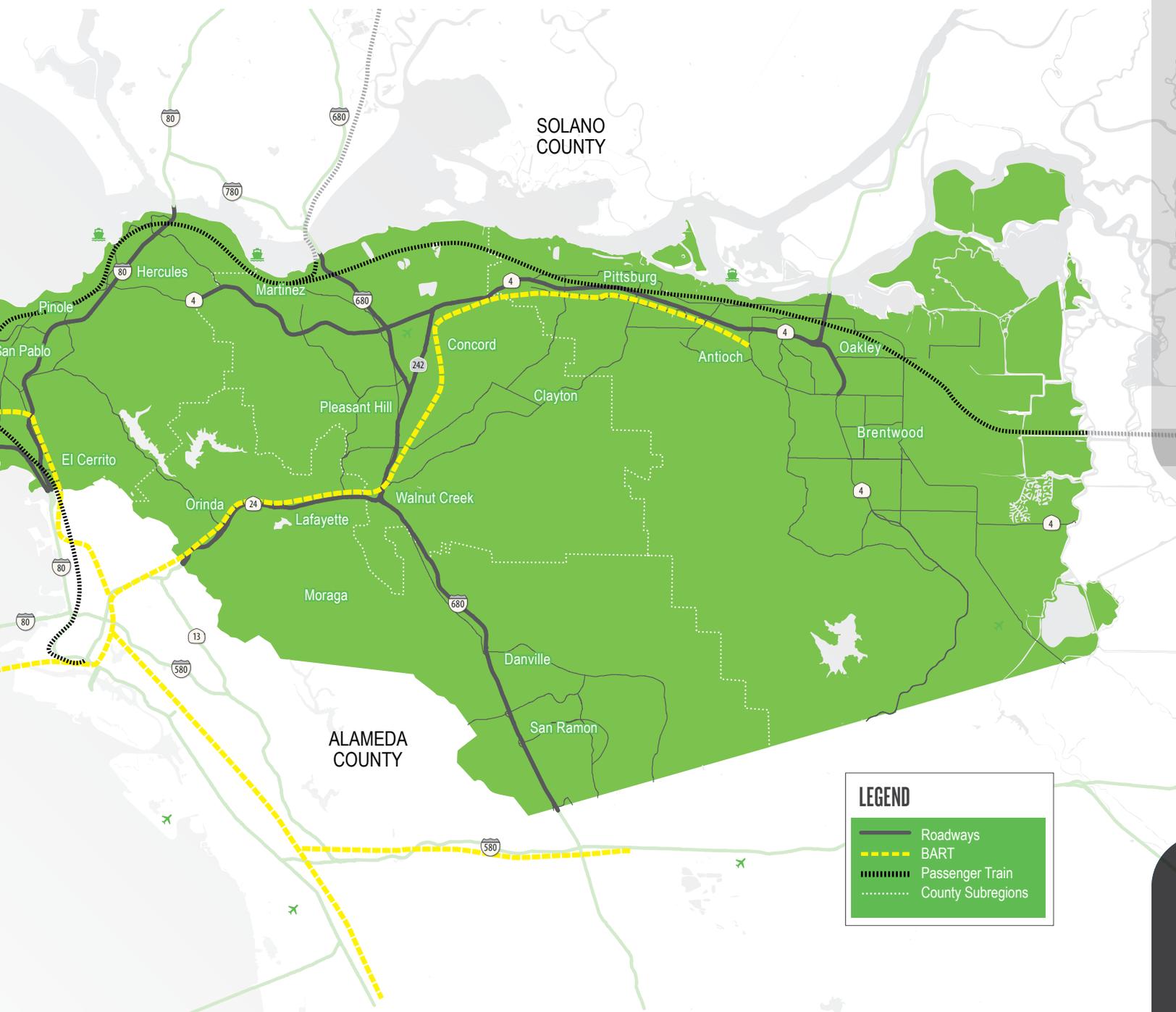
Funding will be allocated toward improving local roads and streets to make them safer for all travelers. Smaller projects—such as removing bottlenecks, improving traffic signal operations, installing traffic calming measures, and making streetscape improvements—can make big improvements in a community's quality of life.

Funding will be allocated toward substantial investments in a **robust transit system** that provides affordable, efficient, convenient, and accessible transit to travelers throughout the county. These projects will result in cleaner, safer, and more reliable trips on BART, buses, and ferries. The transit systems will extend into parts of the county that are currently lacking frequent transit service. When more people take transit, traffic congestion on the county's roads and highways will decrease, traffic will flow more smoothly, and **air emissions will decrease**, thereby improving the county's air quality.

CCTA is committed to supporting affordable and safe transportation for all Contra Costa County residents. CCTA will allocate funding toward a wide array of **programs for students, seniors, veterans, and people with disabilities**, aimed at offering safe transportation options and improving mobility.

Projects will be subject to applicable policies as presented in the Policy Statement section.





LEGEND

- Roadways
- BART
- Passenger Train
- County Subregions

Location
 Eastern suburb of the San Francisco Bay Area

Population
 1 Million+

Diverse
 Demographically, economically and geographically

» Improving Transportation Countywide In All Our Communities



FIX AND MODERNIZE LOCAL ROADS

Smooth, pothole-free roads, safe intersections, pleasant sidewalks, safe bike lanes, and clean air are some of the important features that make Contra Costa County a great place to live and work.

CCTA will provide funding directly to the county's cities, towns, and unincorporated areas so that they may make improvements to their own local roads and streets. Each jurisdiction in Contra Costa County will receive a base allocation of \$100,000 per year plus additional funds distributed based half on relative population and half on road miles within each jurisdiction.

To ensure transparency and accountability, local agencies report annually on the amount spent on roadway maintenance, bicycle and pedestrian facilities, transit facilities, and other roadway improvements. Local agencies must also meet the requirements set forth in the Growth Management Program, Urban Limit Line Compliance Requirements, Transit Policy, Complete Streets Policy, and other applicable policies in the Policy Statements section.



SAFE TRANSPORTATION FOR YOUTH AND STUDENTS

Drop-off and pick-up at schools often creates traffic jams on local streets and unsafe conditions for children. CCTA will allocate funding toward a wide array of transportation projects and programs for students, and youth, aimed at offering safe transportation options, such as walking, and cycling, and improving mobility.

Funding will also be used for **reduced fare transit passes**, transit incentives, and school bus programs to encourage more youth and students to use transit to attend school and afterschool programs. This will also relieve traffic congestion.

In cooperation with project sponsors in each subregion, CCTA will establish guidelines to define priorities and maximize effectiveness. The guidelines may require provisions such as operational efficiencies, performance criteria, parent contributions, and reporting requirements.



IMPROVE WALKING AND BIKING ON STREETS AND TRAILS

Numerous studies and research across many different communities have demonstrated the benefits of creating an environment where walking and bicycling are safe, comfortable, and convenient. For example, **increased walking and bicycling can improve air quality by reducing emissions and energy use** from motor vehicles; improving access by foot or bike can make transit more convenient; and regular walking and bicycling can improve people's health and reduce mortality rates and health care costs.

This TEP contains **unprecedented levels of funding to improve safety for bicyclists and pedestrians in every part of the county**— from local street improvements to trail enhancements and similar projects. Funding will be considered to implement projects in the Contra Costa Countywide Bicycle and Pedestrian Plan, most recently updated in 2018. CCTA will develop program guidelines for a competitive project selection process that maximizes benefits for all users. All funding will be consistent with CCTA's Complete Streets, Vision Zero, and other applicable policies.

Approximately one-fifth of the funds will be considered for allocation to the East Bay Regional Park District for the development, maintenance, and rehabilitation of paved regional trails.



» TOTAL INVESTMENTS: \$1.53 billion



AFFORDABLE TRANSPORTATION FOR SENIORS, VETERANS, AND PEOPLE WITH DISABILITIES

Contra Costa County's population is aging. As people get older or become disabled and can no longer drive, they will increasingly rely on other ways to get around. Funding in this category will be used for **affordable and safe countywide transportation** for seniors, disabled veterans, and other people with disabilities who, due to age or disability, cannot drive or take other transit options.

In collaboration with stakeholders and service providers, CCTA will develop an Accessible Transportation Services Strategic Plan to guide the use of these funds.



CLEANER, SAFER BART

BART began operating in the early 1970s and its stations and station equipment are showing their age. There are eleven BART stations located in Contra Costa County.

CCTA plans to fund a suite of modernization projects at select stations to **increase safety, security, and cleanliness**, and to improve customer experience. Several projects will focus on improving reliability of fare gates and reducing fare evasion. Many of these projects are eligible for Measure RR (BART's \$3.5 billion general obligation bond). CCTA will provide no more than a dollar-for-dollar match for BART projects. BART and CCTA will develop a countywide program to determine how funding is allocated, evaluated, and tracked for effectiveness. Specific funding and maintenance of effort requirements are required and identified in the Taxpayers Safeguards and Accountability Policy.



PROVIDE CONVENIENT AND RELIABLE TRANSIT SERVICES IN CENTRAL, EAST, AND SOUTHWEST COUNTY

Although BART and rail service offers backbone transit options to residents in central, southwest, and east County, many neighborhoods and communities are unserved or underserved by bus or other transit options, meaning that transit is not close enough to people who want to use it, and not frequent enough to be convenient. Funding will be provided to public transit operators in the central, east, and southwest subregions to provide **cleaner, safer, and more reliable trips on buses or shuttles**. This funding will enable transit operators to improve the frequency of service on existing routes, especially high-demand routes, increase ridership, and incentivize transit use by offsetting fares.



INCREASE BUS SERVICES AND RELIABILITY IN WEST CONTRA COSTA COUNTY

Many people in west Contra Costa County rely on buses and transit as their primary means of travel. CCTA will focus on expanding transit services to unserved or underserved areas, along with more frequent and reliable bus service to all. Funding will be provided to public transit operators in the west subregion of Contra Costa County (including AC Transit and WestCAT) to **provide cleaner, safer, and more reliable trips on buses**. This funding will enable transit operators to improve the frequency of service on existing routes, especially high demand routes, increase, and incentivize transit use by offsetting fares.

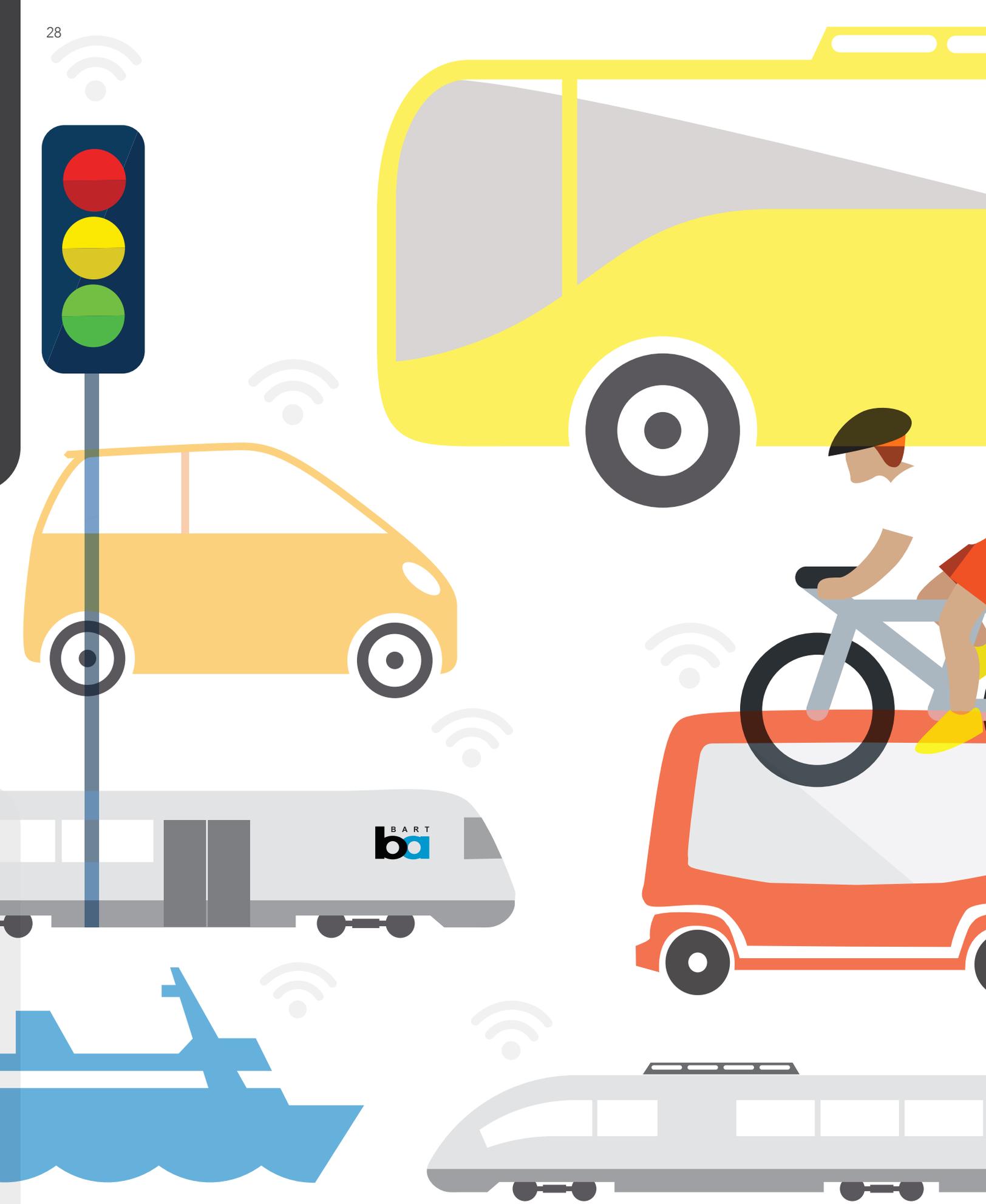


REDUCE EMISSIONS AND IMPROVE AIR QUALITY

CCTA is a nationwide leader in sustainable, technology-enabled transportation and integrates innovative technological solutions into Contra Costa County's transportation network to improve traffic flow and safety, reduce greenhouse gas emissions, and offer improved travel options. Technology solutions can help solve the challenges of the lack of connectivity between transportation options, resulting in reduced emissions, and improved air quality. Eligible expenditures in this category include:

- Implementing the strategies developed in the 2019 Contra Costa Electric Vehicle Readiness Blueprint and subsequent updates
- Reducing transportation-related greenhouse gases through the utilization of a cleaner vehicle fleet including alternative fuels and/or locally produced energy
- Preparing for a growing fleet of zero-emission vehicles by facilitating the installation of electric charging stations or alternative fuels
- Increasing utilization of non-auto types of transportation by expanding walking and biking paths and transit options
- Using demand management strategies designed to reduce congestion, increase use of non-auto transportation, increase occupancy of autos, manage existing infrastructure, and reduce greenhouse gas emissions
- Managing parking supply to improve availability, utilization, and to reduce congestion and greenhouse gas production

Funding is intended to match regional, state, or federal grants and private-sector investment to achieve maximum benefits. CCTA will develop and adopt guidelines for a competitive project selection process for the use of these funds.



POLICY STATEMENTS

The Growth Management Program (GMP)

GOALS AND OBJECTIVES

The overall goal of the GMP is to preserve and enhance the quality of life and promote a healthy, strong economy to benefit the people and areas of Contra Costa through a cooperative, multi-jurisdictional process for managing growth, while maintaining local authority over land-use decisions.¹

The objectives of the GMP are to:

- Assure that new residential, business, and commercial growth pays for the facilities required to meet the demands resulting from that growth;
- Require cooperative transportation and land-use planning among Contra Costa County, cities/towns, and transportation agencies;
- Support land-use patterns within Contra Costa that make more efficient use of the transportation system, consistent with the General Plans of local jurisdictions; and
- Support infill and redevelopment in existing urban and brownfield areas.

The Measure J Transportation Expenditure Plan GMP, which includes Principles of Agreement for Establishing the Urban Limit Line (ULL), is augmented and superceded by this 2020 TEP.

1. The Authority will, to the extent possible, attempt to harmonize the BMP and the State-mandated Congestion Management Program (CMPs). To the extent they conflict, CMP activities shall take precedence over the GMP activities.

COMPONENTS

To receive its share of funding from the following categories:

- 2020 TEP Modernize Local Roads & Improve Access to Housing and Job Centers;
- Measure J Local Streets Maintenance & Improvements; and
- Measure J Transportation for Livable Communities (TLC);

each jurisdiction must:

1. Adopt a Growth Management Element (GME)

Each jurisdiction must adopt, or maintain in place, a GME as part of its General Plan that outlines the jurisdiction's goals and policies for managing growth and requirements for achieving those goals. The GME must show how the jurisdiction will comply with sections 2–9 below. The Authority will refine its model GME and administrative procedures in consultation with the Regional Transportation Planning Committees (RTPCs) to reflect the revised GMP.

Each jurisdiction is encouraged to incorporate other standards and procedures into its GME to support the objectives and required components of this GMP.

2. Adopt a Development Mitigation Program

Each jurisdiction must adopt, or maintain in place, a Development Mitigation Program to ensure that new growth is paying its share of the costs associated with that growth. This program shall consist of both a local program to mitigate impacts on local streets and other facilities, and a regional program to fund regional and subregional transportation projects, consistent with the Countywide Transportation Plan (CTP).

The jurisdiction's local Development Mitigation Program shall ensure that revenue provided from this measure shall not be used to replace private developer funding that has or would have been committed to any project.

The regional Development Mitigation Program shall establish fees, exactions, assessments, or other mitigation measures to fund regional or subregional transportation improvements needed to mitigate the impacts of planned or forecast development. Regional mitigation programs may adjust such fees, exactions, assessments or other mitigation measures when developments are within walking distance of frequent transit service or are part of a mixed-use development of sufficient density and with necessary facilities to support greater levels of walking and bicycling.

Each RTPC shall develop the regional Development Mitigation Program for its region, taking account of planned and forecast growth and the Multimodal Transportation Service Objectives (MTSOs) and actions to achieve them established in the Action Plans for Routes of Regional Significance. RTPCs may use existing regional mitigation programs, if consistent with this section, to comply with the GMP.

3. Address Housing Options

Each jurisdiction shall demonstrate reasonable progress in providing housing opportunities for all income levels as part of a report on the implementation of the actions outlined in its adopted Housing Element. The report will demonstrate progress by:

- Comparing the number of housing units approved, constructed or occupied within the jurisdiction over the preceding five years with the average number of units needed each year to meet the housing objectives established in the jurisdiction's Housing Element; or
- Illustrating how the jurisdiction has adequately planned to meet the existing and projected housing needs through the adoption of land use plans and regulatory systems which provide opportunities for, and do not unduly constrain, housing development; or
- Illustrating how a jurisdiction's General Plan and zoning regulations facilitate the improvement and development of sufficient housing to meet those objectives.

In addition, each jurisdiction shall consider the impacts that its land use and development policies have on the local, regional and countywide transportation system, including the level of transportation capacity that can reasonably be provided, and shall incorporate policies and standards into its development approval process that support transit, bicycle and pedestrian access in new developments.

4. Participate in an Ongoing Cooperative, Multi-Jurisdictional Planning Process

Each jurisdiction shall participate in an ongoing process with other jurisdictions and agencies, the RTPCs and the Authority to create a balanced, safe and efficient



transportation system and to manage the impacts of growth. Jurisdictions shall work with the RTPCs to:

- a. Identify Routes of Regional Significance and MTSOs or other tools adopted by the Authority for measuring performance and quality of service along routes of significance—collectively referred to as MTSOs—for those routes and actions for achieving those objectives;
- b. Apply the Authority’s travel demand model and technical procedures to the analysis of General Plan Amendments and developments exceeding specified thresholds for their effect on the regional transportation system, including on Action Plan objectives;
- c. Create the Development Mitigation Programs outlined in section 2 above; and
- d. Help develop other plans, programs and studies to address other transportation and growth management issues.

In consultation with the RTPCs, each jurisdiction will use the travel demand model to evaluate changes to local General Plans and the impacts of major development projects for their effects on the local and regional transportation system and the ability to achieve the MTSOs established in the Action Plans.

Jurisdictions shall also participate in the Authority’s ongoing countywide comprehensive transportation planning process. As part of this process, the Authority shall support countywide and subregional planning efforts, including the Action Plans for Routes of Regional Significance, and shall maintain a travel demand model. Jurisdictions shall help maintain the Authority’s travel demand modeling system by providing information on proposed improvements to the transportation system and planned and approved development within the jurisdiction.

5. Continuously Comply with an Urban Limit Line (ULL)

In order to be found in compliance with this element of the Authority’s GMP, all jurisdictions must continually comply with an applicable voter approved ULL. Said ULL may either be the Contra Costa County voter approved ULL (County ULL) or a locally initiated, voter approved ULL (LV- ULL).

Additional information and detailed compliance requirements for the ULL are fully defined in the ULL Compliance Requirements, which are incorporated herein.

Any of the following actions by a local jurisdiction will constitute non-compliance with the GMP:

- a. The submittal of an annexation request to the Local Agency Formation Commission (LAFCO) for lands outside of a jurisdiction’s applicable ULL.
- b. Failure to conform to the Authority’s ULL Compliance Requirements.

6. Develop a Five-Year Capital Improvement Program (CIP)

Each jurisdiction shall prepare and maintain a CIP that outlines the capital projects needed to implement the goals and policies of the jurisdiction’s General Plan for at least the following five-year period. The CIP shall include approved projects and an analysis of the costs of the proposed projects as well as a financial plan for providing the improvements. The jurisdiction shall forward the transportation component of its CIP to the Authority for incorporation into the Authority’s database of transportation projects.

7. Adopt a Transportation Systems Management (TSM) Ordinance or Resolution

To promote carpools, vanpools, and park-and-ride lots, each jurisdiction shall adopt a local ordinance or resolution that conforms to the model TSM ordinance that the Authority has drafted and adopted. Upon approval of the Authority, cities/towns with a small employment base may adopt alternative mitigation measures in lieu of a TSM ordinance or resolution.

8. Adopt Additional Growth Management Policies, as applicable

Each jurisdiction shall adopt and thereafter continuously maintain the following policies (where applicable):

- a. Hillside Development Policy;
- b. Ridgeline Protection Policy;
- c. Wildlife Corridor Policy;
- d. Creek Development Policy

Where a jurisdiction does not have a developable hillside, ridgeline, wildlife corridor or creek, it need not adopt the corresponding policy. An ordinance that implements the East Contra Costa Habitat Conservation Plan (HCP)/Natural Community Preservation Plan Act (NCCP) shall satisfy the requirement to have an adopted Wildlife Corridor Policy and Creek Development Policy. In addition to the above, jurisdictions with Prime Farmland and Farmland of Statewide Importance (FMMP) (as defined by the California Dept. of Conservation and mapped by FMMP)

within their planning areas but outside of their city/town shall adopt and thereafter continuously maintain an Agricultural Protection Policy. The policy must ensure that potential impacts of converting FMMP outside the ULL to other uses are identified and disclosed when considering such a conversion. The applicable policies are required to be in place by no later than July 1, 2022.

9. Adopt a Complete Streets Policy and Vision Zero Policy

Each jurisdiction shall adopt a Complete Streets Policy, consistent with the California Complete Streets Act of 2008 (AB 1358) and with the Authority's Complete Streets Policy, which accommodates all users of travel modes in the public right-of-way. Each jurisdiction shall also adopt a Vision Zero Policy which substantially complies with the Authority's Model Vision Zero Policy and reflects best practices for street design elements and programs to mitigate human error and quantifiably improve the traffic safety of all users in the planning, design and construction of projects funded with Measure funds. Jurisdictions shall document their level of effort to implement these policies, including during requests for funding, peer review of project design, and as part of the newly-added compliance requirement in the biennial GMP Checklist.

If the Authority determines that the jurisdiction complies with the requirements of the GMP, it shall allocate to the jurisdiction its share of 2020 TEP funding from the Fix and Modernize Local Roads category and its share of Measure J Transportation Sales Tax Expenditure Plan Local Streets Maintenance & Improvements funding. Jurisdictions may use funds allocated under this provision to comply with these administrative requirements.

If the Authority determines that the jurisdiction does not comply with the requirements of the GMP, the Authority shall withhold those funds and also make a findings that the jurisdiction shall not be eligible to receive Measure J TLC funds until the Authority determines that the jurisdiction has achieved compliance. The Authority's findings of noncompliance may set deadlines and conditions for achieving compliance.

Withholding of funds, reinstatement of compliance, reallocation of funds, and treatment of unallocated funds shall be as established in adopted Authority policies and procedures.

ALLOCATION OF FUNDS

Portions of the monies received from the retail transaction and use tax will be returned to the local jurisdictions (the cities/towns and County) for use on local, subregional and/or regional transportation improvements and maintenance projects. Receipt of all such funds requires compliance with the GMP and the allocation procedures described below. The funds are to be distributed on a formula based on population and road miles.

Each jurisdiction shall demonstrate its compliance with all of the components of the GMP in a completed compliance checklist. The jurisdiction shall submit, and the Authority shall review and make findings regarding the jurisdiction's compliance with the requirements of the GMP, consistent with the Authority's adopted policies and procedures.

Urban Limit Line (ULL) Compliance Requirements

Definitions—the following definitions apply to the GMP ULL requirement:

1. Urban Limit Line (ULL):

A ULL, urban growth boundary, or other equivalent physical boundary judged by the Authority to clearly identify the physical limits of the local jurisdiction's future urban development.

2. Local Jurisdictions:

Includes Contra Costa County, the 19 cities and towns within Contra Costa, plus any newly incorporated cities or towns established after July 1, 2020.

3. County ULL:

County ULL: A ULL placed on the ballot by the Contra Costa County Board of Supervisors, approved by voters at a countywide election, and in effect through the applicable GMP compliance period. The current County ULL was established by Measure L approved by voters in 2006.

The following local jurisdictions have adopted the County ULL as their applicable ULL:

City of Brentwood	Town of Moraga
City of Clayton	City of Oakley
City of Concord	City of Orinda
Town of Danville	City of Pinole
City of El Cerrito	City of Pleasant Hill
City of Hercules	City of Richmond
City of Lafayette	City of San Pablo
City of Martinez	City of Walnut Creek

4. Local Voter ULL (LV-ULL):

Local Voter ULL (LV-ULL): A ULL or equivalent measure placed on the local jurisdiction ballot, approved by the jurisdiction's voters, and recognized by action of the local jurisdiction's legislative body as its applicable, voter-approved ULL. The LV-ULL will be used as of its effective date to meet the Authority's GMP ULL requirement and must be in effect through the applicable GMP compliance period.

The following local jurisdictions have adopted a LV-ULL:

City of Antioch City of Pittsburg
City of San Ramon

5. Minor Adjustment:

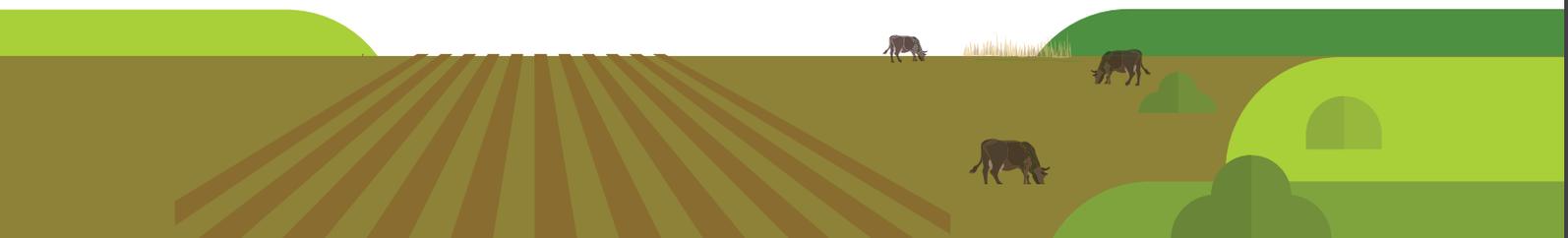
An adjustment to the ULL of 30 acres or less is intended to address unanticipated circumstances.

6. Other Adjustments:

Other adjustments that address issues of unconstitutional takings and conformance to State and Federal law.

REVISIONS TO THE ULL

1. A local jurisdiction which has adopted the County ULL as its applicable ULL may revise its ULL with local voter approval at any time during the term of the Authority's GMP by adopting a LV-ULL in accordance with the requirements outlined for a LV-ULL contained in the definitions section.
2. A local jurisdiction may revise its LV-ULL with local voter approval at any time during the term of the Authority's GMP if the resultant ULL meets the requirements outlined for a LV-ULL contained in the definitions section.
3. If voters, through a countywide ballot measure, approve a revision to the County ULL, the legislative body of each local jurisdiction relying on the County ULL shall:
 - a. Accept and approve its existing ULL to continue as its applicable ULL, or
 - b. Accept and approve the revised County ULL as its applicable ULL, or
 - c. Adopt a LV-ULL in accordance with the requirements outlined for a LV-ULL contained in the definitions section.
 - d. However, if any Countywide measure to approve a revision to the County ULL fails, then the legislative body of each local jurisdiction relying on the prior County ULL may accept and approve the existing County ULL.



4. Local jurisdictions may, without voter approval, enact Minor Adjustments to their applicable ULL subject to a vote of at least 4/5 of the jurisdiction's legislative body and meeting the following requirements:
 - a. Minor adjustment shall not exceed 30 acres.
 - b. Adoption of at least one of the findings listed in the County's Measure L (§82-1.018 of County Ordinances 200606 § 3, 91-1 § 2, 90-66 § 4) which include:
 - A natural or man-made disaster or public emergency has occurred which warrants the provision of housing and/or other community needs within land located outside the ULL.
 - An objective study has determined that the ULL is preventing the jurisdiction from providing its fair share of affordable housing, or regional housing, as required by State law, and the governing elected legislative body finds that a change to the ULL is necessary and the only feasible means to enable the County jurisdiction to meet these requirements of state law.
 - A majority of the cities/towns that are party to a preservation agreement and the county have approved a change to the ULL affecting all or any portion of the land covered by the preservation agreement.
 - A minor change to the ULL will more accurately reflect topographical characteristics or legal boundaries.
 - A five-year cyclical review of the ULL has determined, based on the criteria and factors for establishing the ULL set forth in Contra Costa County Code (Section 82-1.010), that new information is available (from city/town, or County growth management studies or otherwise) or circumstances have changed, warranting a change to the ULL.
 - An objective study has determined that a change to the ULL is necessary or desirable to further the economic viability of the East Contra Costa County Airport, and either (i) mitigate adverse aviation-related environmental or community impacts attributable to Buchanan Field, or (ii) further the County's aviation related needs; or
 - A change is required to conform to applicable California or Federal law.
 - c. Adoption of a finding that the proposed Minor Adjustment will have a public benefit. Said public benefit could include, but is not necessarily limited to, enhanced mobility of people or goods, environmental protections or enhancements, improved air quality or land use, enhanced public safety or security, housing or jobs, infrastructure preservation or other significant positive community effects as defined by the local land use authority. If the proposed Minor Adjustment to the ULL is proposed to accommodate housing or commercial development, said proposal must include permanent environmental protections or enhancements such as the permanent protection of agricultural lands, the dedication of open space or the establishment of permanent conservation easements.
 - d. The Minor Adjustment is not contiguous to one or more non-voter approved Minor Adjustments that in total exceed 30 acres.
 - e. The Minor Adjustment does not create a pocket of land outside the existing ULL, specifically to avoid the possibility of a jurisdiction wanting to fill in those subsequently through separate adjustments.
 - f. Any jurisdiction proposing to process a Minor Adjustment to its applicable ULL that impacts FMMP is required to have an adopted Agricultural Protection Ordinance or must demonstrate how the loss of these agricultural lands will be mitigated by permanently protecting farmland.
5. A local jurisdiction may revise its LV-ULL, and the County may revise the County ULL, to address issues of unconstitutional takings or conformance to State or Federal law.

CONDITIONS OF COMPLIANCE

1. Submittal of an annexation request of greater than 30 acres by a local jurisdiction to LAFCO outside of a voter-approved ULL will constitute non-compliance with the GMP.
2. For each jurisdiction, an applicable ULL shall be in place through each GMP compliance reporting period in order for the local jurisdiction to be found in compliance with the GMP requirements.

Transit Policy

VISION

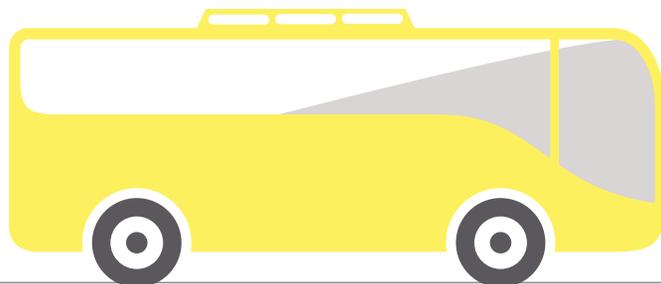
This Transportation Expenditure Plan (TEP) envisions a transportation system that provides reliable, safe, comfortable and convenient access for all users of the transportation system, regardless of mode choice and travel characteristics. The TEP further envisions a public transit system that provides convenient, safe, affordable and reliable service and offers an attractive alternative to private automobile usage. The Transit Policy Vision includes the infrastructure needed to accommodate a more robust transportation system for Contra Costa County that promotes greater use of transit and other shared mobility alternatives by prioritizing the movement of people rather than single-occupancy vehicles across the network. The TEP aims to improve transit countywide and reduce commute travel times, deliver more frequent and reliable service, expand transit service areas and provide better connections to and from transit by various modes of mobility options. Improving the coordination among transit operators and integrating the existing transit systems with new technological tools and platforms to enhance customer access and experience should increase the share of residents and employees who choose public transit. Doing so will reduce congestion, improve air quality, and will accommodate a growing population.

To achieve this vision, the TEP allocates more than one-half of the expected sales tax revenue to Transit and Alternative Modes and approximately one-quarter for local road improvements. In order to provide the maximum benefits to Contra Costa residents, the Contra Costa Transportation Authority (CCTA) adopts the following policies and principles for use of transit funds authorized in the TEP:

POLICY

1. The Policy shall promote Transit-First and guide the development of an Integrated Transit Plan (ITP). In the context of this Policy, Transit-First considers the following to provide a seamless and integrated transportation system:
 - a. Decisions regarding the use of limited public street and sidewalk space shall prioritize the use of public rights of way by pedestrians, bicyclists, and public transit, and shall strive to reduce traffic and improve public health and safety.
 - b. Transit-priority improvements, such as designated transit lanes and streets and improved signalization, shall be made to expedite the movement of public transit vehicles and to improve safety for people who bike and walk.
 - c. Pedestrian areas shall be enhanced wherever possible to improve the safety and comfort of pedestrians and to encourage travel by foot.
 - d. Bicycling shall be promoted by encouraging safe streets for riding, convenient access to transit, bicycle lanes, and secure bicycle parking.
 - e. Parking policies for areas well served by public transit shall be designed to encourage travel by public transit and alternative transportation.
 - f. The ability to reduce traffic congestion depends on the adequacy of regional public transportation. The cities/towns and county shall promote the use of transit and the continued development of an integrated, reliable, regional public transportation system.
 - g. The cities/towns and county shall encourage innovative solutions to meet public transportation needs wherever possible.
2. All transit operators that receive funding from the TEP shall participate in the development of an ITP to identify how to utilize funding to better coordinate and integrate transit services countywide. The ITP should guide how the TEP funding dedicated to Transit and Alternative Modes categories can be used to implement the Transit Policy Vision.
 - a. The ITP will be developed and managed under the leadership of CCTA and the County's transit operators. CCTA and the transit operators shall coordinate with transportation service providers in Contra Costa to inform the development of the ITP. Transit operators shall consult with the Regional Transportation Planning Committees (RTPCs) in developing the ITP.
 - b. The ITP will focus on delivering a streamlined and unified experience for the customer across all modes and transit operators, and should identify transit service investments (i.e. new routes, service hours,

- frequency), capital projects/assets (i.e. transit centers, bus stops, stop amenities, vehicles), and transit priority measures (i.e. transit signal priority, bus lanes, queue jumps) to be funded from the TEP.
- c. Transit operators, cities/towns and county shall coordinate regarding planned improvements for signal synchronization, Complete Streets and Vision Zero elements, as well as other locally-owned infrastructure investments that could benefit transit.
 - d. Prioritization for TEP funding should consider projects that can leverage other state, federal or local funding.
 - e. The ITP shall be updated at least every five years to address new technology opportunities, any changes in demand and other conditions.
3. Transit operators in Contra Costa County shall incorporate the findings and recommendations of the ITP pertinent to each operator's service area into their respective Short-Range Transit Plans (SRTP). The SRTPs shall be reviewed for consistency with the ITP associated with this TEP.
 4. Allocations pursuant to this TEP will be made in support of the recommendations in the ITP. Any recommendations in the ITP shall include performance measures to achieve continued funding.
 5. CCTA expects that transit operating funds from the TEP be used to support the vision of this policy. In the event that TEP funds must be used to support other transit services as a result of reduction of operating funds from other sources, the transit operator shall update its SRTP and submit to CCTA.
 6. CCTA expects that public agencies and transit operators leverage new and emerging technologies to improve service and to address first-mile/last-mile connections between transit stops and other traveler destinations. These technologies may include, but not be limited to, ride hailing partnerships, autonomous shuttles, shared mobility (bikes, scooters, cars), and mobility on demand platforms that best fit within each transit operators service area. The ITP should address how these technology services function within and among service boundaries and provide a seamless experience countywide for customers.
 7. CCTA expects that recipients of TEP funding create, analyze and **seize opportunities for** fare and schedule integration among transit operators and any technology services adopted. Focus should be placed on reducing inconveniences associated with transferring between services and on having a cost-effective universally accepted digital payment method. The ITP should address how Contra Costa transit operators can maximize benefits of fare payment and schedule integration.



Complete Streets Policy

VISION

This Plan envisions a transportation system and infrastructure in which each component provides safe, comfortable and convenient access for users of all ages and abilities. These users include pedestrians, bicyclists, transit riders, automobile drivers, taxis, Transportation Network Companies (TNCs) and their passengers, truckers, as well as people of varying abilities, including children, seniors, people with disabilities, and able-bodied adults. The goal of every transportation project is to provide safer, more accessible facilities for all users. All projects shall be planned, designed, constructed and operated to prioritize users' life safety and accommodate the Complete Streets concept.

By making streets more efficient and safer for all users, a Complete Streets approach will expand capacity and improve mobility for all users, giving commuters convenient options for travel and minimizing the need to widen roadways.

POLICY

To achieve this vision, all recipients of funding through this Plan shall consider and accommodate, wherever possible and subject to the exceptions listed in this Policy, the needs of all users in the planning, design, construction, reconstruction, rehabilitation and maintenance of the transportation system. This determination shall be consistent with the exceptions listed below. Achieving this vision will require balancing the needs of different users and may require reallocating existing Right-of-Way (ROW) for different uses.

The Authority shall revise its project development guidelines to require the consideration and accommodation of all users in the design and construction of projects funded with Measure funds and shall adopt peer review and design standards to implement that approach. The guidelines will allow flexibility in responding to the context of each project and the needs of users specific to the project's context and will build on accepted best practices for complete streets and context-sensitive design.

To ensure that this policy is carried out, the Authority shall prepare a checklist that sponsors of projects using Measure funds must submit which documents how the

needs of all users were considered and how they were accommodated in the design and construction of the project. In the checklist, the sponsor will outline how they provided opportunity for public input, in a public forum, from all users early in the project development and design process. If the proposed project or program will not provide context appropriate conditions for all users, the sponsor shall document the reasons why in the checklist, consistent with the following section on "exceptions" below. The completed checklist shall be made part of the approval of programming of funding for the project or the funding allocation resolution.

Recipients of 2020 TEP funding for Fix and Modernize Local Roads and Measure J TEP funding from Local Maintenance and Improvements shall adopt procedures that ensure that all agency departments consider and accommodate the needs of all users for projects or programs affecting public ROW for which the agency is responsible. These procedures shall:

1. Be consistent the California Complete Streets Act of 2008 (AB 1358);
2. Be consistent with and be designed to implement each agency's General Plan Policies once that plan has been updated to comply with the California Complete Streets Act of 2008 and the Authority's Complete Streets Policy;
3. Involve and coordinate the work of all agency departments and staff whose projects will affect the public ROW;
4. Consider the Complete Street design standards adopted by the Authority;
5. Be consistent with the adopted Local Jurisdiction Complete Streets Policy and Authority's Complete Street Policy herein;
6. Promote proactive data collection and traffic system monitoring using next generation technology, such as advance detection systems;
7. Provide opportunity for public review by all potential users early in the project development and design phase so that options can be fully considered. This review could be done through an advisory committee such as a Bicycle and Pedestrian Advisory Committee or as part of the review of the agency's CIP.

As part of their biennial GMP checklist, agencies shall list projects funded by the Measure and detail how those projects accommodated users of all modes by applying Transit, Complete Streets and Vision Zero Policies.

As part of the multi-jurisdictional planning required by the GMP, agencies shall work with the Authority and the RTPCs to harmonize the planning, design, and construction of transportation facilities for all modes within their jurisdiction with the plans of adjoining and connecting jurisdictions.

EXCEPTIONS

Project sponsors may provide a lesser accommodation or forgo Complete Street accommodation components when the public works director or equivalent agency official finds that:

1. Pedestrians, bicyclists, or other users are prohibited by law from using the transportation facility;
2. The cost of new accommodation would be excessively disproportionate to the need or probable use; or
3. The sponsor demonstrates that, such accommodation is not needed, based on objective factors including:
 - a. Current and projected user demand for all modes based on current and future land use; and
 - b. Lack of identified conflicts, both existing and potential, between modes of travel.

Project sponsors shall explicitly approve exceptions findings as part of the approval of any project using measure funds to improve streets classified as a major collector or above.¹ Prior to this project sponsors must provide an opportunity for public input at an approval body (that regularly considers design issues) and/or the governing board of the project sponsor.

¹ Major Collectors and above, as defined by the California Department of Transportation (Caltrans) California Road System (CRS) map.

Advance Mitigation Program

The Authority is committed to participate in the creation and funding of an Advance Mitigation Program (AMP) as an innovative way to advance needed infrastructure projects more efficiently and provide more effective conservation of our natural resources, watersheds and wetlands, and agricultural lands. As a global biodiversity hot spot, the Bay Area and Contra Costa County hosts an extraordinarily rich array of valuable natural communities and ecosystems that provide habitat for rare plants and wildlife, and that supports residents' health and quality of life by providing clean drinking water, clean air, opportunities for outdoor recreation, protection from disasters like flooding, landslides, and adaptation to climate change.

Assembly Bill No. 2087 (AB 2087) outlines a program for informing science-based, non-binding, and voluntary conservation actions and habitat enhancement actions that would advance the conservation of focal species, natural communities, and other conservation elements at a regional scale. The amp used AB 2087 and subsequent guidance to integrate conservation into infrastructure agencies' plans and project development well in advance and on a regional scale to reduce potential impacts of transportation projects, as well as to drive mitigation dollars to protect regional conservation priorities and protect important ecological functions, watersheds and wetlands, and agricultural lands that are at threat of loss. The AMP will provide environmental mitigation activities specifically required under the California Environmental Quality Act of 1970 (CEQA), National Environmental Policy Act of 1969 (NEPA), Clean Water Act Section 401 and Section 404, and other applicable regulations in the implementation of the major highway, transit and regional arterial and local streets and roads projects identified in the Plan. Senate Bill 1 (SB 1) (2017) created the AMP at Caltrans to enhance opportunities for the department to work with stakeholders to identify important project mitigation early in the project development process and improve environmental outcomes from mitigating the effects of transportation projects. The Authority's AMP compliments advance mitigation funding from SB 1.

The Authority's participation in an AMP is subject to the following conditions:

1. Development and approval of a Regional Conservation Investment Strategy (RCIS) that identifies conservation priorities and mitigation opportunities for all of Contra Costa County. The RCIS established conservation goals and includes countywide opportunities and strategies that are, among other requirements, consistent with and support the East Contra Costa Habitat Conservation Plan (HCP)/Natural Community Preservation Plan Act (NCCP). The RCIS will identify mitigation opportunities for all areas of the County to ensure that mitigation occurs in the vicinity of the project impact to the greatest extent possible. The Authority will review and approve the RCIS, in consultation with the RTPCs, prior to the allocation of funds for the AMP.
2. Development of a Project Impacts Assessment (PIA) that identifies the portfolio of projects to be included in the Advance Mitigation Program and the estimated costs for mitigation of the environmental impacts of the projects. The Authority will review and approve the PIA prior to the allocation of funds for the AMP. The PIA and estimated costs do not in any way limit the amount of mitigation that may be necessary or undertaken for the environmental impacts of the projects.
3. Development of the legislative and regulatory framework necessary to implement an AMP in Contra Costa County.
4. The identification of the Implementing Agency to administer the AMP for Contra Costa County or portions of the Bay Area including Contra Costa County.

The Authority will determine the amount of funds to be dedicated to this program following the satisfaction of the above conditions. Funds from the Plan will be allocated consistent with the Regional Conservation Assessment/ Framework to fund environmental mitigation activities required in the implementation of the major highway, transit and regional arterial and local streets and roads projects identified in the Plan. If this approach cannot be fully implemented, these funds shall be used for environmental mitigation purposes on a project by project basis. Mitigation required for future transportation improvements identified in the Plan are not limited by the availability of funding or mitigation credits available in the Program.

All projects funded from the TEP are eligible for inclusion in the AMP. Note that some projects are within the East Contra Costa County HCP / NCCP. The AMP provides an opportunity to meet species mitigation needs on projects that cannot be met by East Contra Costa County HCP/ NCCP.



Taxpayer Safeguards and Accountability

GOVERNING STRUCTURE

Governing Body and Administration

The Authority is governed by an Authority Board composed of 11 members, all elected officials, with the following representation:

- Two members from the Central County Regional Transportation Planning Commission (RTPC) also referred to as Transportation Partnership and Cooperation (TRANSPAC)
- Two members from the East County RTPC, also referred to as East County Transportation Planning Committee (TRANSPLAN)
- Two members from the Southwest County RTPC, also referred to as Southwest Area Transportation Committee (SWAT)
- Two members from the West County RTPC, also referred to as West County Contra Costa County Transportation Advisory Committee (WCCTAC)
- One member from the Conference of Mayors; and
- Two members from the Board of Supervisors

The Authority Board also includes three (3) ex-officio, non-voting members, appointed by the MTC, BART, and the Public Transit Operators in Contra Costa County.

The four subregions within Contra Costa: Central, West, Southwest and East County are each represented by a Regional Transportation Planning Commission (RTPC). Central County (TRANSPAC subregion) includes Clayton, Concord, Martinez, Pleasant Hill, Walnut Creek and the unincorporated portions of Central County. West County (WCCTAC subregion) includes El Cerrito, Hercules, Pinole, Richmond, San Pablo, and the unincorporated portions

of West County. Southwest County (SWAT subregion) includes Danville, Lafayette, Moraga, Orinda, San Ramon and the unincorporated portions of Southwest County. East County (TRANSPLAN subregion) includes Antioch, Brentwood, Oakley, Pittsburg and the unincorporated portions of East County.

Public Oversight Committee

The Public Oversight Committee (POC) shall provide diligent, independent and public oversight of all expenditures of Measure funds by Authority or recipient agencies (County, cities/towns, transit operators, etc.). The POC will report to the public and focus its oversight on the following:

- Review of allocation and expenditure of Measure funds to ensure that all funds are used consistent with the Measure;
- Review of fiscal audits of Measure expenditures;
- Review of performance audits of projects and programs relative to performance criteria established by the Authority, and if performance of any project or program does not meet its established performance criteria, identify reasons why and make recommendations for corrective actions that can be taken by the Authority Board for changes to project or program guidelines;
- Review of application of the Performance-based Review Policy;
- Review of the maintenance of effort compliance requirements of local jurisdictions for local streets, roads and bridges funding; and
- Review of each jurisdiction's GMP Checklist and compliance with the GMP Policies.

The POC shall prepare an annual report including an account of the POC's activities during the previous year, its review and recommendations relative to fiscal or



performance audits, and any recommendations made to the Authority Board for implementing the TEP. The report will be noticed in local media outlets throughout Contra Costa County, posted to the Authority website and made continuously available for public inspection at Authority offices. The report shall be composed of easy-to-understand language that is not produced in an overly technical format. The POC shall make an annual presentation to the Authority Board summarizing the annual report subsequent to its release.

POC members shall be selected to reflect community, business organizations and other interests within the County. The goal of the membership makeup of the POC is to provide a balance of viewpoints including but not limited to geography, age, gender, ethnicity and income status to represent the different perspectives of the residents of Contra Costa County. One member will be nominated by each of the four subregions with the RTPCs representing the subregion nominating the member. The Board of Supervisors will nominate four members, with each of these four members residing in and representing one of the County's four subregions. Eight members will be nominated by each respective organization detailed here, with each having one representative: League of Women's Voters, Contra Costa Taxpayers Association, East Bay Leadership Council, Building and Construction Trades Council, Central Labor Council, Paratransit Coordinating Council (PCC), Bike East Bay, and environmental and/or open space organizations operating in Contra Costa County (specific organization may vary during the life of the Measure). About one-half of the initial member appointments will be for two years and the remaining appointments will be for three-year terms. Thereafter, members will be appointed to two-year terms. Any individual member can serve on the POC for no more than 6 consecutive years.

POC members will be Contra Costa County residents who are not elected officials at any level of government or public employees from agencies that either oversee or benefit from the proceeds of the Measure. Membership is restricted to individuals with no economic interest in any of Authority's projects or programs. If a member's status changes so that he/she no longer meet these requirements, or if a member resigns his/her position on the POC, the Authority Board will issue a new statement of interest from the same stakeholder category to fill the vacant position.

The POC shall meet up to once a month to carry out its responsibility and shall meet at least once every 3 months. Meetings shall be held at the same location as

the Authority Board meetings are usually held, shall be open to the public and must be held in compliance with California's open meeting law (The Brown Act). Meetings shall be recorded and the recordings shall be posted for the public.

Members are expected to attend all meetings. If a member, without good reason acceptable to the Chair of the POC, fails to attend either (a) two or more consecutive meetings or (b) more than 3 meetings a year, the Authority Board will request a replacement from the stakeholder categories listed above.

The Authority commits to support the oversight process through cooperation with the POC by providing access to project and program information, audits, and other information available to the Authority, and with logistical support so that the POC may effectively perform its oversight function. The POC will have full access to Authority's independent auditors and may request Authority staff briefings for any information that is relevant to the Measure. The POC Chair shall inform the Authority Board Chair and Executive Director of any concern regarding Authority staff's commitment to open communication, the timely sharing of information, and teamwork.

The POC shall not have the authority to set policy or appropriate or withhold funds, nor shall it participate in or interfere with the selection process of any consultant or contractor hired to implement the TEP.

The POC shall not receive monetary compensation except for the reimbursement of travel or other incidental expenses in a manner consistent with other Authority advisory committees.

In order to ensure that the oversight by the POC continues to be as effective as possible, the efficacy of the POC Charter (i.e. this document) will be evaluated on a periodic basis and a formal review will be conducted by the Authority Board, Executive Director and the POC a minimum of every five years to determine if any amendments to this Charter should be made. The formal review will include a benchmarking of the Committee's activities and Charter with other best-in-class oversight committees. Amendments to this Charter shall be proposed by the POC and adopted or rejected by the Authority Board.

The POC replaces the Authority's existing Citizens Advisory Committee (CAC).

Advisory Committees

The Authority will continue the committees that were established as part of the Transportation Partnership Commission organization as well as other committees that have been utilized by the Authority to advise and assist in policy development and implementation. The committees include:

The RTPCs that were established to develop transportation plans on a geographic basis for sub-areas of the County, and

- The Technical Coordinating Committee (TCC) that will serve as the Authority's technical advisory committee;
- Paratransit Coordinating Council (PCC);
- The Countywide Bicycle and Pedestrian Advisory Committee (CBPAC);
- Bus Transit Coordinating Committee (BTCC)

IMPLEMENTING GUIDELINES

This TEP is guided by principles that ensure the revenue generated by the sales tax is spent only for the purposes outlined in this TEP in the most efficient and effective manner possible, consistent with serving the transportation needs of Contra Costa County. The following Implementing Guidelines shall govern the administration of sales tax revenues by the Authority. Additional detail for certain Implementing Guidelines is found elsewhere in this TEP.

Duration of the TEP

The duration of the TEP shall be for 30 years from July 1, 2020 through June 30, 2050.

Administration of the Plan

- 1. Funds only Projects and Programs in the TEP:**
Funds collected under this Measure may only be spent for purposes identified in the TEP, as it may be amended by the Authority governing body. Identification of Projects or Programs in the Plan does not ensure their implementation. As authorized, the Authority may amend or delete Projects and Programs identified in the Plan, including to provide for the use of additional federal, state and local funds, to account for unexpected revenue, to

maintain consistency with the current Contra Costa CTP, to take into consideration unforeseen circumstances, and to account for impacts, alternatives, and potential mitigation determined during review under the California Environmental Quality Act (CEQA) at such time as each project and program is proposed for approval.

- 2. All Decisions Made in Public Process:**

The Authority is given the fiduciary duty of administering the transportation sales tax proceeds in accordance with all applicable laws and with the TEP. Activities of the Authority will be conducted in public according to state law, through publicly noticed meetings. The annual budgets of Authority, strategic delivery plans and annual reports will all be prepared for public review. The interest of the public will be further protected by the POC, described previously in the TEP.

- 3. Salary and Administration Cost Caps:**

Revenues may be expended by the Authority for salaries, wages, benefits, overhead, and those services including contractual services necessary to administer the Measure; however, in no case shall the expenditures for the salaries and benefits of the staff necessary to perform administrative functions for the Authority exceed one percent (1%) of revenues from the Measure. The allocated costs of Authority staff who directly implement specific projects or programs are not included in the administrative costs.

- 4. Expenditure Plan Amendments Require Majority Support:**

The Authority may review and propose amendments to the TEP and the GMP to provide for the use of additional federal, state and local funds, to account for unexpected revenues, or to take into consideration unforeseen circumstances. Affected RTPCs will participate in the development of the proposed amendment(s). A majority of the Authority Board is required to approve an amendment and all jurisdictions within the County will be given a 45-day period to comment on any proposed TEP.

- 5. Augment Transportation Funds:**

Funds generated pursuant to the Measure are to be used to supplement and not replace existing local revenues used for transportation purposes. Any funds already allocated, committed or otherwise included in the financial plan for any project in the TEP shall be made available for project development and implementation as required in the project's financial and implementation program.

6. Jurisdiction:

The Authority retains sole discretion regarding interpretation, construction, and meaning of words and phrases in the TEP.

Taxpayer Safeguards, Audits and Accountability**7. Public Oversight Committee (POC):**

The POC will provide diligent, independent and public oversight of all expenditures of Measure funds by Authority or recipient agencies (County, cities/towns, transit operators, etc.). The POC will report to the public and focus its oversight on annual audits, the review and allocation of Measure funds, the performance of projects and programs in the TEP, and compliance by local jurisdictions with the maintenance of effort and GMP described previously in the TEP.

8. Fiscal Audits:

All funds expended by the Authority directly and all funds allocated by formula or discretionary grants to other entities are subject to fiscal audit. Recipients of Measure funds (including but not limited to County, cities/towns and transit operators) will be audited at least once every five (5) years, conducted by an independent CPA. Any agency found to be in non-compliance shall have its formula sales tax funds withheld, until such time as the agency is found to be in compliance.

9. Performance Audits:

All funding categories shall be subject to performance audits by the Authority. Each year, the Authority shall select and perform a focused performance audit on two or three of the funding categories, so that at the end of the fourth year all funding categories are audited. This process shall commence two years after passage of the new sales tax measure. Additional Performance Audits shall continue on a similar cycle for the duration of the TEP. The performance audits shall provide an accurate quantitative and qualitative evaluation of the funding categories to determine the effectiveness in meeting the performance criteria established by the Authority. In the event that any performance audit determines that a funding category is not meeting the performance requirements established by the Authority, the audit shall include recommendations for corrective action including but not limited to revisions to Authority policies or program guidelines that govern the expenditure of funds.

10. Maintenance of Effort (MOE):

Funds generated by the new sales tax Measure are to be used to supplement and not replace existing local revenues used for streets and highways purposes. The basis of the MOE requirement will be the average of expenditures of annual discretionary funds on streets and highways, as reported to the Controller pursuant to Streets and Highways Code Section 2151 for the three most recent fiscal years before the passage of the Measure where data is available. The average dollar amount will then be increased once every three years by the construction cost index of that third year. Penalty for non-compliance of meeting the minimum MOE is immediate loss of all 2020 TEP funding from Fix and Modernize Local Roads and Measure J TEP funding from Local Streets Maintenance and Improvements funds until MOE compliance is achieved. The audit of the MOE contribution shall be at least once every five years. Any agency found to be in non-compliance shall be subject to annual audit for three years after they come back into compliance.

Any local jurisdiction wishing to adjust its MOE requirement shall submit to the Authority a request for adjustment and the necessary documentation to justify the adjustment. The Authority staff shall review the request and shall make a recommendation to the Authority Board. Taking into consideration the recommendation, the Authority Board may adjust the annual average of expenditures reported pursuant to Streets and Highways Code Section 2151. The Authority shall make an adjustment if one or more of the following conditions exists:

- a. The local jurisdiction has undertaken one or more major capital projects during those fiscal years, that required accumulating unrestricted revenues (i.e., revenues that are not restricted for use on streets and highways such as general funds) to support the project during one or more fiscal years.
- b. A source of unrestricted revenue used to support the major capital project or projects is no longer available to the local jurisdiction and the local jurisdiction lacks authority to continue the unrestricted funding source.
- c. One or more sources of unrestricted revenues that were available to the local jurisdiction is producing less than 95 percent of the amount produced in those fiscal years, and the reduction is not caused by any discretionary action of the local jurisdiction.

d. The local jurisdiction Pavement Condition Index (PCI) is 70 or greater, as calculated by the jurisdiction Pavement Management System and reported to the MTC, and the jurisdiction has implemented its synchronized signals plan, and its Complete Streets, Vision Zero, and Transit First policies.

11. Annual Budget and Strategic Delivery Plan:

Each year, the Authority will adopt an annual budget that estimates expected sales tax receipts, other anticipated revenue and planned expenditures for the year. On a periodic basis, the Authority will also prepare a Strategic Delivery Plan which will identify the priority for projects; the date for project implementation based on project readiness and availability of project funding; the State, Federal and other local funding committed for project implementation, and other relevant criteria. The annual budget and Strategic Delivery Plan will be adopted by the Authority Board at a public meeting.

12. Requirements for Fund Recipients:

All recipients of funds allocated in this TEP will be required to sign a Master Cooperative Agreement that defines reporting and accountability elements and as well as other applicable policy requirements. All funds will be appropriated through an open and transparent public process.

13. Geographic Equity:

The proposed projects and programs to be funded through the TEP constitute a proportional distribution of funding allocations to each subregion in Contra Costa County. The subregional share of projected revenue is based on each subregion's share of the projected overall population in Contra Costa County at the midpoint of the measure. RTPCs must approve any revisions to the proportional distribution of funding allocations in the TEP and Strategic Delivery Plan.

Restrictions on Funds

14. Expenditure Shall Benefit Contra Costa County:

Under no circumstance may the proceeds of this transportation sales tax be applied for any purpose other than for transportation improvements benefiting residents of Contra Costa County. Under no circumstance may these funds be appropriated by the State of California or any other local government agency as defined in the implementing guidelines.

15. Environmental Review:

All projects funded by sales tax proceeds are subject to laws and regulations of Federal, State, and local government, including the requirements of the California Environmental Quality Act (CEQA). Prior to approval or commencement of any project or program included in the TEP, all necessary environmental review required by CEQA shall be completed.

16. Performance-based Project Review:

Before the allocation of any Measure funds for the construction of a project with an estimated cost in excess of \$10 million (or elements of a corridor project with an overall estimated cost in excess of \$10 million), the Authority will: 1) verify that the project is consistent with the approved CTP, as it may be amended, 2) verify that the project is included in the Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), and 3) require the project sponsor to complete a performance-based review of project alternatives prior to the selection of a preferred alternative. Said performance-based review will include, but not necessarily be limited to, an analysis of the project impacts on greenhouse gas (GHG) emissions, vehicle miles traveled (VMT), goods movement effectiveness, travel mode share, delay (by mode), safety, maintenance of the transportation system, other environmental effects and consistency with adopted Authority plans. The Authority may require the evaluation of other performance criteria depending on the specific need and purpose of the project. The Authority will expect project sponsors to identify and select a project alternative that reduces GHG emissions as well as VMT per capita. The Authority will also prioritize and reward high performing projects by leveraging additional regional and other funding sources. The Authority shall employ a public process to develop and adopt detailed guidelines for evaluating project performance and applying performance criteria in the review and selection of a preferred project alternative no later than October 1, 2022.

There will be additional performance-based reviews for actions in four categories of expenditure: Improve Walking and Biking on Streets and Trails; Countywide Major Road Improvement Program; Reduce Emissions and Improve Air Quality; and, Seamless Connected Transportation Options. The additional review guidelines are outlined in Sections 30-33 of these Implementing Guidelines.

17. Countywide Transportation Plan (CTP):

State law allows each county in the San Francisco Bay Area that is subject to the jurisdiction of the regional transportation planning agency to prepare a CTP for the County and cities/towns within the County. Both Measure C and Measure J also require the Authority to prepare and periodically update a CTP for Contra Costa County. State law also created an inter-dependent relationship between the CTP and regional planning agency. Each CTP must consider the region's most recently adopted Regional Transportation Plan (RTP) and Sustainable Communities Strategy (SCS) while the adopted CTPs must form the "primary basis" for the next RTP and SCS. The Authority shall follow applicable statutes and the most current guidelines for preparing the CTP, as established and periodically updated by the regional transportation planning agency. The Authority shall also use the CTP to convey the Authority's investment priorities, consistent with the long-range vision of the RTP and SCS.

18. Complete Streets:

The Authority has adopted a policy requiring all recipients of funding through this TEP to consider and accommodate, wherever possible, the needs of all users in the planning, design, construction, reconstruction, rehabilitation and maintenance of the transportation system. Achieving this vision will require balancing the needs of different users and may require reallocating existing ROW for different uses.

19. Compliance with the GMP:

If the Authority determines that a jurisdiction does not comply with the requirements of the GMP, the Authority shall withhold funds and also make a finding that the jurisdiction shall not be eligible to receive 2020 TEP funding from Fix and Modernize Local Roads and Measure J TEP funding from Local Streets Maintenance & Improvements funding until the Authority determines the jurisdiction has achieved compliance, as detailed in the GMP section of the TEP.

20. Local Contracting and Good Jobs:

Authority will develop a policy supporting the hiring of local contractors and businesses, including policy requiring prevailing wages, apprenticeship programs for Contra Costa County residents, and veteran hiring policy (such as the Helmets to Hardhats program).

21. New Agencies:

New cities/towns or new entities (such as new transit agencies) that come into existence in Contra Costa County during the life of the TEP may be considered as eligible recipients of funds through a TEP amendment.

22. Integrated Transit Plan (ITP):

The Authority has adopted a Transit Policy that envisions a public transit system which provides convenient, safe, affordable and reliable service that offers an attractive alternative to private automobile usage. In order to achieve this vision, the Authority and transit operators will develop an ITP to identify how Contra Costa County transit operators can utilize TEP funding to better coordinate and integrate their services. This ITP will focus on delivering a streamlined and unified experience for the customer across all modes and transit operators. Allocations pursuant to this TEP will be made in support of the findings and recommendations included in the ITP.

All transit operators who receive funding from the TEP shall participate in the development of an ITP. Transit operators shall consult with the RTPCs in developing the ITP, and cities, towns and the county, as applicable, regarding TEP funding for signal synchronization, complete streets and other investments that could benefit transit. Transit operators shall incorporate the findings and recommendations of the ITP their respective Short Range Transit Plans.

CCTA expects that transit operating funds from the Transportation Expenditure Plan be used to support new service, not to subsidize existing transit service. In the event that TEP funds must be used to subsidize existing services as a result of the reduction of operating funds from other sources or due to other financial concerns, the transit operator shall update its Short Range Transit Plan and notify the Authority.

23. Affordable Transportation for Seniors, Veterans, and People with Disabilities:

An Accessible Transportation Service (ATS) Strategic Plan will be developed and periodically updated during the term of the Measure. No funding under the Affordable Transportation for Seniors, Veterans, and People with Disabilities category will be allocated until the ATS Strategic Plan has been developed and adopted. No funds may be distributed to a service provider before it adopts the plan except as noted below. The development and delivery of the ATS Strategic Plan will focus on using mobility management to ensure coordination and efficiencies in accessible service delivery. The ATS Strategic Plan will address both Americans with Disabilities Act (ADA) and non-ADA services. The ATS Strategic Plan will evaluate the appropriate model for our local structure including how accessible services are delivered by all service

providers and where appropriate coordination can improve transportation services, eliminate gaps in service and find efficiencies in the service delivered. The ATS Strategic Plan will also determine the investments and oversight of the program funding and identify timing, projects, service delivery options, administrative structure, and fund leverage opportunities.

The ATS Strategic Plan will be developed by the Authority, in consultation with direct users of service, stakeholders representing seniors and people with disabilities who face mobility barriers, and non-profit and publicly operated paratransit service providers. Public transit operators in Contra Costa must participate in the ATS planning process to be eligible to receive funding in this category. The ATS Strategic Plan must be adopted no later than December 31, 2020. The development of the ATS Strategic Plan will not affect the allocation of funds to current operators as prescribed in the existing Measure J Expenditure Plan.

24. Safe Transportation for Youth and Children.

Prior to an allocation of funds from the Safe Transportation for Youth and Children category, the Authority will employ a public process to develop and adopt program guidelines and performance assessment procedures to maximize effectiveness. The guidelines and performance assessment may require provisions such as operational efficiencies, performance criteria, parent contributions, and reporting requirements. The guidelines will be developed in coordination with the RTPCs to develop the program that meets the needs within each subregion. Funding will be allocated to subregions and program funding will be subject to the publicized performance assessment conducted by Authority (see item 16 in this policy section). The development of the program guidelines and performance assessment procedures will not affect the allocation of funds to current programs as described in the existing Measure J expenditure plan.

25. Enhance Ferry Service and Rail Connectivity in Contra Costa County:

All projects funded in the Enhance Ferry Service and Commuter Rail in Contra Costa category will be evaluated by the Authority and demonstrate progress toward the Authority's goals of reducing VMT and GHG emissions. Selection of final projects to be based on a performance analysis of project alternatives consistent with Authority requirements. Proposed projects must be included in and conform with the ITP. Project sponsors requesting funding from this category will be required to prepare a feasibility and operations plan and submit to the Authority to demonstrate there sufficient funding is available to operate the proposed project and/or service.

26. BART Maintenance of Effort (MOE):

Prior to any appropriation, allocation or reimbursement of funds to BART, the Authority Board shall make a finding that BART has continued to use a proportional share of its operating allocations for capital projects. BART's preliminary FY 2019 Budget forecasts approximately \$150 million of its operating allocations to capital projects. BART shall demonstrate that it continues to use an equivalent proportional share of its operating revenues for capital projects allowing for normal annual fluctuations in capital projects or maintenance expenditures. In years where BART fare revenues or other general fund revenues are reduced by a decrease in ridership or unforeseen economic circumstances, loss of regional, State or Federal funding, or where one-time costs are increased by a natural disaster, then the Authority may release funds only if the Authority Board makes findings that 1) BART has not reduced its capital project funding disproportionately to the total operating revenue and 2) BART made best efforts to fund capital projects that benefit Contra Costa County.

27. Cleaner, Safer BART:

Prior to making an allocation of funds to BART for the Cleaner, Safer BART category, BART shall develop and submit a countywide plan to the Authority that proposes how these funds and other funds available to BART (including Measure RR, Regional Measure 3, and other funds) will be used as part of a system-wide effort to improve its stations to meet the goals described in the TEP. The funding from the Cleaner, Safer BART category will be used for improvements to stations in Contra Costa County and requires a minimum dollar-for-dollar match from other BART funds. The plan should document how a system-wide program to improve BART stations benefits Contra Costa residents who travel outside the county. BART should consult with the Authority, (in consultation with RTPCs) in the development of the countywide plan.

In the event BART completes the train control system and if BART has maintained the commitment to provide a minimum dollar-for-dollar match from other BART funds as describe above, the Authority (in consultation with RTPCs) and BART will jointly identify and the Authority may allocate funds for the acquisition of additional new BART cars to increase frequency during periods of high demand. The allocation will be considered in conjunction with a periodic review of the TEP (see item 37 in this policy section) and available funding capacity in the TEP.

28. Improve Local Access to Highway 4 and Byron Airport:

Prior to each allocation of funds from the Improve Local Access to Highway 4 and Byron Airport category, the Authority Board must make a finding that the project includes measures to prevent growth outside of the Urban

Limit Lines (ULL). Such measures might include, but are not necessarily limited to, limits on roadway access in areas outside the ULL, purchase of abutters' rights of access, preservation of critical habitat and/or the permanent protection/acquisition of agricultural and open space or performing conservation measures required to cover this project under the East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP). With the exception of the proposed new connection between Vasco Road and the Byron Highway, funding from this category shall not be used to construct new roadways on new alignments. The Authority will coordinate with Alameda and/or San Joaquin Counties relative to project improvements in those jurisdictions.

29. Modernize Local Roads and Improve Access to Housing and Jobs Centers:

Each jurisdiction in Contra Costa County will receive their share of 15% of annual sales tax revenues calculated using a base allocation of \$100,000 per year plus additional funds distributed based half on relative population and half on road miles within each jurisdiction. In addition, jurisdictions in Central, East and Southwest will receive their share of an additional allocation of 3% of annual sales tax revenue calculated using the same formula. Population figures used shall be the most current available from the State Department of Finance. Road mileage shall be from the most current information included in the Highway Performance Monitoring System (HPMS). Jurisdictions shall comply with the Authority's Maintenance of Effort (MOE) policy as well as Implementation Guidelines of this TEP. In addition to the requirements set forth in the Growth Management Program / Urban Limit Line Compliance policies and other applicable policies, local jurisdictions will report on the use of these funds, such as the amount spent on roadway maintenance, bicycle and pedestrian facilities, transit facilities, and other roadway improvements.

30. Countywide Major Roads Improvement Program:

Prior to an allocation of funds from the Improve Traffic Flow on Major Roads category, the Authority will develop a new Countywide Major Roads Improvement Program to address congestion relief on major roads within each subregion. The program guidelines will include information regarding how to evaluate the range of possible components. Implementation guidelines and standards will be developed in coordination with the RTPCs and approved by the Authority Board. Project funding is subject to a performance assessment conducted by Authority using approved and publicized guidelines with exception that the assessment will be required for any project over five million dollars or a series of related

projects which have cumulative costs exceeding five million dollars. Funds are allocated to subregions in the expenditure plan. If projects proposed by an RTPC do not meet performance standards, project is either modified or withdrawn in favor of another project from the same region. Funds in this category may be used for arterial refurbishment/redesign for transit first and complete streets. Projects funded from the Improve Traffic Flow on Major Roads must conform to the Transit, Complete Streets, Vision Zero and other related policies.

31. Improve Walking and Biking on Streets and Trails:

Prior to an allocation of funds from the Improve Walking and Biking on Streets and Trails category, the Authority will develop and adopt program guidelines and standards for a competitive project selection process. All projects will be selected through a competitive project selection process with the Authority approving the final program of projects, allowing for a comprehensive countywide approach while recognizing subregional equity based upon the proportional funding share shown in the TEP. Project funding is subject to a performance assessment conducted by Authority using approved and publicized guidelines (see item 30 in this policy section). Projects funded from this category must comply with the Transit, Vision Zero, and Complete Streets Policies and include complete street elements whenever possible.

Up to fifteen million dollars within each subregion for a total of sixty million dollars (\$60 million) will be allocated to Complete Street demonstration projects. Each demonstration project will be recommended by the relevant Regional Transportation Planning Committees and approved by the Authority prior to allocation of funds to demonstrate the successful implementation of Complete Streets projects no later than July 1, 2024. Each demonstration project will be required to strongly pursue the use of separated bike lane facilities to be considered for funding. The purpose of these demonstration projects is to create examples of successful complete street projects in multiple situations throughout the County.

Approximately one fifth of the funding is to be allocated to the East Bay Regional Park District (EBRPD) for the development, rehabilitation and maintenance of paved regional trails. EBRPD is to spend its allocation proportionally in each sub-region, subject to the review and approval of the conceptual planning/design phase by the applicable sub-regional committee, prior to funding allocation by the Authority. The Authority in conjunction with EBRPD will develop a maintenance-of-effort requirement for funds under this component of the funding category.

32. Reduce Emissions and Improve Air Quality:

Prior to an allocation of funds from the Reduce Emissions and Improve Air Quality category, the Authority will develop and adopt program guidelines and standards for a competitive project selection process. All projects will be selected through a competitive project selection process with the Authority approving the final program of projects, allowing for a comprehensive countywide approach while recognizing subregional equity based upon the proportional funding share shown in the TEP. Project funding is subject to a performance assessment conducted by Authority using approved and publicized guidelines (see item 30 in this policy section). Projects funded from this category must comply with the Transit, Complete Streets, Vision Zero, and other related policies.

33. Seamless Connected Transportation Options:

Prior to an allocation of funds from the Seamless Connected Transportation Options category, the Authority will develop and adopt program guidelines and standards for a competitive project selection process. All projects will be selected through a competitive project selection process with the Authority approving the final program of projects, allowing for a comprehensive countywide approach while recognizing subregional equity based upon the proportional funding share shown in the TEP. Project funding subject to performance assessment conducted by Authority using approved and publicized guidelines (see item 38 in this policy section). Projects funded from this category must comply with the Transit, Complete Streets, Vision Zero and other related policies.

Project Financing Guidelines and Managing Revenue

34. Fiduciary Duty:

Funds may be accumulated for larger or longer-term projects. Interest income generated will be used for the purposes outlined in the TEP and will be subject to audits.

35. Project and Program Financing:

The Authority has the authority to bond for the purposes of expediting the delivery of transportation projects and programs. The Authority will develop a policy to identify financing procedures for the entire plan of projects and programs.

36. Strategic Delivery Plan:

On a periodic basis, the Authority will develop a Strategic Delivery Plan to program revenue from the Measure to TEP projects and programs. The Strategic Delivery Plan will program Measure funds as a firm commitment and will consider the amount of Measure funds and additional leveraged funds available to the project or program, expected cost and cash-flow needs, and project

or program delivery schedule in programming Measure funds. Recipients of Measure funds may seek an allocation for projects and programs included in the Strategic Delivery Plan.

37. Periodic Review of the 2020 Transportation Expenditure Plan (TEP):

The Authority may review the TEP to consider updating the financial forecast due to changing economic conditions and adjust funding, if necessary, due to revenue shortfalls. The project and program categories may need to be adjusted based on progress made regarding meeting the commitments of the TEP. The review may determine to invest increased revenues in projects and programs deemed by the Authority to address transportation needs to best serve the residents of Contra Costa County. The review will provide the opportunity to adjust the TEP to adapt to the current state of transportation, leverage new funding opportunities, reflect changed conditions, and capture new opportunities that are becoming better defined. The Authority will review the TEP at a minimum of every 10 years. Any amendments to the TEP must comply with the policy for “Expenditure Plan Amendments Require Majority Support” and the following related policies.

38. Programming of Excess Funds:

Actual revenues may, at times be higher or lower than expected in this TEP due to changes in receipts. Additional funds may become available due to the increased opportunities for leveraging or project costs being less than expected. Revenue may be higher or lower than expected as the economy fluctuates. Determination of when the additional funds become excess will be established by a policy defined by the Authority. Funds considered excess will be prioritized first to the TEP projects and programs that are not fully funded and second to other projects deemed by the Authority to best serve the residents of Contra Costa County. Any new project or program will be required to be amended into the TEP pursuant to the “Expenditure Plan Amendments Require Majority Support” section above.

39. Reprogramming Funds:

Through the course of the Measure, if any TEP project becomes undeliverable, infeasible or unfundable due to circumstances unforeseen at the time the TEP was created, funding for that project will be reallocated to another project or program. The subregion where the project or program is located may request that the Authority reassign funds to another project category in the same subregion. In the allocation of the released funds, the Authority in consultation with the subregion’s RTPC will in priority order consider:

- a. A project or program of the same travel mode (i.e. transit, bicycle/pedestrian, or road) in the same subregion;
- b. A project or program for other modes of travel in the same subregion;
- c. Other TEP projects or programs, and
- d. Other project deemed by the Authority to best serve the residents of Contra Costa County.

The new project, program or funding level may be required to be amended into the TEP pursuant to the Expenditure Plan Amendments section above.

40. Development of Guidelines for Performance Based Projects Review and Programs:

The Transportation Expenditure Plan envisions creation of several procedures and guidelines to ensure that the goals of the TEP are achieved. To ensure high quality of the resulting guidelines and substantial public participation, the following procedure shall be used unless specifically replaced by the Authority.

1. Scope. The process explained below shall apply to the following guidelines and procedures described in the TEP.
 - a. Performance Based Project Review
 - b. Countywide Major Road Improvement Program
 - c. Safe Transportation for Youth and Children
 - d. Improve Walking and Biking on Streets and Trails
 - e. Reduce Emissions and Improve Air Quality
 - f. Seamless Connected Transportation Options
2. Master schedule and participation listing. Before December 31, 2020, the Authority shall publish, including on its website, a master list of when it expects to develop each of the guidelines and policies, hereafter referenced as either guidelines or policies. Individuals and organizations shall be able to register their interest in a guideline and shall subsequently receive advance notification from the Authority of the steps described below and encouragement to participate.
3. Semi-structured scoping. Authority staff shall request comments regarding the proper scope for each guideline in a format that encourages both free-form recommendations and preferences among options.
4. Initial draft and release for comments. Using the responses to the structured scoping effort and other applicable information, Authority staff shall develop an initial draft of the proposed policy. Following discussion at a public meeting and requested modifications, the Authority shall release the draft for comment from any interested party. The comment period shall be at least 30 days. Authority staff shall conduct outreach to the RTPCs, Public Oversight Committee, potential funding recipients, and interested parties to explain the draft policy and solicit comments.
5. Modification and adoption of revised policy. Authority staff shall revise the policy taking into consideration the goals of the TEP, other policies and comments received. The revised policy shall be presented to the Authority where it may be adopted or recirculated for further comments.
6. Policy guidelines. Each policy shall adhere to the following parameters.
 - a. Shall be designed to implement the overall guiding principles, goals, and policies of the TEP and the applicable funding category efficiently and effectively.
 - b. Shall utilize other regulations and reporting requirements for funding recipients as possible to avoid additional work.
 - c. Shall be designed to increase public confidence regarding the Authority and its actions.
 - d. Shall be written concisely in plain language.

Vision Zero Policy

VISION

In this Plan, the **Vision Zero policy is intended to eliminate traffic-related deaths and severe injuries** within Contra Costa County by prioritizing a system-wide safety approach to transportation planning and design. Principally, the Vision Zero policy treats personal mobility and accessibility as a fundamental activity of the general public, in order to attend school, conduct business, and visit friends and family free from the risk of physical harm due to traffic. This policy applies to all transportation system users including pedestrians, bicyclists, transit riders, micro-mobility users, automobile drivers, taxis, ride-hailing services and their passengers, and truckers, and people of varying abilities, including children, seniors, and people with disabilities. Implementation of the Vision Zero policy is intended to reduce societal costs due to loss of life and injury, lessen congestion stemming from non-recurring traffic collisions and incidents, and generally enhance quality of life in Contra Costa.

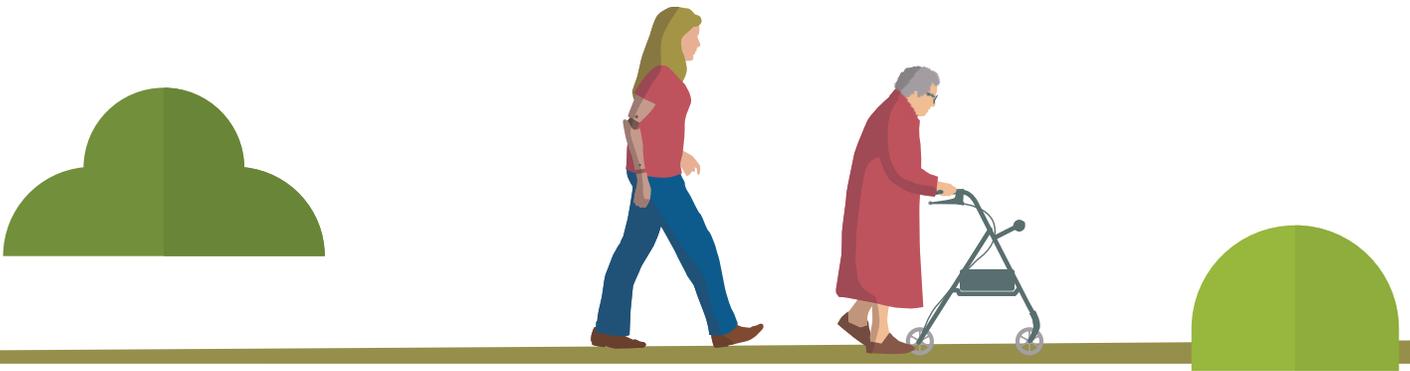
POLICY

Achieving this vision will require shifting the paradigm of traditional transportation planning and engineering such that life safety becomes the primary consideration in Measure-funded project and program evaluation. All recipients of funding through this Plan shall systemically incorporate street design elements that quantifiably reduce the risk of traffic-related deaths and severe injuries in the public right-of-way and accommodate the needs of all users in the planning, design, construction, reconstruction, rehabilitation and maintenance of the transportation system.

In consultation with local jurisdictions, the RTPCs, and the public, the Authority shall develop and adopt a Model Vision Zero Policy that reflects best practices for street design elements and programs to mitigate human error and quantifiably improve the traffic safety of all users in the planning, design and construction of projects funded with Measure funds. Key design elements of the Model Vision Zero Policy shall be incorporated into the

Authority's project development guidelines as appropriate. In order to be eligible to receive Measure funds, local jurisdictions must adopt a Vision Zero Policy that substantially complies with the Authority's Model Vision Zero Policy.

The Authority shall coordinate periodic traffic system and project monitoring with local jurisdictions and the RTPCs, and utilize data collected over time to evaluate the effects of Vision Zero implementation on public health and safety. Emphasis shall be placed on proactive deployment of next generation technology, such as advanced detection systems, at major intersections and corridors identified in regional and local plans as having high collision density. Funding for this level of effort shall be made available to local jurisdictions and RTPCs through the Countywide Major Road Improvement Program and funding from the Improve Traffic Flow on Major Roads.



Contra Costa County: Paratransit Policies/Guidance 1990 - 2019

Highlighted policies/recommendations from the following approved/adopted documents have **not** been implemented:

1. CCTA Measure J (2004) Transportation Sales Tax Expenditure Plan (Ordinance # 04-02)
2. CCTA Paratransit Improvement Study – 2004
3. Contra Costa Mobility Management Plan 2013
4. Contra Costa County Paratransit Plan 1990

Contra Costa Transportation Authority Measure J (2004) Transportation Sales Tax Expenditure Plan (Ordinance # 04-02)

Transportation for Seniors & People with Disabilities funds shall be available for

(a) managing the program,

(b) retention of a mobility manager,

(c) coordination with non-profit services,

(d) establishment and/or maintenance of a comprehensive paratransit technology implementation plan, and

(e) facilitation of countywide travel and integration with fixed route and BART specifically, as deemed feasible.

Paratransit Improvement Study 2004

“...the consulting team recommends continued delivery of ADA paratransit in Contra Costa under the current decentralized model. Under the current model, improvements to service efficiency and service quality are possible through the implementation of selected elements from the following “toolbox...”*

***Note:** The approach recommended in the 2004 study, “...continued delivery...under the current decentralized model...” was subsequently and unintentionally identified as a flawed approach in the 2013 Mobility Management Plan (described below and which also contains substantial unimplemented recommendations), “...lack of a structural platform...major impediment to action...”. In addition to the need for a “structural platform” to implement findings in the 2004 study, the recommendations would not be cost effective on a sub-regional (aka “decentralized”) level.

6.4.2 ESTABLISHMENT OF A SEPARATE OPERATING ENTITY TO COORDINATE TRANSFERS

6.4.4 STANDARDIZATION OF ADMINISTRATIVE, OPERATIONAL AND SERVICE DELIVERY POLICIES AND PROCESSES

6.4.4.1 Standard Policies Regarding Scheduling Parameters (including advance booking times, application of scheduling windows, etc.)

6.4.4.2 Automating Scheduling of Inter-Agency Transfers

6.4.4.3 Allocate a Dedicated Fleet of Vehicles for Inter-Agency Transfers

6.4.8 COORDINATION OF COMMUNITY-BASED AGENCY TRANSPORTATION

A mobility manager is a transportation organization serving the general public that responds to and influences the demands of the market by undertaking actions and supportive strategies, directly or in collaboration with others.

The mobility management function may assume one or more of the following responsibilities:

Centralized information dissemination and referral service -

Support services

Brokerage service

6.4.9 TECHNOLOGY ROLE

Trip Planning

AVL Implementation

MDT Implementation

Coordinated Client Data Management

IVR implementation

Contra Costa Mobility Management Plan 2013

The plan has broad support from CCTA, transit operators, and human service agencies.

This Plan recommends the formation of an organization to take the lead in implementing a broad range of mobility management strategies. Specifically, a Consolidated Transportation Services Agency (CTSA) is recommended for

Contra Costa County. Further, careful consideration has been given to alternative legal structures for a CTSA. The result of that dialog has been the agreement to pursue a non-profit corporation model. The principal basis for recommending this structural model is the level of success in other communities that have adopted this structure.

The planning process identified that a major impediment to action is the lack of a structural platform to serve as the vehicle through which action is accomplished. That vehicle has now been identified as a Consolidated Transportation Services Agency (CTSA).

Of the models presented above the non-profit agency model has historically been the most notable in terms of implementing programs with long-term sustainability. Non-profit agencies such as Outreach¹ and Escort, Ride-On, and Paratransit, Inc. have delivered successful coordinated transportation programs throughout California for many years. Each of these organizations continues to evolve to meet the needs of the communities they serve. Non-profit organizations have typically been the most successful CTSA model for a number of specific reasons.

Contra Costa County Paratransit Plan 1990

Mission: Promote a comprehensive, integrated quality paratransit system to meet the special needs of persons, who, because of age or disability, are unable to use the County's fixed-route public transportation services.

Goal 1: Promote standardized service policies to equitably improve mobility for persons unable to use fixed-route transit.

Goal 2: Promote a coordinated paratransit service network within the County to maximize convenience and ease of use.

Goal 3: Ensure the most efficient** and effective service within available funding.

Other

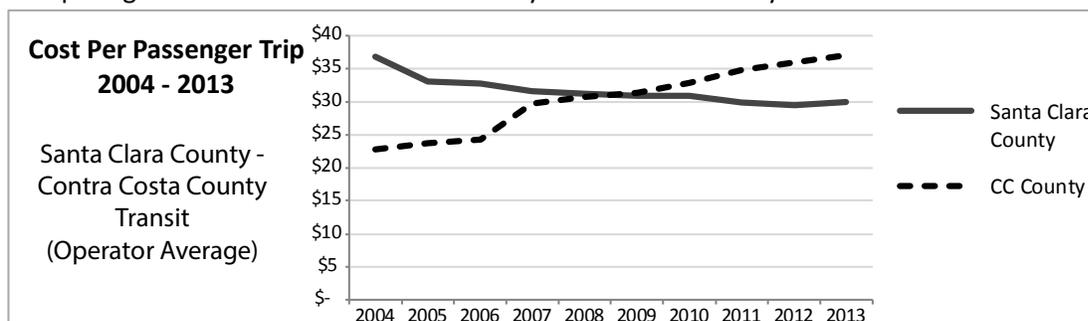
It is the Transportation Authority's view that one way to meet the County's paratransit goals and objectives might be to allocate funds for a professional paratransit coordinator or broker from the sales tax revenues targeted for paratransit. This approach has been recommended in Alameda County as part of that County's Measure B transportation program.

The Transportation Authority sees the development of a cohesive, coordinated paratransit plan as a key milestone in addressing Countywide paratransit issues.

Due to staff constraints, a critical deficiency in the PCC is the lack of performance monitoring and operational analysis, both of which are crucial to making informed planning decisions. Existing PCC members have indicated they would welcome objective, non-operator, professional paratransit input on a regular basis as a means to broaden the group's planning perspective.

Different service hours, reservation and shared ride procedures, fares, eligibility criteria, escort procedures and trip purposes served make it difficult to effectively coordinate service among the various operators. Differing service policies also result in inequities from a user perspective.

****Note:** Relative to the "most efficient" goal, the data² and chart below were provided during the 2016 Measure X effort comparing the cost effectiveness of a countywide coordinated system relative to Contra Costa's system:



¹ Relative to the claims of fraud by the Valley Transportation Authority and subsequent raid by the FBI of Outreach Paratransit in 2016, an audit in 2018 by the County of Santa Clara found no substantive wrongdoing. No charges were ever filed.

² 60% increase in paratransit cost per trip from 2004 - 2013 (average of all Contra Costa transit agencies) Data source: 2004-2013 National Transit Database



Contra Costa County Board of Supervisors

Subcommittee Report

TRANSPORTATION, WATER & INFRASTRUCTURE COMMITTEE

7.

Meeting Date: 07/18/2019

Subject: ACCEPT report from Public Works Dept. providing update on status of CCC Green Infrastructure Plan and refer to Board of Supervisors for Approval.

Submitted For: Brian M. Balbas, Public Works Director/Chief Engineer

Department: Public Works

Referral No.: 5

Referral Name: Review projects, plans, and legislative matters that may affect the health of the San Francisco Bay, including flood control, water governance, water storage, water quality, supply and reliability.

Presenter: John Steere, Public Works
Department

Contact: John Steere
(925)313-2281

Referral History:

The County Green Infrastructure (GI) Work Plan was brought before the TWIC for its review in October 2016. The Work Plan was approved by the Board of Supervisors on June 13, 2017. A prior update on the status of the County's GI plan was given to the TWIC on July 9, 2018.

Referral Update:

The Contra Costa County GI Plan is a section of the Municipal Regional Permit (MRP) that requires the County to develop and implement a long-term plan to incorporate low impact development measures to treat stormwater on both public and private lands. It targets streets and roads, parking lots, and other hardscapes. The focus of the County's GI Plan is the integration of stormwater treatment into County-owned buildings, parking lots, and road rights-of-way. Its purpose is to provide a blueprint for how the County intends to gradually transform its urban landscape and storm drainage systems to treat polluted stormwater by allowing it to flow through stormwater treatment facilities (i.e., bioswales and bioretention basins) that remove many urban pollutants before they enter the storm drain system.

GI refers to constructing and retrofitting storm drainage systems to mimic natural processes by enabling stormwater to infiltrate the soil rather than to runoff into storm drains and pipes. This relatively new approach is being used to reduce runoff volumes, disperse runoff to vegetated areas, harvest and use runoff where feasible, promote infiltration and evapotranspiration, and use bioretention and other natural systems to detain and treat runoff before it reaches tributary creeks and, ultimately, the San Francisco Bay. GI facilities include, but are not limited to, pervious pavement, infiltration basins, bioretention facilities, green roofs, and rainwater harvesting systems. GI can be incorporated into construction of new and redeveloped parcels, roads, and other infrastructure within the public right-of-way.

The GI Plan provides a long-term blueprint for implementing GI throughout the County over a 20-year period (2020 to 2040). This plan is largely based on the Contra Costa County Stormwater Resources Plan (SWRP), which was finalized in September 2018. The SWRP developed a comprehensive set of watershed and water quality goals/objectives, a preliminary evaluation framework for the GI Plan and GI project priorities, and a preliminary list of potential stormwater management projects. The SWRP is intended to facilitate development and implementation of stormwater management projects for the County that will provide multiple benefits to improve water quality, reduce localized flooding, increase water supplies for beneficial uses, and enhance the environment and the community. The projects identified in the SWRP have been refined and prioritized through the GI Plan for projects that best fulfill one or more of these four categories:

1. Treatment of both public and private land in unincorporated County contaminated with PCBs, Mercury, and other identified pollutants that are regulated by a Federal Total Maximum Daily Loads program;
2. Treatment of County-owned properties in both unincorporated County and cities that had industrial land uses prior to 1980 (referred to as “Old Industrial” in the MRP);
3. Treatment of County-owned properties in unincorporated County and also in cities, along with County roads that had urban land uses prior to 1980 (Old Urban) in the MRP; and
4. Multiple benefit GI, i.e., projects that help fulfill urban greening, water quality, water supply, flood control, and habitat restoration goals, connections to trails, safe-routes-to-schools, recreation, and traffic-calming through “green streets.”

These categories served as the primary criteria to evaluate the approximately 200 potential GI project locations that were identified in the SWRP. These were winnowed over the course of the GI planning process to the 30 GI project locations/priorities that will appear in the final GI plan (as shown in Attachment 1). The GI Planning process began in the fall of 2018 and is concluding this summer (Attachment 3).

The County Watershed Program convened a GI Plan Technical Advisory Group (TAG) to review, comment, and edit both text and potential GI project locations provided in early drafts of the GI plan. The TAG met four times over the course of the planning process and was composed of 12 representatives from all Public Works Department’s divisions, as well as from those of the Department of Conservation and Development. The TAG helped to refine the potential GI project opportunities from 100 to the 30 that will be shown in the Final GI plan.

The administrative final Contra Costa County GI plan is provided in Attachment 4. The final GI plan will be released on July 19 and will be available to the Board of Supervisors for its review and approval on August 6. The final GI Plan will be submitted to the Regional Water Quality Control Board as part of its MRP annual report in September 2019.

Recommendation(s)/Next Step(s):

ACCEPT report from the Public Works Department and REFER the Contra Costa County GI plan to the Board of Supervisors for their approval.

Fiscal Impact (if any):

The preparation of the GI Plan (by Geosyntec) is budgeted for \$195,000, which has been funded through the County's Stormwater Utility Fees.

Attachments

Attachment 1 - Revised Project Locations

Attachment 2 - Map of Projects

Attachment 3 - Project Schedule

Attachment 4 - Final Draft GI Plan

GI Plan Power Point.

Attachment 1: Contra Costa County Green Infrastructure Plan Project Locations (Priorities)

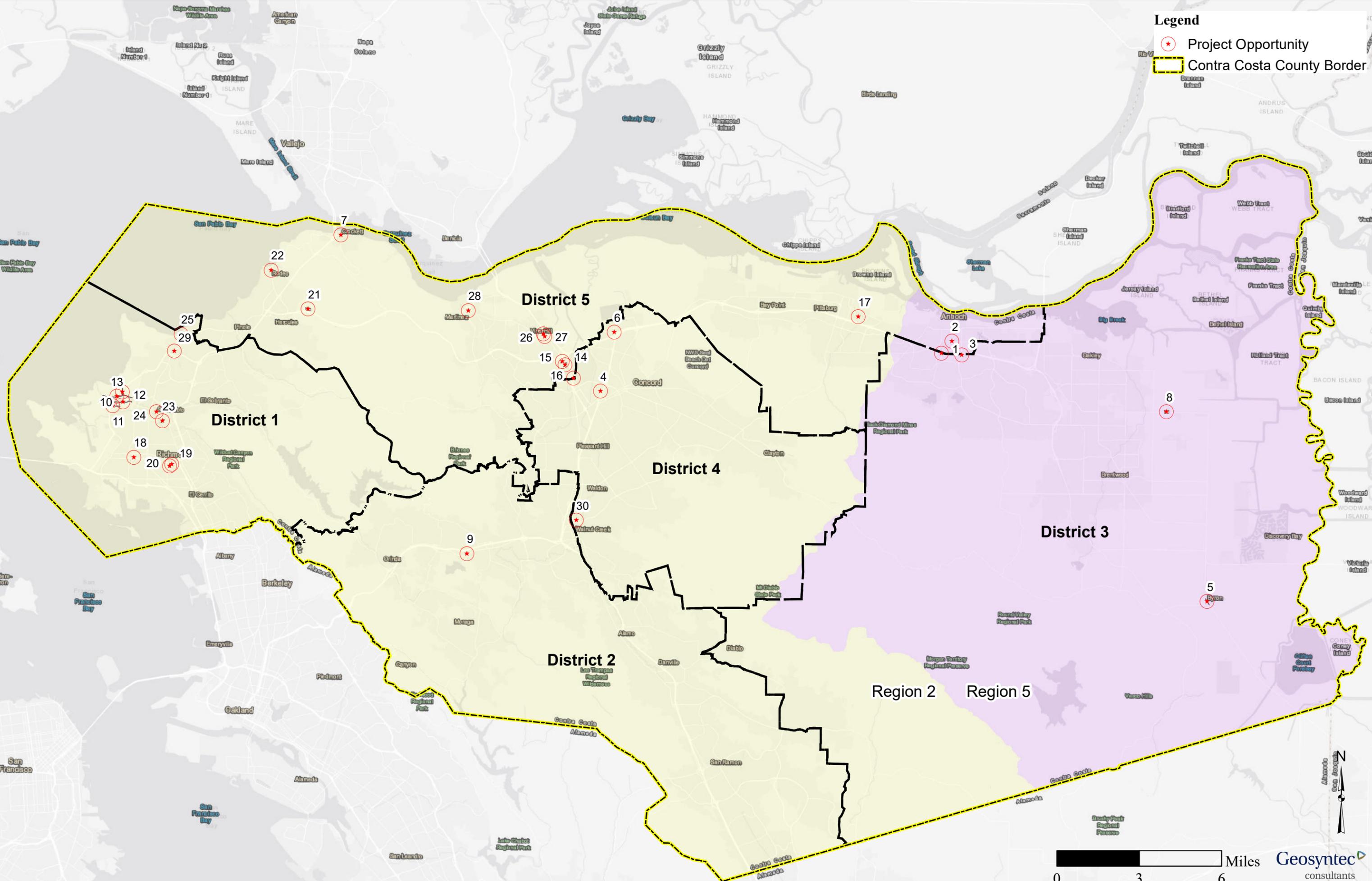
Note: Resulting from prioritization, TAG review, site visits, and additional feedback from County

No.	Location	SWRP ID	Project Type
1	Antioch	planned_705	Planned Unlined Bioretention
2	Antioch	planned_699	Planned Unlined Bioretention
3	Antioch	planned_712	Planned Unlined Bioretention
4	Concord	planned_836; planned_837	Planned Unlined Bioretention
5	Byron	planned_600	Planned Unlined Swale
6	Concord	planned_930	Planned Unlined Bioretention
7	Crockett-Port Costa	ROW_6054	ROW Opportunity
8	Knightsen	planned_360	Planned Water Quality Basin
9	Lafayette	planned_1079	Planned Unlined Bioretention
10	North Richmond	ROW_2768	ROW Opportunity
11	North Richmond	ROW_14957	ROW Opportunity
12	North Richmond	ROW_8096	ROW Opportunity
13	North Richmond	ROW_14519	ROW Opportunity
14	Pacheco	ROW_16577	ROW Opportunity
15	Pacheco	ROW_13183	ROW Opportunity
16	Pacheco	ROW_224	ROW Opportunity
17	Pittsburg	planned_713	Planned Unlined Bioretention
18	Richmond	APN 540082033	Planned Unlined Bioretention
19	Richmond	planned_1284	Planned Unlined Bioretention
20	Richmond	planned_1290	Planned Unlined Bioretention
21	Rodeo	Parcel_256018	Parcel-Based Opportunity
22	Rodeo	planned_1097	Planned Unlined Bioretention
23	San Pablo	planned_1272	Planned Unlined Bioretention
24	San Pablo	Parcel_188525	Regional Opportunity
25	San Pablo (Montara Bay)	planned_1177	County Requested
26	Unincorporated Martinez Neighborhoods	Parcel_243602	Parcel-Based Opportunity
27	Unincorporated Martinez Neighborhoods	planned_943	Planned Unlined Bioretention
28	Martinez	planned_1139	Planned Unlined Bioretention
29	Unincorporated Richmond Neighborhoods	planned_1182	Planned Unlined Bioretention
30	Walnut Creek	planned_966	Planned Unlined Bioretention

6/17/2019

Legend

- Project Opportunity
- Contra Costa County Border



Attachment 3: Project Schedule — Contra Costa County Green Infrastructure Plan

Task	Meeting or Deliverable	Who	Schedule
6	Notice to proceed and project kick-off meeting	County/Geosyntec	27-Sep-18
1.1	C.3 projection analysis initial meeting	County/Geosyntec	2-Oct-18
6	Complete Detailed Project Schedule	County/Geosyntec	6-Oct-18
1.3	Send data request to County	Geosyntec	6-Oct-18
6	Meeting to discuss final County C.3 projections	County/Geosyntec	10-Oct-18
1.1	Finalize AGOL uploads	County	12-Oct-18
1.1	Finalize UrbanSim C.3 Checks	County	12-Oct-18
1.2	Calculate load reductions from C.3 (private dev)	Geosyntec	10-Nov-18
1.2	Finalize impervious area targets for public retrofits	Geosyntec	30-Nov-18
1.3	Categorize SWRP opportunities per County priorities	Geosyntec	30-Nov-18
2	Provide materials for TAG and Public Works meeting	Geosyntec	3-Dec-18
3	Design Guidelines and Specifications or Grant Application (tasks TBD)	County/Geosyntec	October 2018 – April 2019
5	Evaluation of Funding Options	SCI	November 2018 – July 2019
6	Discuss draft project prioritization with County	County/Geosyntec	6-Dec-18
1.3	Revise project prioritization per meeting with County	Geosyntec	20-Dec-18
6	Select approximately 100 potential project opportunities for discussion with TAG	County/Geosyntec	3-Jan-19
2	Attend meeting with TAG and Public Works; present approximately 100 potential project opportunities	County/Geosyntec	8-Jan-19
4	Discuss Distribution of GI Plan Sections - Phone Call	County/Geosyntec	14-Feb-19
1.3	Revise maps for 100 potential project opportunities, resulting from TAG and Public Works comments	Geosyntec	25-Jan-19
1.4	Complete desktop assessments of 100 potential project opportunities (concurrent with Task 1.3 above)	Geosyntec	12-Feb-19
6	Select 25 projects for field assessments	County/Geosyntec	12-Feb-19
1.4	Complete parcel field assessments (note: For ROW, County availability to attend mid-April)	Geosyntec	18-Mar-19

Attachment 3: Project Schedule — Contra Costa County Green Infrastructure Plan

Task	Meeting or Deliverable	Who	Schedule
1.6	Final Draft lists and maps for Draft GI Plan	Geosyntec	20-Mar-19
4	Submit draft GI Plan sections for review	Geosyntec	8-Apr-19
1.4	Complete ROW field assessments	Geosyntec/County	17-Apr-19
4	Provide revisions, edits, and comments to Draft GI Plan	County	18-Apr-19
4	Complete Draft GI Plan for Internal Distribution (TAG)	Geosyntec	29-Apr-19
4	Meeting with TAG to discuss Draft GI Plan	Geosyntec/County	30-Apr-19
4	Receive revisions, edits, and comments on Draft GI Plan (TAG)	County	17-May-19
2	<i>Provide materials for meetings with County Administrators, Supervisors, and/or MACs</i>	<i>Geosyntec</i>	<i>June 2019</i>
--	<i>Meetings with Supervisors for GI Plan debriefing</i>	<i>County</i>	<i>June-July 2019</i>
4	Address Comments and produce Final Draft GI Plan	Geosyntec	21-June-19
--	TWIC Review and Comment	County	8-July-19
4	Receive final input on Final Draft GI Plan – Management, Community, or other Stakeholders	County	12-July-19
4	Finalize GI Plan	Geosyntec	19-Jul-19
4	County Board of Supervisors Approval of Final GI Plan	County	6-August-19
	<i>Submit GI Plan with 2019 Annual Report</i>	<i>County</i>	<i>September 2019</i>

Green Infrastructure Plan



Unincorporated Contra Costa County



Prepared by Geosyntec Consultants and SCI Consulting Group

FINAL DRAFT FOR REVIEW – JUNE 2019

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Appendices

- A. Potential Public Project Locations
- B. Green Infrastructure Guidelines for Streetscape and Project Design
- C. Green Infrastructure Specifications and Typical Design Details
- D. Sizing Requirements for Green Infrastructure Facilities
- E. Funding Matrix and Potential Opportunities

Acronyms

ABAG	Association of Bay Area Governments
BASMAA	Bay Area Stormwater Management Agencies Association
CCCWP	Contra Costa Clean Water Program
CCW SWRP	Contra Costa Watersheds Stormwater Resource Plan
FC District	Contra Costa County Flood Control and Water Conservation District
GI	Green Infrastructure
GIS	Geographic Information System
IRWMP	Integrated Regional Water Management Plan
MRP	Municipal Regional Stormwater Permit
MS4	Municipal Separate Storm Sewer System
MTC	Metropolitan Transportation Commission
NPDES	National Pollutant Discharge Elimination System
PCBs	Polychlorinated Biphenyls
TMDL	Total Maximum Daily Load

1 Introduction and Overview

1.1 Regulatory Mandate

Unincorporated Contra Costa County, hereafter “County,” is one of 76 local government entities, or permittees, subject to the requirements of the San Francisco Bay Regional Water Quality Control Board (RWQCB) Municipal Regional Stormwater Permit (MRP), which was last reissued in November 2015¹. The MRP mandates implementation of a comprehensive program of stormwater control measures and actions designed to limit contributions of urban runoff pollutants to San Francisco Bay.

MRP Provision C.3.j.i. requires the County to prepare and implement a Green Infrastructure Plan, to be submitted with its Annual Report to the RWQCB that is due September 30, 2019.

Green Infrastructure (GI) refers to constructing and retrofitting storm drainage systems to mimic natural processes by enabling stormwater to infiltrate the soil rather than to runoff into storm drains and pipes. This relatively new approach is being used to reduce runoff volumes, disperse runoff to vegetated areas, harvest and use runoff where feasible, promote infiltration and evapotranspiration, and use bioretention and other natural systems to detain and treat runoff before it reaches tributary creeks and, ultimately, San Francisco Bay. GI facilities include but are not limited to pervious pavement, infiltration basins, bioretention facilities, green roofs, and rainwater harvesting systems. GI can be incorporated into construction of new and redeveloped parcels, roads, and other infrastructure within the public right-of-way (ROW).

1.2 Background on Mercury and PCBs in San Francisco Bay

Water quality in San Francisco Bay (Bay) is impaired by mercury and polychlorinated biphenyls (PCBs), along with other pollutants. Sources of these pollutants include urban stormwater. By reducing and treating stormwater flows, GI reduces the quantity of these pollutants entering the Bay and will serve to hasten its recovery.

MRP Provisions C.11 and C.12 require Contra Costa County Permittees to regionally reduce estimated PCBs loading by 23 grams/year and estimated mercury loading by 9 grams/year, using GI, by June 30, 2020. Each County Permittee must also project the load reductions achieved via GI by 2020, 2030, and 2040, showing that collectively across the MRP region, reductions will amount to 3 kg/year PCBs and 10 kg/year mercury by 2040.

The MRP pollutant-load reduction requirements are driven by Total Maximum Daily Load (TMDL) requirements adopted by the RWQCB for mercury (Resolution No. R2-2004-0082 and R2-2005-0060) and PCBs (Resolution No. R2-2008-0012). Each TMDL allocates allowable annual loads (waste load allocation, hereafter “WLA”) to the Bay from identified sources, including from urban stormwater.

The mercury TMDL addresses two water quality objectives. The first, established to protect people who consume Bay fish, applies to fish large enough to be consumed by humans. The objective is 0.2 milligrams

¹ Order R2-2015-0049

(mg) of mercury per kilogram (kg) of fish tissue (average wet weight concentration measured in the muscle tissue of fish large enough to be consumed by humans). The second objective, established to protect aquatic organisms and wildlife, applies to small fish (3-5 centimeters in length) commonly consumed by the California least tern, an endangered species. This objective is 0.03 mg mercury per kg fish (average wet weight concentration). To achieve the human health and wildlife fish tissue and bird egg monitoring targets and to attain water quality standards, the Bay-wide suspended sediment mercury concentration target is 0.2 mg mercury per kg dry sediment.

A roughly 50% decrease in sediment, fish tissue, and bird egg mercury concentrations is necessary for the Bay to meet water quality standards. Reductions in sediment mercury concentrations are assumed to result in a proportional reduction in the total amount of mercury in the system, which will result in the achievement of target fish tissue and bird egg concentrations.

The PCBs TMDL was developed based on a fish tissue target of 10 nanograms (ng) of PCBs per gram (g) of fish tissue. This target is based on a cancer risk of one case per an exposed population of 100,000 for the 95th percentile San Francisco Bay Area sport and subsistence fisher consumer (32 g fish per day). A food web model was developed by San Francisco Estuary Institute (SFEI) to identify the sediment target concentration that would yield the fish tissue target; this sediment target was found to be 1 microgram (μg) of PCBs per kg of sediment.

Twenty percent of the estimated allowable PCB external load was allocated to urban stormwater runoff. The Bay Area-wide WLA for PCBs for urban stormwater is 2 kg/yr by 2030. This value was developed based on applying the required sediment concentration (1 $\mu\text{g}/\text{kg}$) to the estimated annual sediment load discharged from local tributaries.

1.3 Objectives and Vision

This GI Plan is intended to facilitate efforts to transition from traditional gray to green infrastructure-centric approaches. The MRP sets forth three broad goals for these plans:

1. Ensure each Permittee has established the necessary procedures and practices to require and implement green infrastructure practices in public and private projects as part of its regular course of business.
2. Serve as a reporting guide and implementation tool to provide reasonable assurance that urban runoff TMDL waste-load allocations will be met, including the projected regional goal of controlling 3 kg/year of PCBs via green infrastructure by 2040.
3. Set targets for GI implementation and identify future actions needed to address the adverse water quality impacts of urbanization and urban runoff on receiving waters.

As required by Provisions C.3.a. through C.3.i. in the MRP, these “Low Impact Development” practices are already being implemented on private and public land development projects in the County. Specific methods and design criteria are spelled out in the Contra Costa Clean Water Program (CCCWP) *Stormwater C.3 Guidebook* (7th Edition, 2017), which the County has referenced in County Code Title 10, Division 1014 “Stormwater Management and Discharge Control”.

1.4 Plan Context and Elements

1.4.1 Planning Context

Municipal Geography

Contra Costa County comprises 805 square-miles, of which approximately 732 square-miles are land. The general dimensions of the County are approximately 40 miles from west-to-east and 20 miles north-to-south (General Plan, 2010). From a geographic standpoint, the County is bounded by (in a clockwise direction) the San Francisco Bay-Delta to the north, Delta islands to the east, municipal boundary with Alameda County to the south-southeast, East Bay Hills to the south-southwest, San Francisco Bay to the west.

Throughout the County, there are nineteen incorporated cities/towns and forty-five Special Districts. Unincorporated County areas are spread throughout the greater County, totaling approximately 491 square-miles and include thirteen Municipal Advisory Councils (MACs) that advise the Board of Supervisors. There are MAC's for each of the following communities: Alamo, Bay Point, Bethel Island, Byron, Diablo, Discovery Bay, El Sobrante, Kensington, Knightsen, North Richmond, Pacheco, Contra Costa Centre, and Rodeo. Though unincorporated County includes a variety of urban pockets, the majority the footprint is rural. Figure 1 depicts unincorporated County areas within the urban limit line as dark grey.²

² <http://www.cccounty.us/DocumentCenter/View/30951/Urban-Limit-Line-Map?bidId=>, accessed April 1, 2019.

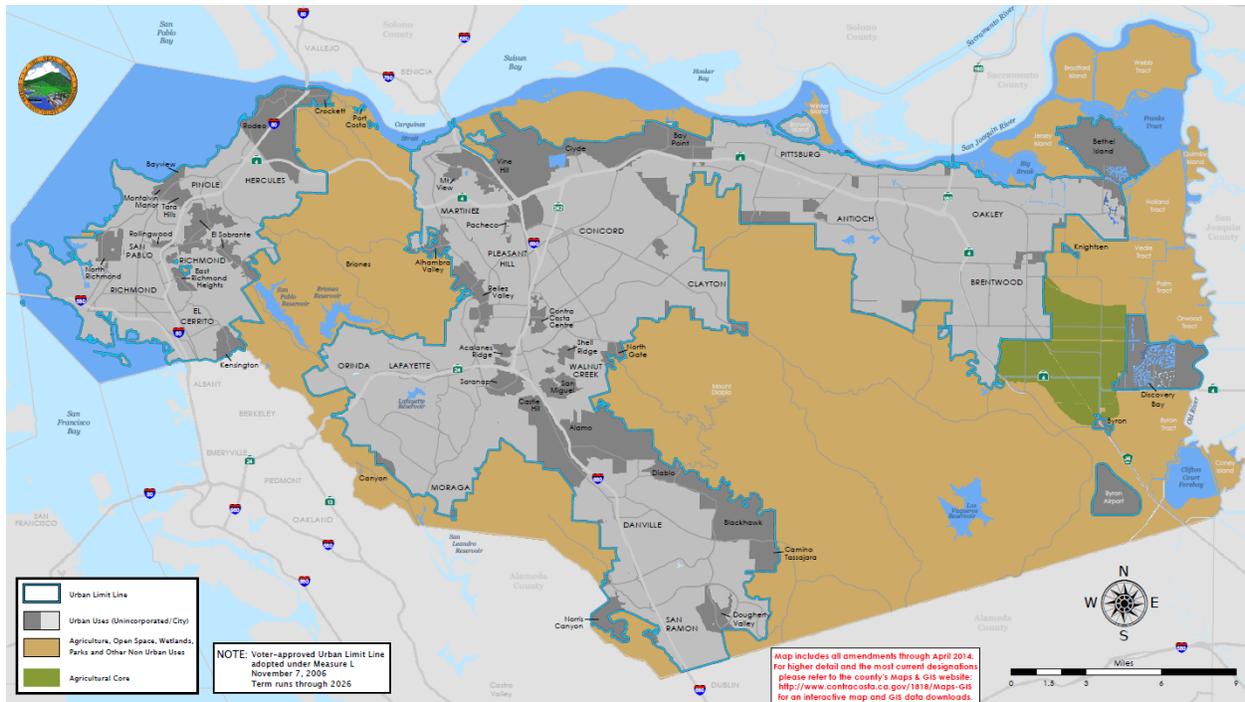


Figure 1. Depiction of Unincorporated Areas within Urban Limit Line (shown as dark grey).

Demographics

The County is comprised of a diverse social environment. The western and central portions of the County comprise urban and suburban environments, while the eastern portion of the unincorporated area is a primarily agricultural environment, resembling that of neighboring San Joaquin County. The County's population is 1,149,393 (2019), per the State of California Department of Finance's *Population Estimates for Cities, Counties, and the State*.³ For Unincorporated County, the total population is estimated to be 172,513.⁴

From a community economic perspective, household incomes within Unincorporated County are generally higher in the areas along Interstate (I) 680, south of State Route (SR) 24, and lower along the Bay and Bay-Delta lines, as well as to the east.⁵

Development and Redevelopment Trends

Historically, many cities have chosen not to annex particular urban unincorporated pockets. One reason for this is that infrastructure improvements such as sanitary sewers, curbs, gutters, sidewalks, and street lights were not required at the time many of the unincorporated pockets were developed. As a result, cities have been hesitant to annex unincorporated pockets where major capital expenditures were required to bring them up to city standards. This sentiment has persisted, with this factor continuing to

³ State of California, Department of Finance, E-1 Population Estimates for Cities, Counties and the State with Annual Percent Change — January 1, 2017 and 2018. Sacramento, California, May 2018.

⁴ Ibid.

⁵ <http://ca-contracostacounty2.civicplus.com/5342/Demographics>, accessed April 2, 2019.

discourage the annexation of already urbanized unincorporated pockets adjacent to cities, or in the case of North Richmond, surrounded by one, the City of Richmond.

Rural unincorporated areas of the County have remained either undeveloped or has developed at low densities. Public policy has also played a role in discouraging the annexation of the rural unincorporated areas, as most rural lands are located far from the boundaries of cities, often making the provision of urban services from cities impractical and economically unfeasible. In addition, the County's Urban Limit Line, a proposition passed by voters in 1988 ("Measure C"), has discouraged urbanization outside of municipal boundaries.

Concerning the growth of housing throughout the County, since 1984, the trend has been consistent at approximately three-quarters in incorporated cities and one-quarter in Unincorporated County.⁶

Commitment and Actions for Sustainability

The County has established a Sustainability Program, under the Department of Conservation and Development, with the mission to make "communities cleaner and healthier for families, children, and future generations." To help realize this mission, the program has six tenets: Livable Communities; Energy and Water; Planning for our Future; Waste Reduction; Leading by Example; Engage with the County. To further help manifest these efforts, the County has established both a Sustainability Commission and Committee.

Related to sustainability, the County also adopted a Municipal Climate Action Plan and a Countywide Climate Action Plan in 2008 and 2015, respectively. Both of these plans focus on greenhouse gas reduction countywide, including Unincorporated County.

CEQA

This GI Plan is statutorily exempted under Public Resources Code (Contra Costa County CEQA Guidelines and California Administrative Code Sec. 15262 et seq.) because it involves feasibility or planning studies for possible future actions that the Board of Supervisors has not approved or adopted and the County has considered environmental factors and found no potential for significant environmental impacts. Any future projects that are to be constructed as recommended by the Plan will conduct a review of potential environmental impacts as required by CEQA.

1.4.2 Watersheds and Storm Drainage Infrastructure

Watersheds and Watershed Characteristics

As described in the Contra Costa Watersheds Stormwater Resource Plan, hereafter "CCW SWRP", there are thirty-one (31) major watersheds and sub-watersheds throughout the County, which are linked by similar water quality stressors and regional water quality impairments due to urbanization.⁷ The CCW SWRP organized the County into five watershed-based planning units: East, Central, North, South, and

⁶ Contra Costa County General Plan: 2005-2020, January 18, 2005 (Reprint July 2010), <http://www.co.contra-costa.ca.us/DocumentCenter/View/30912/Ch2-Planning-Framework?bidId=>, accessed April 1, 2019.

⁷ Contra Costa Watersheds Stormwater Resource Plan, August 2018.

West County. Unincorporated areas are located within each of the planning units. The specific watersheds throughout unincorporated areas, by planning unit, are as follows:

- North County Planning Unit: Alhambra Creek, Peyton Slough, Refugio Creek, Rodeo Creek, and various drainages to Carquinez Strait;
- South County Planning Unit: Upper Alameda Creek, Alamo Creek, Tassajara Creek, Upper San Leandro Creek, Moraga Creek, and Cayetano Creek;
- East County Planning Unit: East and West Antioch Creek, Marsh Creek (watershed includes Dry, Deer, and Sand Creeks), Kellogg Creek, Brushy Creek, and East County Delta Drainages;
- West County Planning Unit: Wildcat Creek, San Pablo Creek, Rheem Creek, Pinole Creek, Garrity Creek, Baxter Creek, Cerrito Creek, and West Richmond Creek; and
- Central County Planning Unit: Walnut Creek, San Ramon Creek, Tice Creek, Las Trampas Creek, Green Valley Creek, Pine Creek, Grayson Creek, Galindo Creek, Clayton Valley Drain, Mount Diablo Creek, Willow Creek, and Kirker Creek.

Figures 2 and 3 show the Watershed Planning Units and County jurisdictional boundaries, respectively. These figures illustrate the complexity of the County addressing GI plan implementation in the numerous watersheds shared with other jurisdictions.

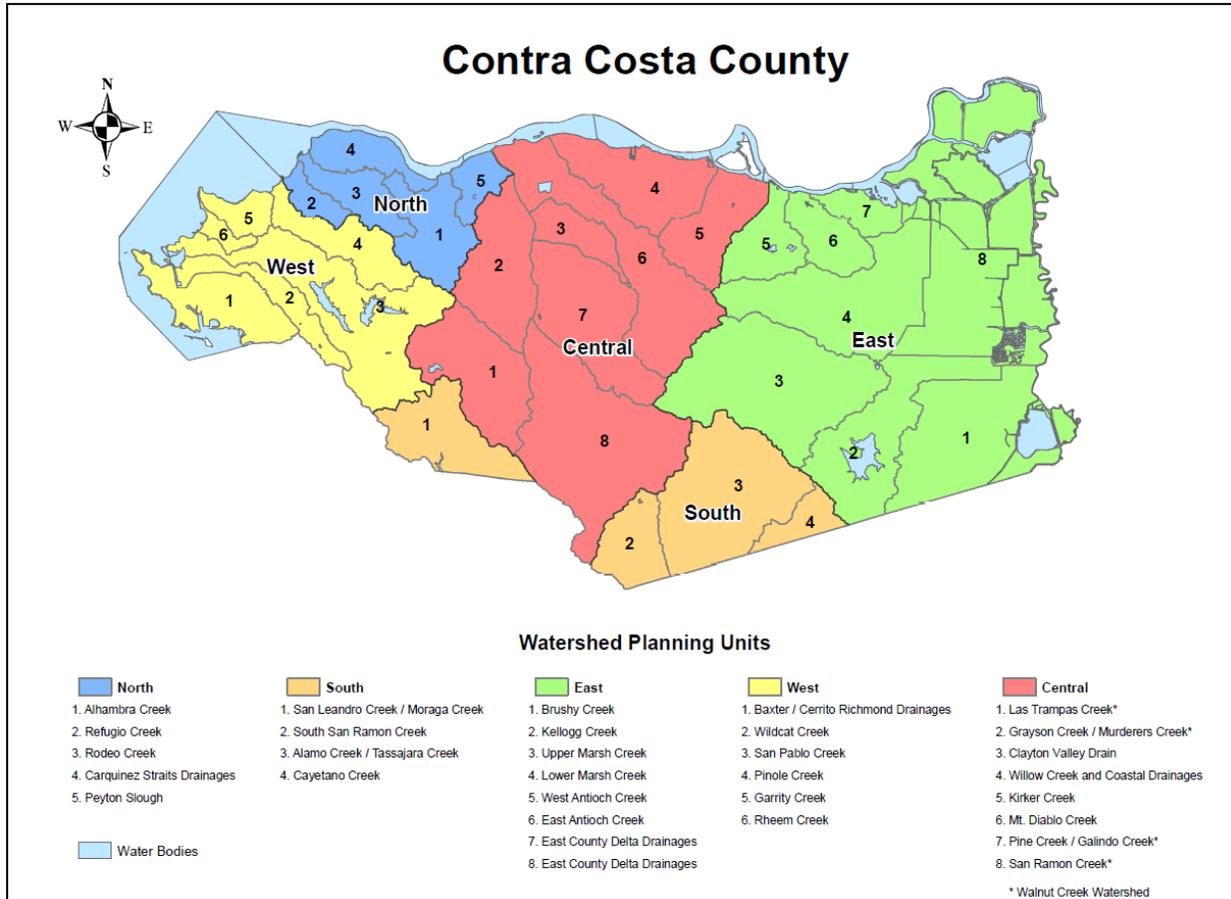


Figure 2. County Watershed Planning Units.

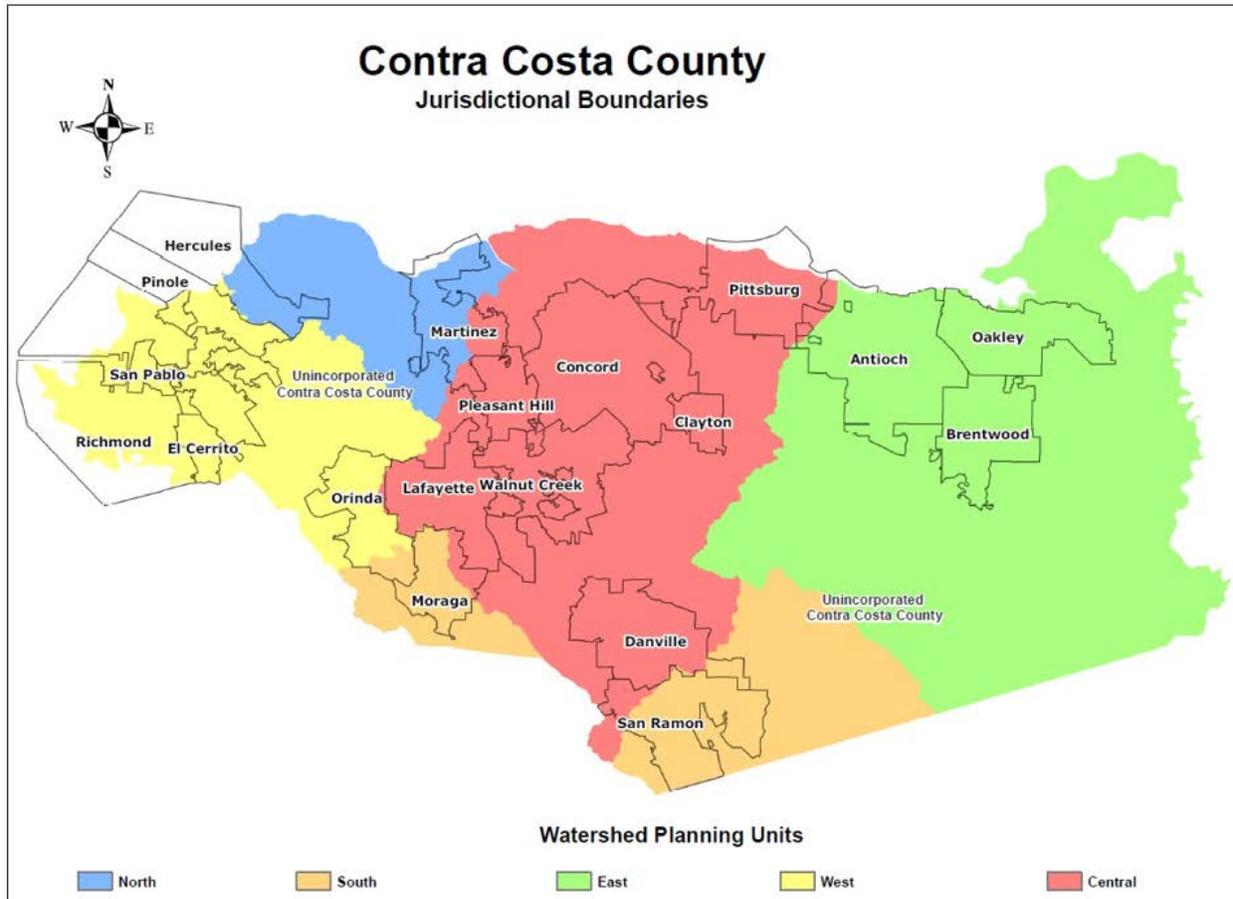


Figure 3. County Jurisdictional Boundaries by Watershed Planning Unit.

Major Drainages and Flood Control

Contra Costa County drainages include headwaters of creeks that drain through other counties before reaching the Bay. The Contra Costa County Watershed Atlas⁸ (2003) provides data for all the major and minor watersheds in the county. The Atlas provides statistics for the watersheds including geophysical data, land use data, and some historical data.

Contra Costa County consists of 466,473 acres. The longest creek in the county (Marsh Creek) is 34.6 miles long. Table 1 below lists the major watersheds in order of watershed size and the estimated length of their respective longest creeks.

⁸ <https://www.ccleanwater.org/watersheds/watersheds-in-contra-costa-county>

Table 1: Major Watersheds in Contra Costa County

Name	Area (acres)	Longest Branch of Creek (miles)
Walnut Creek (includes San Ramon, Pine, Grayson and Las Trampas Creeks)	93,556	28.74
Marsh Creek (includes Dry, Deer, and Sand Creeks)	60,066	34.57
San Pablo Creek	27,640	19.65
Mt. Diablo Creek	23,846	17.24
Alhambra Creek	10,735	7.99
Pinole Creek	9,705	10.95
Wildcat Creek	6,848	13.43

Mt Diablo dominates the landscape in Central County, being the headwaters of many of the largest watersheds. Mt Diablo is near the northern terminus of the Diablo Range which separates drainages of Central and East County. The Berkeley and Oakland Hills further define the upper watersheds of West and Central County. Watersheds in Contra Costa are steep at their headwaters and generally flow to flatter valleys or plains.

Volunteer interests are vital to fostering healthy watersheds. The numerous creek and related groups provide the challenge of coordinating multiple local groups, but demonstrate a high level of public interest in the natural and water quality values associated with the County's watersheds. Volunteer watershed groups tend to rally around specific creeks. The Contra Costa Watershed Forum, initiated in 1999, meets bi-monthly, and serves as a catalyst and clearinghouse for sharing information and providing unity and continuity among the varied watershed stewardship groups, as well as providing a medium for coordinating with agencies, including the County and its flood control district.

Contra Costa County Flood Control and Water Conservation District (FC District) manages the funding for major flood risk reduction planning and flood control projects. The funding is watershed-based. Divided into Flood Control Zones based on these watershed boundaries, the FC District manages flood control facilities in each Zone using what property tax funding it receives. Due to historic circumstances surrounding Proposition 13 (see Chapter 7), some of these Zones have very low and even zero property tax revenue. The FC District struggles to fund basic maintenance of Corps of Engineer constructed facilities that the FC District is obligated to maintain. The FC District also receives a 1/10th of the 1% Ad valorem tax to provide District-wide operational and administrative funding. The FC District is a partner in many ways to the County and is supportive of the GI planning efforts of the County. However, it should be clearly understood that the FC District funds are separate from the County general drainage funds and road funds.

Major Watersheds with Facilities in Unincorporated County

The County Public Works Department maintains 150 miles of streams, channels, and other drainage facilities in unincorporated areas of the County. The FC District also manages and maintains large drainage infrastructure both in unincorporated areas and in most of the 19 cities in the County. As the focus of this GI plan is on unincorporated areas, the facility discussion below is exclusive to those drainage facilities.

In the community of North Richmond, three channelized streams are present: Wildcat Creek, San Pablo Creek, and Rheem Creek. All were 'improved' by the US Army Corps of Engineers to reduce flood risk for the surrounding community. Wildcat and San Pablo Creeks are of a newer, more environmentally sensitive design. Rheem Creek has a typical trapezoidal rock lined channel which has limited riparian vegetation.

Garrity Creek has a minor flood control facility that receives stormwater from the unincorporated community of Montalvin Manor.

Rodeo Creek is the major stream that serves the unincorporated community of Rodeo and has its headwaters in the John Muir Land Trust-owned Fernandez Ranch Open Space. These upper reaches have significant instability, and this produces a heavy sediment and debris load in the creek. The Corps of Engineers improved the reach of the creek in the urban area of Rodeo in the 1960s and the lowest portion (near where it drains into San Pablo Bay) is a rectangular concrete channel.

Along the "north" Watershed Planning Unit (see Figure 2 above), there are a number of smaller drainages that serve the communities of Crockett and Port Costa.

The Walnut Creek Watershed is the main feature of the Central Watershed Planning Unit (Figure 2), and drains many unincorporated communities such as Saranap, Alamo, Blackhawk, and Diablo. Walnut Creek is the largest watershed in the County and consists of a number of important tributaries such as Tice, San Ramon, Las Trampas, Pine, and Pacheco.

The unincorporated community of Clyde drains to Mt. Diablo Creek, which passes nearby before entering Suisun Bay.

Further east, the unincorporated community of Bay Point is served by a number of smaller drainages that discharge into or through the marshlands along the edge of Suisun Bay.

In the eastern portion of the County, the communities of Knightsen and Byron are in an area of poor drainage, and much of their stormwater needs to be pumped over levees to reach the delta. Other areas, including the community of Discovery Bay, rely on Brushy and Kellogg Creeks to handle their stormwater requirements.

Finally, the portion of Marsh Creek at, and upstream of, the Marsh Creek Reservoir, serves the unincorporated lands in this watershed. Marsh Creek is the second largest watershed in the County, and is also notable for mercury contamination due to legacy mining activities in the upper watershed on the sides of Mt. Diablo.

Storm Sewer System, Challenges, and Opportunities

Similar to other facets of infrastructure, the age and state of repair of the storm drain system pose a challenge to the County. As indicated in Section 1.4.1 above, infrastructure in urban and rural unincorporated areas have had a lack of investment. Not only is there a need to rehabilitate or replace existing infrastructure, but there is only a need to maintain existing features.

The County maintains maps that depict the road, countywide, and Flood Control District drainage systems. Much of this data has been transferred into geographic information system (GIS) format and the County is in the planning phases of collecting and correcting the GIS drainage inventory data for use in developing an asset management program for maintenance, planning, and administrative purposes. This GIS database also serves as a valuable resource for investigating potential locations of GI implementation.

Recent and Planned Drainage Improvements

There are a number of planned and/or current drainage improvement projects in the incorporated county, including the following:

- Wildcat and San Pablo Creeks Levee Remediation Project
- Marsh Creek Reservoir Capacity and Habitat Restoration
- Sustainable Capacity Improvement at Rodeo Creek

Funding for Maintenance and for Capital Improvements

The County has varying sources for drainage related capital improvements and maintenance of those drainage facilities. Through the FC District, a portion of property tax with the boundaries of some Flood Control Zones for design, construction, and maintenance of regional storm drainage facilities within the Zone. Development projects within some Drainage Areas are charged impact fees that fund construction of planned drainage facilities required to mitigate the increased runoff from development. The FC District has also established special assessments in some Drainage Areas to fund ongoing maintenance.

Proposition 13 has hindered the ability of public agencies to raise requisite funds for infrastructure projects and maintenance. A ballot initiative was attempted in late-2015 to amend the state Constitution in order to create an optional method for local agencies to raise funds for stormwater and major drainage projects. After polling in early-2016, it was determined that there was not sufficient public support to move forward with the initiative. Potential strategies to secure future GI funding are presented in Section 7 of this GI Plan.

1.4.3 Related Regional and Countywide Plans and Planning Documents

This GI Plan has been coordinated with the following regional stormwater documents:

- The CCW SWRP. The CCW SWRP was funded by State Water Resources Control Board under a Proposition 1 Grant, with matching contributions provided by Contra Costa municipalities individually and collectively through the CCCWP. The CCW SWRP identifies and prioritizes potential multi-benefit stormwater management projects, including green infrastructure projects, in watersheds and jurisdictions throughout Contra Costa County. Projects identified

within the CCW SWRP are eligible to apply for future state funding. Many of the projects included in this GI Plan were drawn from the CCW SWRP project opportunity lists.

- The Contra Costa Countywide Reasonable Assurance Analysis (RAA). The RAA for Green Infrastructure is being prepared by Contra Costa municipalities collectively through the CCCWP and is consistent with guidance prepared by the Bay Area Stormwater Management Agencies Association (BASMAA). The RAA for Green Infrastructure uses a water quality model coupled with continuous simulation hydrologic output to estimate baseline loadings of pollutants and the reductions that might be achieved through green infrastructure implementation in 2020, 2030, and 2040 under various scenarios, which include implementation of potential project locations identified in this Plan. RAA findings will be within the TMDL Implementation Plan, as part of the 2020 Annual Report submitted to the San Francisco Bay RWQCB.

1.4.4 Related Local Planning Documents

Green infrastructure can be integrated into a wide diversity of public and private projects. Public projects can incorporate green infrastructure in streets, parks, schools, and other civic properties. In order to ensure that green infrastructure is considered and supported in the range of planning and design processes for these projects, the County will be reviewing and updating the planning documents listed in Table 2 to appropriately incorporate green infrastructure requirements as these plans are updated.

Table 2. County Planning Documents to Align with GI Plan

Document	Responsible Department	Summary of Updates	Next Projected Update
General Plan	Department of Conservation and Development	GI Plan to be integrated into the Public Facilities/ Services Element	2020
Climate Action Plan	Department of Conservation and Development	Entire document to be updated to reflect the GI plan	2020
Complete Streets	Department of Conservation and Development	The County's Complete Streets Policy allows for the inclusion of some GI features, but it's advisable to incorporate GI explicitly into it so that, when feasible, "Complete streets" can be designed/function as "Sustainable Streets"	2020

In 2019 and 2020, the County will be updating its Climate Action Plan (CAP). The CAP identifies greenhouse gas emissions, both countywide and for County operations, and names strategies the County will take to reduce those emissions. In the 2015 CAP, actions were grouped into six categories: energy efficiency, renewable energy, land use and transportation, solid waste, water, and county operations. Green

infrastructure falls into the land use and transportation categories. At the time of this writing, we anticipate the same categories will be used in the 2020 CAP Update.

In 2019, the County will update the emissions profile and identify emissions reductions targets and measures to reach those targets. The County's Sustainability Commission is advising staff in this work. In 2020, the work will shift to the hearing and adoption process. The CAP is being developed and adopted in conjunction.

Complete Streets improves mobility, safety, public health, and environmental sustainability. Where feasible and in context with local conditions, Complete Streets allows for green infrastructure elements, such as street trees and landscaping and planting strips. The County adopted a Complete Streets Policy in 2016 to ensure its commitment to maintaining and building streets that provide safe, comfortable, and convenient travel for all users, including pedestrians, bicyclists, seniors, people with disabilities, children, and users and operators of public transportation. The Complete Street Policy helps the County meet local and state-level safety and sustainability goals and policies. The Complete Streets Policy will be subsumed into the Transportation & Circulation Element in the 2020 County General Plan Update.

1.4.5 Outreach and Education

Outreach and education of County stakeholders has occurred in a limited way through the Contra Costa Watershed Forum presentations in January and March 2019. In addition, the Watershed Program will engage with stakeholders in the coming months through presentations to and feedback from the Municipal Advisory Committees (MACs), which function as guidance bodies for the County Board of Supervisors.

1.4.6 Policies, Ordinances, and Legal Mechanisms

The following policies, ordinances, and legal mechanisms are in place relating to the implementation of goals put forth in this GI Plan:

The County uses its planning, zoning, and building authorities to require proposed new development and redevelopment projects to incorporate LID features and facilities in accordance with the Provision C.3, and the current edition of the Contra Costa Clean Water Program's *Stormwater C.3 Guidebook* (7th Edition, June 2017).

For streetscape improvements and "complete streets" projects, the National Association of City Transportation Officials (NACTO) *Urban Street Stormwater Guide*, the San Mateo County *Sustainable Green Streets and Parking Lots Design Guidebook*, and other resources available on the CCCWP website, may be consulted.

LID features and facilities will be designed and constructed in accordance with the applicable specifications and criteria in the *Stormwater C.3 Guidebook*. Additional details and specifications, as may be needed for design of street retrofit projects, may be adapted from the *San Francisco Public Utilities Commission Stormwater Requirements and Design Guidelines Appendix B* (Green Infrastructure Details),

the *Central Coast Low Impact Development Institute Bioretention Standard Details and Specifications*, or other resources compiled by the CCCWP and available through their website.

Participation in a countywide interagency process, convened by the CCCWP, will facilitate excellence and consistency in the design and construction of Green Infrastructure features and facilities. The County will:

- Share with other Contra Costa municipalities, through the CCCWP, conceptual, preliminary, and final plans and specifications developed for Green Infrastructure projects;
- Identify significant GI projects and issues encountered during design and construction of those projects and bring those projects and issues forth in online forums and in-person interagency workshops and meetings;
- Participate in evaluation and recommendation of design details and specifications for GI, where doing so furthers the purposes of countywide consistency and cost-efficiency, and quality of the built facilities;
- Participate, as a reviewer, in the drafting and updating of a “GI Design Guide,” the purpose of which will be to assist CIP staff in Contra Costa municipalities through the steps of project identification, evaluation, design, and construction.

DRAFT

2 Green Infrastructure Targets

MRP Provision C.3.j.i.(2)(c) requires that the Green Infrastructure Plan include “targets for the amount of impervious surface, from public and private projects, within the Permittee’s jurisdiction to be retrofitted over the following time schedules... (i) By 2020, (ii) By 2030; and (iii) By 2040.” This section describes the process used to develop projections for the impervious surface area to be retrofitted and treated with GI from private and public projects within County jurisdiction and presents the results.

2.1 Private Development Projections

Table 3 presents an estimate of the impervious area to be treated by GI via private development projects for 2020, 2030, and 2040. The impervious area treated by private development presented in Table 3 includes actual projects constructed through 2018 and projected private development project area for 2019/2020, 2021 through 2030, and 2031 through 2040.

To forecast future private development area, the County participated in a process coordinated through the CCCWP that used the output of UrbanSim, a model developed by the Urban Analytics Lab at the University of California under contract to the Bay Area Metropolitan Transportation Commission (MTC). The UrbanSim modeling system was developed to support the need for analyzing the potential effects of land use policies and infrastructure investments on the development and character of cities and regions. The Bay Area’s application of UrbanSim was developed specifically to support the development of Plan Bay Area, the Bay Area’s Sustainable Communities planning effort.

MTC forecasts growth in households and jobs and uses the UrbanSim model to identify development and redevelopment sites to satisfy future demand. Model inputs include parcel-specific zoning and real estate data; model outputs show increases in households or jobs attributable to specific parcels. The methods and results of the Bay Area UrbanSim model have been approved by both MTC and ABAG Committees for use in transportation projections and the regional Plan Bay Area development process.

The CCCWP process used outputs from the Bay Area UrbanSim model to map parcels predicted to undergo development or redevelopment in each Contra Costa jurisdiction at each time increment specified in the MRP (2020, 2030, and 2040).⁹ The resulting maps were reviewed by County staff for consistency with local knowledge, and local planning and economic development initiatives and revised as needed.

It is assumed that multifamily residential and commercial/industrial new development and redevelopment projects will incorporate stormwater treatment facilities, in accordance with MRP Provisions C.3.b., C.3.c., and C.3.d. It is also expected that more than 50% of the existing impervious area

⁹ The UrbanSim model effectively translates Bay Area-wide growth assumptions (reflecting new development and redevelopment) into specific projects by acting as a “rational” developer looking to maximize the difference between pre- and post-redevelopment property values based on a series of algorithms relying on resources such as property value estimates produced by online resources such as Zillow or Redfin. Thus, the actual parcels projected to be redeveloped are approximate, but the MTC UrbanSim model outputs provided the Contra Costa Permittees with a common, defensible basis for projecting impervious area to be treated with LID due to private new development and redevelopment projects in the future.

in each parcel will be replaced if a parcel is redeveloped, and therefore the entire parcel will be subject to Provision C.3 requirements (that is, will be retrofit with GI), consistent with the “50% rule” requirements of MRP Provision C.3.b.

Existing impervious surface for each affected parcel was estimated using the 2011 National Land Cover Database. Estimates were spot-checked and revised based on local knowledge and available satellite imagery. The amounts of existing impervious surface retrofitted or forecasted to be retrofit with GI via private development shown in Table 3 were developed using these assumptions.

Table 3: Estimate of Impervious Surface Treated or Retrofit via Private Development

Year	Total Impervious Area (Acres) ¹	Comments
2003 - 2020	11	Includes private development projects constructed from 2003 – 2019 from the AGOL database ² and UrbanSim projections for 2019 - 2020.
2021 - 2030	49	Predicted by UrbanSim
2031 - 2040	69	
2003 – 2040	129	Total Impervious Area Retrofit via Private Development

1. Total impervious area reported to nearest whole acre.

2. Refers to City’s GI tracking system, see Section 5.

2.2 Public GI Implemented and Future Targets

Table 4, below, presents an estimate of the impervious area to be retrofit via public GI projects for 2020, 2030, and 2040. For the period 2021 - 2040, Unincorporated County’s GI project implementation goal is to plan and then construct on average, one retrofit project per year, provided that funds are procured (see Chapter 7). This strategy does not specify which potential project locations might be implemented by a certain date. Potential project locations have been identified through a prioritization analysis described in Section 3.1; the list of potential project locations is included as Appendix A. Though the County’s goal is to implement one project per year, the list includes thirty potential project locations in order to provide flexibility in project selection. Given the unknown of which locations may move forward to be actual projects within the specified timeframes, the impervious surface area per project was normalized. That is, the total impervious surface area for the thirty potential GI project locations that are shown in Appendix A is 42 acres, with an average of 1.4 acres per project). As a result, if one project is programmed per year, then 1.4 acres of impervious surface would be retrofit per year on average and a total of approximately 28 acres of impervious area would be retrofit from 2021 to 2040. Approximately 15 acres of public GI retrofit will have been constructed from 2003 to 2020, for a total of 43 acres by 2040. Table 4 below presents the impervious area retrofit targets for public projects for 2020, 2030, and 2040.

Table 4: Estimate of Impervious Surface Retrofit via Public Project

Year	Total Impervious Area (Acres) ¹
2003 - 2020	15 ²
2021 - 2030	14
2031 - 2040	14

1. Total impervious area reported to nearest whole acre.

2. Total impervious area retrofit through existing public GI projects.

2.3 Projected Load Reductions

MRP Provisions C.11 and C.12 require the Contra Costa Permittees within San Francisco Bay RWQCB jurisdiction to collectively reduce estimated PCBs loading by 23 g/year and estimated mercury loading by 9 g/year using GI by June 30, 2020. Regionally, MRP Permittees must project the load reductions achieved via GI by 2020, 2030, and 2040 as part of the TMDL Implementation Plans due in 2020, showing that collectively, reductions will amount to 3 kg/year of PCBs and 10 kg/year of total mercury by 2040. A “Countywide Attainment Scenario Report” will be completed in 2020, which will provides a preliminary projection for load reductions achieved via GI by 2020, 2030, and 2040 at the Countywide level using the RAA model. The GI projects and project opportunities included in this Plan will be accounted for in the Countywide Attainment Scenario Report.

As part of the RAA process, the estimates of projected private development (described in Section 2.1) and the general and specific locations of public GI projects (summarized in Section 2.2 and detailed in Chapter 3) will be incorporated into a final water quality model and projected pollutant load reductions will be developed for 2020, 2030, and 2040. Details of methods, inputs, and model outputs will be included in the TMDL Implementation Plan and RAA Technical Report, which will be submitted to the RWQCB with the 2020 Annual Report.

3 Public Project Identification, Prioritization, and Mapping

3.1 Tools for Public Project Identification and Prioritization

Publicly-owned parcels and ROWs that could potentially be retrofit to include multi-benefit stormwater capture facilities were identified in the CCW SWRP. These potential project locations were used as the basis for identifying future public retrofit opportunities within the County for this GI Plan. A summary of the project identification and prioritization process conducted for the CCW SWRP is described below; additional details may be found in the CCW SWRP.

3.1.1 SWRP Project Opportunity Identification

The CCW SWRP identified public retrofit opportunities through a request for planned projects, sent to the Contra Costa County Permittees, along with a geographic information system (GIS)-based project opportunity analysis, conducted using data received from the Permittees through a data request. Information related to the identification of potential project locations was received from 25 jurisdictions, government agencies, non-governmental organizations, and watershed groups.

The desktop GIS analysis entailed screening for publicly-owned parcels and ROW without physical feasibility constraints that would preclude implementation of a stormwater capture measure. The project opportunity analysis consisted of the following steps:

1. Identify publicly-owned parcels through parcel ownership and/or tax-exempt status.
2. Screen identified publicly-owned parcels to identify those at least 0.1 acres in size; and with average slopes less than 10%.
3. Identify ROW using the county-wide roadway data layer. Roadways considered were state and county highways and connecting roads, as well as local, neighborhood, and rural roads.
4. Identify land uses associated with identified parcels and surrounding identified ROW with a combination of ABAG land use categories and use codes provided by the Contra Costa County Assessor.
5. Screen all identified locations for physical feasibility. The following screening relating to physical constraints was applied to identified sites (to the extent that the necessary data had been provided or obtained):
 - a. Regional facilities were not considered for parcels that were greater than 500 feet from a storm drain, due to limited feasibility in treating runoff from a larger drainage area;
 - b. Parcel-based facilities were not considered for sites that were more than 50% undeveloped land uses, due to the limited potential for pollutant of concern load reduction;
 - c. Parcels with significant drainage area outside of urbanized areas were removed, as these sites would not provide opportunity for significant pollutant of concern load reduction;

- d. Sites more than 50% within environmentally sensitive areas (ESAs) (designated wetlands, biologically sensitive areas) were removed so as not to disturb these habitats;
- e. Sites with more than 50% overlying landslide hazard zones were removed to avoid the potential for increasing landslide risk.

The remaining identified public parcels and ROW were considered preliminarily feasible for implementation of stormwater capture measures and were analyzed using a metrics-based multi-benefit analysis. The results of the metrics-based multi-benefit analysis provided some information helpful for consideration of GI priorities within Unincorporated County. A summary of the project opportunity classification and scoring conducted for the SWRP is provided in the following section.

3.1.2 SWRP Project Opportunity Metrics-Based Multi-Benefit Analysis

To conduct the project opportunity metrics-based multi-benefit analysis required as part of the SWRP, additional data was analyzed, and classifications were made regarding the project opportunities. First, project opportunities were classified using the following information:

1. Stormwater capture project type;
2. Infiltration feasibility;
3. Facility type;
4. Drainage area information.

Details regarding each of these classifications are provided below.

Stormwater Capture Project Type

All physically feasible project opportunities that did not include a previously defined non-GI stormwater capture facility (e.g. stream restoration projects provided by Stakeholders as part of the SWRP project request), were assumed to be feasible for GI implementation as part of the SWRP project opportunity classification. The projects identified through the GIS opportunity analysis and stakeholder stormwater capture projects process were categorized as parcel-based, regional, or ROW/green street projects; see Table 5 below.

Table 5: Green Infrastructure Project Types and Categorization Criteria

GI Project Type	Definition	Description
ROW/green street projects	Treating the road and portions of adjacent parcels	<ul style="list-style-type: none"> All street-based projects.
Regional Projects	Treating a large area draining to the parcel	<ul style="list-style-type: none"> The parcel contains at least 0.5 acre of undeveloped or pervious area (as identified through the land use class); and The drainage area is larger than the parcel itself and the location is sufficiently close to a storm drain (i.e., within 500 feet, where storm drain pipe data is available).
Parcel-based projects	Treating the drainage area only on the identified parcel	<ul style="list-style-type: none"> All other parcel locations.

Infiltration Feasibility

All SWRP project opportunity locations were categorized as feasible, infeasible, or partially feasible for infiltration, based on underlying hydrologic soil group, depth to groundwater (as data available), nearby soil or groundwater contamination, and presence of underlying geotechnical hazards; see Table 6 below.

Table 6: SWRP Project Opportunity Infiltration Feasibility Categorization Criteria

Infiltration Feasibility Category	Description
Hazardous/infeasible for infiltration	Projects that are located: <ul style="list-style-type: none"> More than 50% overlying liquefaction hazards; Within 100 feet of a site with soil or groundwater contamination (e.g., based on proximity to active GeoTracker¹ or EnviroStor² sites).
Infiltration safe but only partially feasible	None of the above constraints exist, but the soil underlying the facility is relatively poorly draining (identified as hydrologic soil group [HSG] C or D).
Infiltration feasible	The site has none of the infiltration hazards present and the soil underlying the facility is relatively well draining (identified as HSG A or B).

¹ GeoTracker is a California State Water Resources Control Board website which tracks sites with the potential to impact water quality in California, including contaminated sites (<https://geotracker.waterboards.ca.gov/>).

² EnviroStor is the Department of Toxic Substances Control's data management system for tracking cleanup, permitting, enforcement and investigation efforts at hazardous waste facilities and sites with known contamination or sites where there may be reasons to investigate further (<https://www.envirostor.dtsc.ca.gov/public/>).

For the purpose of SWRP project opportunity multi-benefit scoring, locations feasible for infiltration were assumed to retain the full water quality volume. At locations that are partially feasible for infiltration, it was assumed that infiltration would be promoted in the facility, but the full water quality volume would not be infiltrated due to poor drainage. These areas were assumed to infiltrate to the extent possible using a raised underdrain. Locations that are hazardous for infiltration were assumed to implement non-infiltrating GI projects (i.e., lined bioretention) and were assumed to retain no volume.

SWRP Project Opportunity Facility Type

Each SWRP project opportunity location was assigned a facility type. For potential projects identified by the Permittees and/or stakeholders, a facility type was assigned based on the description or classification provided by the agency or project proponent. For project opportunities identified through GIS analysis, the facility type was assumed to be GI, with infiltration capability defined based on the infiltration feasibility screening. The resulting SWRP multi-benefit stormwater capture project types, considered for the GI Plan, included:

- Capture and Reuse
- Constructed Wetland
- Lined Bioretention
- Unlined Bioretention
- Unlined Swale
- Water Quality Basin

Flood control facilities and habitat restoration project opportunities were open for consideration by Unincorporated County, if feasible to include GI.

SWRP Project Opportunity Drainage Area

For each identified project opportunity, the drainage area was identified and characterized as follows:

1. All project opportunities with identified drainage areas were characterized as provided by project proponents.
2. For ROW opportunities for which the drainage area had not been characterized, the roadway and an assumed tributary width (i.e. 50 feet per side) that extends into the adjacent parcels was considered the drainage area.
3. For parcel-based project opportunities for which the drainage area had not been characterized, the entire parcel was assumed to make up the drainage area.
4. For regional project opportunities for which the drainage area had not been characterized, the drainage area characterization (i.e., slope and land use) was approximated.

The drainage areas defined as part of the SWRP were applied to the project opportunities associated with the geographic areas found potentially feasible for retrofit that the County identified through this GI Plan. As such, these drainage areas could change, if and when facilities are identified and located for capture of these geographic areas.

SWRP Project Opportunity Metrics-Based Multi-Benefit Analysis Scoring

Using the information compiled in the identified project opportunity database, each SWRP identified project received a score using a metrics-based multi benefit analysis. A description of each project criteria that was used to analyze and score projects is provided below:

- **Parcel area** (regional and parcel-based GI opportunities only) - This scoring component awarded more points for larger parcels.
- **Slope** – This scoring component awarded more points to flatter slopes and is related to ease of construction and implementation.
- **Infiltration feasibility** – More points were awarded to projects that overlie infiltrating soils.
- **PCBs/mercury yield classification in project drainage area** – This scoring component is related to the influent TMDL pollutant loads; higher potential load reduction achieved higher points.
- **Removes pollutant loads from stormwater** – Points were awarded to facilities designed as GI or treatment control facilities for this scoring component.
- **Augments water supply** – Increasing points were awarded based on potential water supply provided for this scoring component.
- **Provides flood control benefits** – Flood control facilities received points specific to providing flood control benefits for this scoring component.
- **Re-establishes natural water drainage systems** or develops, restores, or enhances habitat and open space – Hydromodification control, stream restoration, and habitat restoration projects received points specific to providing these environmental benefits, for this scoring component.
- **Provides community enhancement and engagement** – Projects that specifically provide public use areas or public education components with potential opportunities for community engagement and involvement were given points specific to providing community benefits, for this scoring component.

All classified and scored projects were compiled into a master database as part of the CCW SWRP and organized by Permittee. The CCW SWRP-identified project opportunities located within County jurisdiction were provided for review. The project classification information and SWRP score were provided for informational purposes.

3.1.3 Additional Criteria Used by Municipal Staff

This section presents the methodology used by the County to identify potential public project locations included in this GI Plan. From the CCW SWRP analysis described in section 3.1, approximately 3,800 potential project locations were identified throughout the County. The County screened this list to eliminate infeasible and low priority potential project locations. The initial screening excluded the following from the CCW SWRP locations:

- Those located in new urban/open space land uses;
- Old urban ROW locations that were not prioritized; and
- Low priority locations.

The initial screening resulted in a list of 856 potential public project locations for further consideration. These 856 locations were then categorized using the following criteria:

- Adjacent to PCBs source property;
- Old industrial;
- Old urban;
- County-identified opportunities; and
- Outside the Urban Limit Line.

After further refinement, 206 potential public project locations were presented to the County GI Plan Technical Advisory Group (TAG) for vetting. The County GI Plan TAG consisted of personnel from several County departments notably : the Public Works Department and its divisions, i.e., Transportation Engineering, Capital Projects, Engineering Services, Design and Construction, and IT; the department of , Conservation and Development, and the Flood Control and Water Conservation district; and the Watershed Program. Members of the TAG reviewed early drafts of the GI plan to evaluate and vet potential GI project locations and to confirm the priority of identified locations that may remain as potentially feasible, based on their knowledge of the Unincorporated County areas and GI implementation goals and objectives. As a result of the TAG's review, 109 GI project locations were identified as potentially feasible.

3.2 Maps and Project Lists

This project location evaluation effort, combined with additional discussions among TAG members, desktop feasibility analyses, and visits to selected locations, resulted in the when winnowing down these 109 locations to the 30 locations included in the Final Draft GI Plan (see Appendix A). The geographic distribution of these 30 potential GI locations is shown in Figure 4, on the following page.

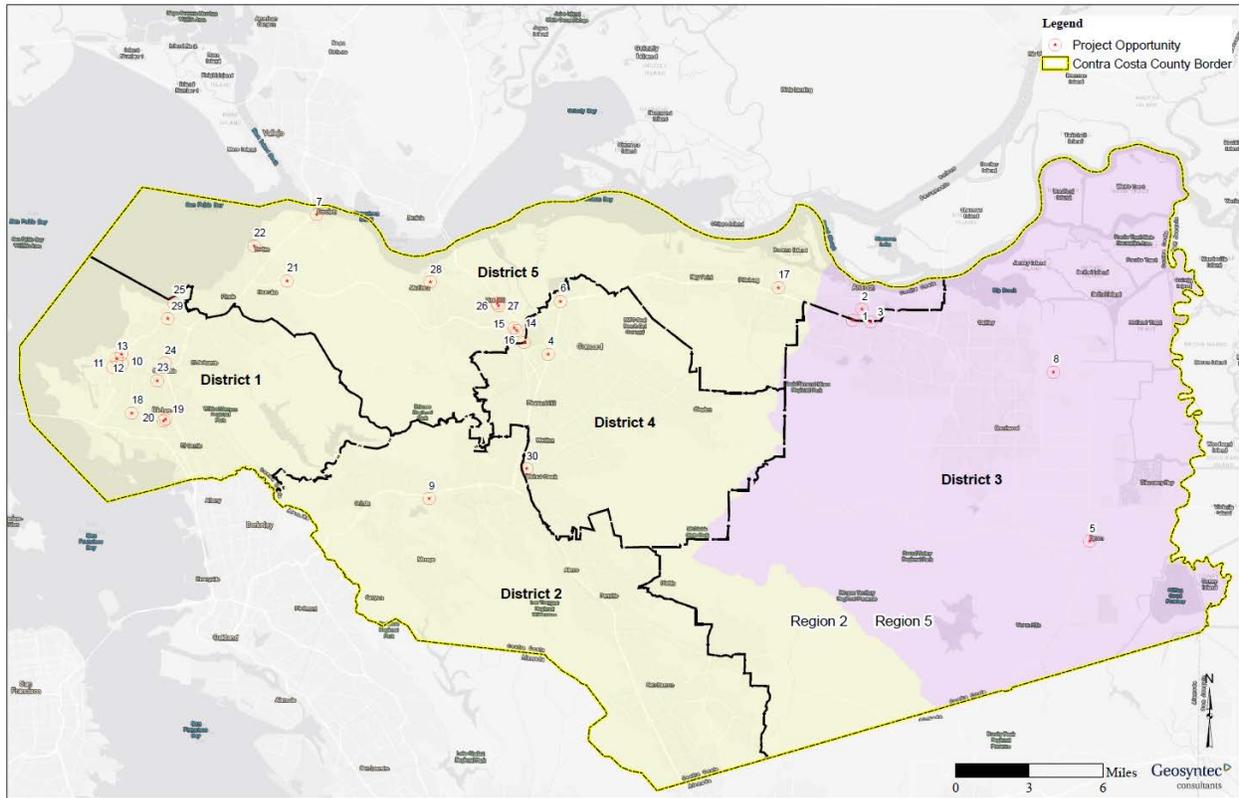


Figure 4. Geographic Distribution of the Potential GI Project Locations.

These potential project locations will be further assessed and subsequently eliminated or identified as public project opportunities as the County implements this GI Plan.

The County intends to design and implement, on average, one GI project per year between 2021 and 2040. While this level amounts to twenty total projects implemented by 2040, thirty have been identified as priority GI locations in order to allow the County substitute GI project locations for those that are deemed infeasible during the conceptual design phase. As this is a “living” plan, potential project locations may be added over time. The list and maps of the thirty potential project locations are provided in Appendix A.

4 Early Implementation Projects

4.1 Review of Capital Improvement Projects

MRP Provision C.3.j.ii. requires that Permittees prepare and maintain a list of public and private green infrastructure projects planned for implementation during the current permit term, and public projects that have potential for green infrastructure measures. The County submitted an initial list with the FY 15-16 Annual Report to the RWQCB and updated the list in the FY 16-17 and FY 17-18 Annual Reports. The creation and maintenance of this list was supported by guidance developed by BASMAA: “Guidance for Identifying Green Infrastructure Potential in Municipal Capital Improvement Projects” (CIP), May 6, 2016.

4.2 List of Projects Identified

The County Watershed Program staff have been in regular contact and coordination with the County’s Transportation Engineering, Design/Construction, and Capital Projects (CP) Divisions of the Public Works Department to identify potential GI facilities for new or redeveloped County buildings and parking lots, in the effort to fulfill the expectation of the MRP’s C.3.j provision of “no missed opportunities” with respect to GI for County projects that are regulated by C.3. As a result, staff from the County Watershed Program and CP Division have been cooperating in the determining C.3 responses to and/or the development of stormwater control plans for the following capital projects:

- County Administration Building, 651 Pine St., Martinez – additional GI facilities in addition to C.3 requirements
- Office of Emergency Services (OES) 50 Glacier Drive, Martinez – additional GI facilities in addition to C.3 requirements
- Contra Costa County Surface Parking Lot (651 Pine St., Martinez – Exploring additional GI facilities in addition to C.3 requirements
- Surplus Storage Yard Parking Lot (adjacent to OES) - Exploring additional GI facilities in addition to C.3 requirements
- Animal Services Facility Parking Lot and play area expansion - Exploring additional GI facilities in addition to C.3 requirements
- MDF parking deck, Willow Street, Martinez

One example of a public ROW project that has implemented GI is the Rio Vista Sidewalk Project, which was constructed in 2018 and incorporates permeable pavement.

In addition, a non-C.3 “complete streets” project in North Richmond, “Fred Jackson Way First Mile/Last Mile”, has been adapted to include urban greening and potentially GI features.

CIP Projects with Green Infrastructure potential that were identified during 2015-2019 are listed in Table 7, along with their status.

Table 7: Capital Improvement Projects with Green Infrastructure Potential (identified 2015-2019)

Project Name	Description	Potential Tributary Impervious Area (SF)	Project Status
County Administration Building	Office building replacement and new parking structure.	36,086 SF	In progress – scheduled to complete April 2020
Office of Emergency Services	Replacement of two County buildings	110,704 SF	In progress – scheduled to complete Jan. 2020
Contra Costa County Surface Parking Lot	New Administration Parking Lot	61,458 SF	Complete
Animal Services Facility Parking Lot and Play Area Expansion	New 26 stall parking expansion and dog play area	13,555 SF	In planning
MDF Parking Deck	New Elevated Parking Deck located at Martinez Detention Facility	26,900 SF	In progress – scheduled to complete Oct. 2019
Fred Jackson Way “First Mile/Last Mile”	Construct sidewalk and bike lanes on Fred Jackson Way from Grove Avenue to Brookside Drive	84,000 SF = 1.9 acres	In Design – construction 2021
Rio Vista Sidewalk	Sidewalk improvements, including permeable pavement	(County Input)	Complete
Rodeo Downtown Sidewalk	Sidewalk improvements, including bioretention area	(County Input)	Complete

4.3 Workplan for Completion

Tasks and timeframes for constructing the projects identified in Section 4.2

Note: County to provide input to this section.

5 Tracking and Mapping Public and Private Projects Over Time

5.1 Tools and Process

The CCCWP has developed a county-wide GIS platform for maintaining, analyzing, displaying, and reporting relevant municipal stormwater program data and information related to MRP Provisions C.10 (trash load reduction activities) and C.11/C.12 (mercury and PCBs source property identification and abatement screening activities). This tool is also used to track and report on GI project implementation.

The CCCWP's stormwater GIS platform features web maps and applications created using ESRI's ArcGIS Online (AGOL) for Organizations environment, which accesses GIS data, custom web services and reports that are hosted within an Amazon cloud service running ESRI's ArcGIS Server technology.

The *C.3 Project Tracking and Load Reduction Accounting Tool* within the CCCWP AGOL system is used to track and report on GI project implementation. It is currently used to track and map existing private and public projects incorporating GI. In the future, it may also be used to map planned GI projects and will allow for ongoing review of opportunities for incorporating GI into existing and planned CIPs. The AGOL system can be used to develop maps that can be displayed on public websites and/ or distributed to the public. These maps can be developed to contain information regarding the GI project data input into the AGOL system.

The *C.3 Project Tracking and Load Reduction Accounting Tool* is intended to be used to allow for estimates of potential project load reduction for PCBs and mercury and presently supports the BASMAA Interim Accounting Methodology for certain load reduction activities. In the future, the tool is planned to be updated with the RAA methodology that is being developed for the County. That functionality is planned to be active by the end of the current Permit term (December 2020).

The County already actively engages with the AGOL tool and maintains up-to-date C.3 and public GI retrofit project data to add new projects and/or provide project status updates.

6 Design Guidelines and Specifications

6.1 Guidelines for Streetscape and Project Design

When determining design elements to be included in streetscape improvements and complete streets projects, it is recommended that project managers and designers consult the National Association of City Transportation Officials (NACTO) *Urban Street Stormwater Guide*, the San Mateo County *Sustainable Green Streets and Parking Lots Design Guidebook* (specifically Chapter 5: Key Design and Construction Details), and other streetscape resources available on the CCCWP website. Additionally, the BASMAA *Guidance for Identifying Green Infrastructure Potential in Municipal Capital Improvement Projects* (BASMAA, 2016) during CIP project review for GI potential, is a valuable resource. All of these references are provided in Appendix B.

6.2 Specifications and Typical Design Details

GI features and facilities will be designed and constructed in accordance with the applicable specifications and criteria in the *CCCWP Stormwater C.3 Guidebook*. Additional details and specifications, as may be needed for design of street retrofit projects, can be adapted from Appendix B (“Green Infrastructure Details”) of the *San Francisco Public Utilities Commission Stormwater Requirements and Design Guidelines* (SFPUC, 2016), the *Central Coast Low Impact Development Institute Bioretention Standard Details and Specifications* (CASQA and LIDI, 2017), the BASMAA Urban Greening details (BASMAA, 2017), or other resources compiled by the CCCWP and available through their website. These references are provided in Appendix C.

6.3 Sizing Requirements

For public GI retrofit projects, regional and parcel-based projects should be sized, to the extent possible, to meet the “Volume Hydraulic Design Basis”¹⁰ that is included in MRP Provision C.3.d.i.(1). For regional projects, as defined in Table 5, sizing will be conducted on a project-specific basis and may include consideration of treatment facilities, other pollutant priorities (e.g. trash), or other factors present in the watershed.

For public GI retrofit projects located in the ROW, it is recommended to follow the BASMAA-released *Guidance for Sizing Green Infrastructure Facilities in Street Projects* (BASMAA, 2018), pending any subsequent guidance released by the RWQCB.

These references are also included in Appendix D.

¹⁰ From MRP Provision C.3.d.i.(1): Treatment systems whose primary mode of action depends on volume capacity shall be designed to treat runoff equal to:

- (a) The maximum stormwater capture volume based historical rainfall records, essentially runoff from the 85th percentile 24-hour storm event; or
- (b) The volume of annual runoff required to achieve greater-than or equal to 80 percent capture using local rainfall data; in accordance to Section 5 of CASQA’s *Stormwater Best Practice Handbook, New Development and Redevelopment* (2003).

7 Funding Options

7.1 Funding Strategies Developed Regionally

Provision C.3.j.i(2)(k) of the MRP states that the green infrastructure (GI) plans are to include “an evaluation of prioritized project funding options, including, but not limited to: Alternative Compliance funds; grant monies, including transportation project grants from federal, State, and local agencies; existing Permittee resources; new tax or other levies; and other sources of funds.” This Section provides an evaluation of funding sources to help facilitate implementation.

7.1.1 Funding Context

GI falls generally under the umbrella of stormwater management, but it also expands the meaning of stormwater management as municipalities have long conceived it, as GI can be associated with or be inclusive of urban greening,” sustainable streets,” and place-making features. Over the past century of urban expansion, stormwater management has meant collecting and conveying “nuisance” runoff to receiving waters. The revisions to the Clean Water Act in the late 1980s and the first NPDES permits in the following decade for municipal separate storm sewer systems (which are known as “MS4s”), have served to redefine stormwater management profoundly. Over the past three decades, the trend in MS4 permits has become clear: municipalities must change how they view their roles as stormwater managers; to regard their roles as stormwater stewards, by enabling stormwater to be infiltrated into the soil or captured for reuse and/or recycling. Where they had once focused strictly on traditional public infrastructure, MS4 permits now induce them to re-focus on other more “environmentally friendly” best management practices (public and private), such as integrated pest management, controlling commercial and industrial discharges, managing construction sites, and requiring permanent controls on new development (including low impact development and hydrograph modification (hydromodification) management), trash capture, and implementation of GI for existing developed areas (i.e., GI retrofit).

Just as more municipalities are realizing that stormwater management should be considered an enterprise or utility on par with water and sewer utilities, others are beginning to realize that stormwater management may have already outgrown its “utility” status. Stormwater management does not fit neatly into public works functions but has a range of purposes that must be integrated into municipal planning and land use responsibilities, as well. It is also pushing the limits of what a municipality is empowered to do regarding behavior and practices on private property. This is manifest in the range of documents that make up the GI Plans.

Funding for GI is no less vexing. Under the old “gray infrastructure” model, stormwater funding was used for management and upgrade/expansion of traditional public stormwater infrastructure (inlets, pipes, pump stations, creeks, channels, and levees). Under the new model of green infrastructure, GI serves to extend the benefits of stormwater management, though the funding framework for GI/low impact development (LID) is not well developed.

Traditional stormwater funding has always been a challenging field with many hurdles that are changing as rapidly as the regulations pertaining to stormwater quality. Dedicated and sustainable stormwater funding is usually found in the form of a property-related fee (similar to water and sewer fees). Proposition

218 requires these to be focused around services provided and each property's share of the cost of those services. GI expands the universe of infrastructure beyond the traditional drainage facilities to roads, landscaped areas, and other features not traditionally thought of as MS4 facilities. As a result, great care must be taken as traditional stormwater funding sources are applied to the GI goals.

Proposition 218 was a constitutional amendment approved by California voters in 1996 and was intended to make it more difficult for municipalities to raise taxes, assessments, and fees, (including property-related fees). As currently interpreted by the courts, Proposition 218 requires that stormwater fees must be approved through a ballot measure – a much higher threshold than for the sister utilities of water, sewer, and refuse collection, which must only conduct a public hearing. The result is that in the past two decades, only a handful of municipalities have been able to put any new stormwater revenue mechanisms in place. This has been detrimental to achieving the “One Water” goals that are so important in resolving water supply shortages and pollution, and other water resources challenges.

7.1.2 Regionally Developed Planning/Funding Resources

This Section builds on several foundational documents that offer general background information and guidance on formulating funding strategies for GI.

BASMAA – Roadmap for Funding Solutions for Sustainable Streets

BASMAA published the "Roadmap for Funding Solutions for Sustainable Streets" in April 2018. That report was "developed to identify and remedy obstacles to funding for Sustainable Street projects, which are defined as projects that include both Complete Street improvements and green stormwater infrastructure." The actions contained in the report "are designed to improve the capacity...to fund Sustainable Streets projects that support compliance with regional permit requirements to reduce pollutant loading...while also helping to achieve the region's greenhouse gas reduction targets." Those actions include maximizing available resources and as well as identifying new funding streams.

Although municipal ROW represents only a fraction of the acreage within its boundaries, roadways present some of the best opportunities for GI implementation. Roadways tend to be the first opportunity to grab concentrated, untreated storm flows and route them to (or become) GI facilities.

The BASMAA “Roadmap” provides excellent guidance on making the most of these benefits.

CASQA – Stormwater Funding Resource Website

The California Stormwater Quality Association (“CASQA”) has developed a Stormwater Funding Resource webpage. Although it does not focus specifically on GI funding, much of its content is applicable to various aspects of GI funding. It can be found at the following url: <https://www.casqa.org/resources/funding-resources>. It contains sections that examine sustainable funding, creating a stormwater utility, project funding, and examples of regional funding efforts.

7.2 Local Funding Strategies

It has become evident that downstream funding needs will be substantial and varied in scope. GI, by its very nature, is a flexible and variable approach to reducing stormwater pollutants, and therefore will continue to evolve in the coming years in its efficacy, costs, and approaches.

There are several ways to categorize funding. This Section looks at whether funding is either ongoing or one-time funding, or debt financing (one-time funds that are repaid in an ongoing manner). This report also distinguishes between balloted and non-balloted, as any funding source that requires a ballot measure will bring more challenges. Figure 5 below helps to visualize these two axes and illustrates a few examples of each.

Figure 5. General Funding Category Matrix.

	Sustainable / Ongoing	One-Time	Long-Term Debt
Balloted	Taxes, Fees & Assessments		GO Bonds *
Non-Balloted	Regulatory Fees Re-Alignment Developer Fees	Grants	COPs ** Revolving Fund

* General Obligation Bonds; ** Certificates of Participation

GI costs can be divided into three primary elements: planning, design and construction, and operation and maintenance. However, it is worth noting that not all of these elements can be funded by all funding sources. For example, bond funding is typically only applicable to capital improvement projects and cannot fund early planning or future maintenance. Appendix E contains a matrix of funding sources that cross-reference each source against the types of activity to which it does or does not apply.

7.2.1 Traditional Funding Mechanisms

This section discusses common existing funding mechanisms such as fees, taxes, grants and debt issuance. As indicated in the matrix above, some of these mechanisms require a ballot proceeding for approval, which are discussed separately.

Balloted Mechanisms

There are two basic types of balloted measures appropriate for stormwater funding, namely, property-related fees and special taxes. Successfully implemented balloted approaches have the greatest capacity to significantly and reliably fund stormwater management, but they are often very challenging to enact. Generally, the most important key to a successful ballot measure is to propose a project or program that is seen by the voting community to have a value commensurate with the tax or fee. The two greatest challenges are to craft a measure that meets this threshold, and then to effectively communicate the information to the community.

Since balloted funding mechanisms tend to be the most flexible and sustainable, they are often seen as underpinning an agency's entire program. Not only can they pay directly for services or projects, but a dedicated and sustainable revenue stream can also be leveraged to help secure grants, loans, partnerships, and many other opportunities that present themselves. Without such a dedicated revenue stream, those opportunities must often be missed. Examples of balloted mechanisms include:

- Property-related fees. These are similar to fees imposed for water, sewer, and solid waste services. The primary difference between those fees and fees for stormwater services are that stormwater fees are required to be approved through a ballot measure in accordance with Proposition 218 where a simple 50% majority is required for passage (where one parcel equals one vote). In all other ways they are identical to the other utility fees: they require a fair-share apportionment of costs to rate payers as detailed in a rate study or other cost of service analysis; they cannot charge more than the proportionate cost of service (e.g., discounts or exemptions cannot be subsidized by other ratepayers); and all revenues must be spent only on the stormwater services. Property-related fees are the most common sustainable revenue mechanism employed by municipalities for stormwater management services. However, as GI stretches the traditional definition of stormwater management (reaching into transportation, watershed management, and water resources), so, too, must a GI-related fee mechanism be "stretched" to encompass the scope of GI.
- Special taxes. These are decided by registered voters and require a two-thirds majority for approval. Special taxes are well known to Californians and are utilized for all manner of services, projects, and programs. They are usually legally very stout and flexible and can support an issuance of debt such as loans or bonds in most cases. There are several types of special taxes, but the most common for stormwater services are parcel taxes. Other types of special taxes include sales, business license, vehicle license, utility users, and transient occupancy taxes. These types can also be implemented as a general (not special) tax, where they would only require a simple 50% majority for passage. But to qualify as a general tax, it must be pledged only for an agency's general fund with no strings attached, in which case any GI or stormwater services must compete with other general funded services such as police, fire and parks. Although a general tax requires only a simple majority, voters tend to show better support for special taxes where the purpose of the tax is explicitly identified.
- General obligation bonds. These are familiar to the voting public. Such bond measures require a two-thirds majority for passage. Bonds are issued to raise funding up front and are repaid through a tax levied against property on the annual property tax bill. One primary restriction on these bonds is that they can only be used for capital projects. While that includes land acquisition, planning, design and construction, the costs for maintenance and operations cannot be paid from the bond proceeds.

Challenges with balloted approaches extend beyond the requirement for voter approval; they include a lack of familiarity by stormwater and GI professionals, the need for extensive community engagement and education, as well as political strategizing. Over the past 15 years, there have been fewer than thirty community-wide measures attempted for stormwater throughout California, and the success rate is just over 50%. Though that has generally been the case, during the most-recent election cycle (November

2018), in both the City of Berkeley and the County of Los Angeles County, voters approved funding measures. Los Angeles' bond, "Measure W," was approved with 69% of the vote; this measure enacts a parcel tax of 2.5 cents per square-foot of impermeable surface.

Though challenging, keys to a successful balloted approach include:

- Evaluate your community's needs and develop a plan for meeting them. This often will come from a needs analysis or a master plan. The more popular projects are ones that the community sees as fixing a problem they know about.
- Know your community's priorities. If agency needs are not seen as priorities by the community, a ballot measure will likely fail. Priorities are usually measured by a public opinion survey, which would identify priorities as well as willingness to pay for the proposed program. Top priorities identified in the survey should be folded-back into the proposed measure to demonstrate that the agency is responsive to the community's input.
- Communicate with the voters. Community engagement must be tailored to fit the measure. It can range from a brief set of outreach materials (i.e. website and/or flyer) to a comprehensive branding and information effort that can take several months or longer, complete with town hall meetings and media coverage. Knowing your stakeholders and opinion leaders is a must, and special efforts with those groups are always recommended. Note that advocacy by a public agency is strictly forbidden by law, so legal counsel should be involved at some point to help distinguish between outreach and advocacy.
- Know where you stand with the voters. Questions to raise internally include: do voters trust the agency; do they believe that it will deliver on its promises; and how have past ballot measures worked out? If you know the answers to questions like these, and if your answers are not positive or supportive of advancing the measure, then it will be important to develop some corrective strategies before embarking on it.
- Plan for the needed resources. Many public agencies hire professional consultants for critical elements of this process from needs analysis to surveys and community engagement. While these consultants can be costly, it is usually well worth the expense if they can deliver a successful measure. Considerable agency staff time may also be required, since this is a very iterative process that must be presented to the public by agency representatives, not consultants.

Senate Bill 231, passed by the California State legislature and signed by the Governor in October 2017, modified the Proposition 218 Omnibus Act, by adding a definition of sewer that included storm drainage. By doing this, stormwater fees can be enacted, or increased without a ballot measure. However, the legality of the statute will be tested by the authors of Prop 218 (Howard Jarvis Taxpayers Association) who have promised to sue any municipality that takes advantage of SB 231 by enacting or increasing stormwater fees. So, unless municipalities wish to have this law tested against Prop 218 judicially, or wish to coordinate among each other in doing so, they should continue to submit stormwater fees to a ballot

Non-Balloted Mechanisms

Non-balloted funding mechanisms include regulatory fees, developer impact fees, and other opportunistic approaches to funding. Table 10 lists a few of the more common approaches. While these funding approaches do not require voter approval, they still impact various segments of the community and therefore will feel the effects of local politics.

Table 8: Common Approaches to Non-Balloted Funding Mechanisms

Type of Approach	Examples	Comments
Regulatory Fees	<ul style="list-style-type: none"> Plan Check Fees Inspection Fees 	Proposition 26 (2010) has significantly limited the applicability.
Realignment of Services	<ul style="list-style-type: none"> Water Supply Sewer Refuse Collection 	Leverage and integrate stormwater elements that qualify under water, sewer, and/or refuse collection categories.
Business License Fees	<ul style="list-style-type: none"> Business License Fee 	Applies to commercial operations with clear impacts on stormwater such as restaurants and vehicle repairs.
AB 1600 Fees	<ul style="list-style-type: none"> Developer Impact Fees 	Similar to impact fees aimed at improving water and sewer systems, or parks and schools.
Integration into Projects with Existing Funding	<ul style="list-style-type: none"> Transportation or Utility Projects 	Takes advantage of multi-benefit projects that also further stormwater goals.

Two of the more applicable approaches for the County are discussed in greater detail, developer impact fees and realignment:

- Developer impact fees. These fees are monetary exactions placed on the conditions of approval for a new development. These are also called AB 1600 fees and must be identified in a nexus study of some sort. One of the challenges of utilizing developer impact fees for GI is demonstrating the nexus of the development to impacts on stormwater quality. Most new development is already subject to Provision C.3, which may be considered adequate to cover those impacts. Therefore, care must be taken before charging additional impact fees.

- Realignment. This term is applied to reorganizing the internal work flow and/or financial tracking of revenues and expenditures of certain stormwater management activities that support other non-balloted fee structures (i.e. water, sewer, and refuse collection). The most common example is that of trash capture. The MRP, where it is functioning as a stormwater pollutant reduction permit, requires the County to implement a trash capture plan. Collecting trash, however, is a function of the community's trash collection system, which does not require voter approval for fee increases. Therefore, the County could charge all of its trash capture expenses (capital, operations and maintenance, and administrative) directly to properties that contribute to the trash burden.

Grants and Loans

Grants and loans are typically one-time funds from an outside source. Because of their one-time nature, they are best suited for finite projects or programs (rather than ongoing and recurring operational and maintenance programs). Grants do not have to be repaid whereas loans do require repayment (usually with interest). Both require an agency to apply and are usually competitive. Most grants are targeted to specific programs or features, so crafting a project to fit with the grant goals and objectives is challenging. Federal, state and regional grant programs have funding available to local governments to support GI efforts. Several current grant programs are listed in Appendix E. Below are listed some benefits and challenges with both types of funding:

Benefits:

- Grants can fund programs or systems that would otherwise take up significant general fund revenues
- Grants often fund new and innovative ideas that a local agency might otherwise be reluctant to take on using general funds
- Grants can be leveraged with other sources of funding, which can serve to increase the viability, benefits, and/or size of a GI project
- Successful implementation of a grant-funded project can establish a positive precedent that can lead to receipt of other grants
- Certain loan programs such as the State Revolving Fund can offer lower-than-market interest rates and less security requirements.

Challenges:

- Timelines for grants often do not fit with an agency's timelines for project implementation;
- Coordinating multiple grants for a single project can be particularly challenging as timelines and matching fund requirements may not align;
- Most grants require an agency to furnish matching funds from outside of the grant, so they cannot generally be considered as stand-alone sources of funding
- Grants and some loans are competitive in nature, and have limited funding levels

- Grants are often limited to specific goal and objectives that may not fit with those of the agency (such as GI goals)
- Alternatively, some grants may require multiple objectives be fulfilled as part of a project, some of which may not be consistent with, or applicable to the mission of the agency
- Grant applications can require considerable staff time and coordination resources, with no guaranty of success
- Most grants require that the agency commit to providing post-project maintenance without providing the associated funding for it
- Loans and bond programs require ongoing, dedicated funding to make debt payments

While grants and loans can (and should) be sought for funding critical projects such as GI, they are best when underwritten by some sort of ongoing revenue source that can provide matching funds, post-project operation and maintenance funds, or debt payments. The California Clean Water State Revolving Fund is one type of revolving fund loan may be a good option.

7.2.2 Special Financing Districts

Special financing districts are financial structures created by local agencies for the purpose of levying taxes, fees or assessment for specific improvements and/or services provided. While most special financing districts require a ballot process, they are often employed with new development projects when all the property(ies) are owned by one entity. As such, the balloting is an administrative function with an assured outcome.

There are four basic types of special financing districts that apply to GI: benefit assessments; community financing districts (CFD, or Mello-Roos); business improvement districts (BID); and enhanced infrastructure financing districts (EIFD). Each of these can be used to support debt service. Further detail regarding each is provided below:

- Benefit assessments. These are relatively restrictive in that they must account for any general benefit to property not within the district, which in turn cannot be included in the assessment calculation for the properties. With GI, the general benefits could be considerable thereby diluting the funding potential for this option. This option requires a simple 50% majority (with ballots weighted by the amount of the assessment), and public or tax-exempt properties cannot be exempted.
- CFDs. These districts utilize a tax (not an assessment) and are the most flexible. There is no "general benefit" restriction, and there is flexibility in exempting various types of properties (government, tax exempt, etc.). As a special tax, a two-thirds majority is required for approval.
- BIDs are limited to business districts, which can be inclusive of a specified residential area/district; they can be used to assess property owners and/or business owners for certain improvements and services. GI features can function as aesthetic improvements that are popular with business districts (e.g., permeable pavers on streets, GI bulb-outs, and rain gardens). The most applicable

version of a BID that is applicable to GI implementation and maintenance is a “Green Benefits District” that has been successfully pioneered by the City of San Francisco/SF PUC.

- **EIFDs.** These are a form of tax increment financing that captures the increase in property tax as properties within the district are developed to a higher assessed value. This is a relatively new mechanism (signed into law in 2014) and has only been implemented a handful of times around the state. The proceeds are intended to be used to enhance the properties within the district, usually through infrastructure improvements, which, in turn, fuels the property assessment increase. The most common infrastructure enhancements have been in the areas of transportation and parks, but utilities have also benefited. There is a potential for using this mechanism for GI, although there hasn't been a successful implementation along those lines yet.

7.2.3 Alternative Compliance

The MRP contains a vast array of elements for which compliance is required. In some cases, straightforward compliance may be impractical or impossible, and the RWQCB has shown a willingness to consider alternate compliance in one form or another. Provision C.2.e.i allows the following alternative compliance options:

- Construction of a joint stormwater treatment facility;
- Construction of a stormwater treatment system off-site (on public or private property); and
- Payment of an in-lieu fee toward the cost of a regional project.

The first two options do not generate revenue for use on a regional GI project, but they could deliver GI facilities that further the goals of this GI plan. The in-lieu fees option can be cultivated into a source of revenue to be used in pursuit of the GI plan. This can be particularly useful in cases where a GI project, whether regional in scope or smaller, can deliver “more bang for the buck.” In other words, a well-designed regional project can often deliver more GI benefit per dollar than distributed GI facilities. It is in those cases where an in-lieu fee program can be useful.

A subset of in-lieu fees is to use a mitigation approach for developments or other properties that need to offset impacts to the community and/or environment. This can be implemented on an ad hoc basis and negotiated on a case-by-case basis both in terms of the mitigation contribution and how the funds are to be used by the County.

Another type of alternative compliance program is a credit trading program. Credits created by one project are traded to another project that may not be able to meet MRP requirements. Such a program is typically managed by a governmental agency and can create incentives to treat stormwater in excess of the MRP requirements on regulated sites, while also creating incentives to install systems that treat stormwater on non-regulated sites.

7.2.4 Partnerships

By teaming up with other entities or agencies may not generate additional funding directly, but partnerships offer many other benefits that can aid in the overall resources needed to deliver GI projects.

These can come in the form of economy-of-scale savings or multi-benefit projects that can achieve multiple goals for a single price. Several such strategies, as well as some other beneficial strategies, are discussed below.

- Multi-agency partnerships. Such partnerships are the most common. Large or regional projects may not fit easily within a city limit line, so a partnership between cities can overcome that. GI works best on a watershed basis – another way geography transcends city limit lines. Another benefit is the resource sharing that comes along with a multi-agency partnership, helping projects to cost less overall.
- Transportation opportunities. These are also a common way for GI features to be implemented. Complete streets and green streets movements, as well as the MRP requirements for transportation projects, have all helped promote GI as a standard design feature for transportation projects. Agencies may consider providing additional treatment capacity when conditions are favorable. In these situations, the additional investment could result in a higher quality treatment and a cost savings for the agency by providing GI credits beyond the subject project and extend these credits for a second capital project site where conditions are more restrictive.
- Caltrans mitigation. Caltrans, which has its own MS4 permit, is allowed to meet requirements outside of their own ROW, when onsite opportunities are not sufficient. As a result, Caltrans looks for opportunities to collaborate with local agencies to find off-site GI solutions while bringing their own funding sources. This is similar to the alternative compliance model mentioned in Section 7.2.3 above.
- Public-Private Partnerships (P3s). This strategy has the potential to help many communities optimize their limited resources through agreements with private parties to help build and maintain public infrastructure. The state enacted legislation in 2007 that enabled the P3 model, and since then agencies have use P3s for public infrastructure projects.
- Not-for-profit (NFP). These types of work forces can be a valuable resource to help make scarce resources stretch further. This strategy is based on a “community-based” habitat stewardship and protection approach and has been incorporated into the missions of numerous environmental NFPs. This approach is widely supported by the public, as the passage of recent water, park and open space ballot measures in the SF Bay Area and California have demonstrated. This approach has also been used for both GI construction and post-project maintenance. Some NFPs have been training “green collar” workers to both build and to maintain GI features on behalf of municipalities, as is occurring in Richmond (California). This kind of community-based model can serve to foster a public/nonprofit partnership where NFP’s perform “fee-for-service” contracts with agencies to help plant/construct and/or maintain GI features. This is a relatively new and innovative variation to the public–private partnerships approach just described. Benefits of a NFP collaboration include public education and building community support for the agency’s clean water programs.
- Volunteers. Volunteer work forces can also be a resource for GI projects. Relying on work performed by a strictly volunteer workforce has drawbacks including recruiting, overseeing,

training and managing volunteers as well as the reliability and quality of work. In some cases, volunteer work forces are sponsored or managed by a NFP, which may offset some the drawbacks. Benefits of a volunteer program include public education and building community support for the agency's clean water programs.

- Philanthropy. This is an option that could have some potential for attracting funding or other resources. Many large corporations often look for ways to benefit the communities in which they reside, and GI facilities can provide them beneficial visibility while they help move projects forward.

7.3 Optimal Strategies for Contra Costa County

The GI Plan and the projects identified within are wide ranging and cover a variety scopes, locations, sizes, impacts, benefits and costs. Likewise, the options of funding those projects are also varied (as shown above). To assist the County in the task of pairing projects with funding, it is useful to begin by focusing on the most promising funding strategies. Nine funding strategies have been identified, with the advantages and disadvantages of and the "best applications" for each strategy compared in a GI funding summary matrix shown on the following pages.

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Table 9: Optimal GI Funding Strategies for Contra Costa County

Strategy		Requirements	Pros	Cons	Best Applications	Planning / Design	Capital	O & M
1	Stormwater Fee	<ul style="list-style-type: none"> * Define services and service area(s); * Rate study; * Ballot Approval 	<ul style="list-style-type: none"> * Excellent financial foundation for stormwater and GI; * Flexible and legally stout; * Can be used for matching funds for grants; * Debt can be issued in most cases; * SB 231 may open the way for no balloting 	<ul style="list-style-type: none"> * Ballot measure required; * Significant public outreach recommended 	<ul style="list-style-type: none"> * Should be considered for all applications; * May work best in subregional or watershed areas; * Revenue can be used flexibly; * Excellent for maintenance costs 	X	X	X
2	Green Benefits District	<ul style="list-style-type: none"> * Usually used in small areas such as business districts or neighborhoods; * Define services and service area; * Weighted ballot Approval 	<ul style="list-style-type: none"> * Services can be narrowly defined for GI; * Can include both residential and commercial; * Can fund both construction and maintenance; * Local control over services and finances; * Opportunity for volunteerism to control costs; * Provides enhancements over baseline services 	<ul style="list-style-type: none"> * Ballot measure required; * Cannot use debt financing; * Local consensus can be disrupted by dissenting businesses 	<p>Best in:</p> <ul style="list-style-type: none"> * New developments; <p>Also good in:</p> <ul style="list-style-type: none"> * Existing areas; or * Mixed development; <p>Excellent for maintenance costs</p>	X	X	X
3	Enhanced Infrastructure Financing District	<p><u>With No Debt:</u></p> <ul style="list-style-type: none"> * Establish a Public Finance Authority; * Adopt a Financing Plan; * Resolution(s) from participating agencies <p><u>With Debt:</u></p> <ul style="list-style-type: none"> * All of the above; * Get approval from at least 55% of voters in District 	<ul style="list-style-type: none"> * Can fund many types of projects; * Does not require a vote (unless debt is part of the plan, then a 55% majority is required); * Can include multiple municipalities and special districts, so area can be tailored to needs (e.g. watersheds, high legacy pollutant areas, countywide) 	<ul style="list-style-type: none"> * Has not been applied to GI; * Cannot be used for operations, maintenance or repairs; * Education districts are not permitted to participate; * GI is only a small piece of what an EIFD can do - it may take a back seat to other, larger community concerns 	<ul style="list-style-type: none"> * Best in a redeveloping area; * Only eligible for CIP (not O&M); * Most likely to work when incorporated into a full EIFD scope 	X	X	

Strategy		Requirements	Pros	Cons	Best Applications	Planning / Design	Capital	O & M
4	Not-for-Profit (NFP) Partnership	* Contract or MOU; * Based on qualifications	* Provide expertise for GI or related services; * Costs may be greatly reduced from market rate; * Usually community-based and sometimes local; * Can be applied to both construction and maintenance; * Can Increase community interest	* May be restricted to certain scope or locations; * May need to meet prevailing wage requirements; * Limited competition may drive costs up	* Applicable to most GI projects; * Best when incorporated into design and build processes; * Excellent for maintenance activities	X	X	X
5	Community Development Corporation	* Contract or MOU; * Determined by mission statement	* Provide expertise for GI or related services; * Works at the neighborhood level; * Can be applied to both construction and maintenance; * Can Increase community interest	* May be restricted to certain scope or locations; * May need to meet prevailing wage requirements; * Limited competition may drive costs up	* Applicable to most GI projects; * Best when incorporated into design and build processes; * Excellent for maintenance activities	X	X	X
6	Volunteers	* To be effective, volunteers need organization and oversight; * Can be used to supplement paid contractors, or perform entire projects	* "Free" labor; * Some volunteers provide needed expertise; * Increases awareness of GI program; * Some non-profit organizations have ready-made volunteer groups that are trained and organized; * Can build public support for dedicated revenue mechanism such as a fee; * Education program for community	* Requires significant staff resources to recruit, organize, train and plan & supervise the work; * Can be unreliable - hard to build schedule and cost forecasts around volunteer work force; * Can create conflict with prevailing wage requirements; * Difficult to incorporate into project construction work	* Can be used to reduce maintenance costs for most projects; * May be applicable to certain construction projects as well	X	X	X
7	Developer Fees, In-Lieu Fees & Credit Trading Program	Develop program of regional projects and costs apportioned to development (nexus study per AB 1600)	* Collective funding can help fund regional projects where best return on GI investment occurs; * Helps struggling development meet GI requirements	* Nexus study must demonstrate connection between development and GI need; * Administration of funds requires resources; * Credit Trading will require program creation	* Best when utilized to fund regional projects; * Can apply to development anywhere within jurisdiction	X	X	X

Strategy		Requirements	Pros	Cons	Best Applications	Planning / Design	Capital	O & M
8	Mitigation Fees Fund	Local mitigation funds from polluters or other entities needing to offset impacts to a community and or the environment.	* Be aware of opportunities & apply when practical * Flexible in how applied (ad hoc basis)	* Projecting revenue is difficult; * May need to comply with Prop 26	Be aware of opportunities & apply when practical	X	X	X
9	Other Opportunistic Strategies	* Grants; * Transportation; * Caltrans Mitigation; * Realignment	Be aware of opportunities & apply when practical	Requires diligence and awareness of candidate programs and projects	Be aware of opportunities & apply when practical	varies		

DRAFT

8 Adaptive Management

8.1 Process for Plan Updates

Unincorporated County will amend or update this GI Plan as required by the RWQCB. Plan revisions may include updates of public and private GI projects implemented and public GI projects identified for future implementation. Components of this GI Plan will also be included in other future County planning documents, as indicated in Section 1.3.4.

8.2 Pursuing Future Funding Sources

Unincorporated County is pursuing a number of funding strategies, as described in Chapter 7 and further evaluated in Appendix E, to support implementation of GI projects. For strategies deemed viable for Unincorporated County, a process will be developed to allow for a consistent, clear methodology to enact any appropriate strategy when needed for future GI implementation.

8.3 Alternative Compliance and Credit Trading Investigations

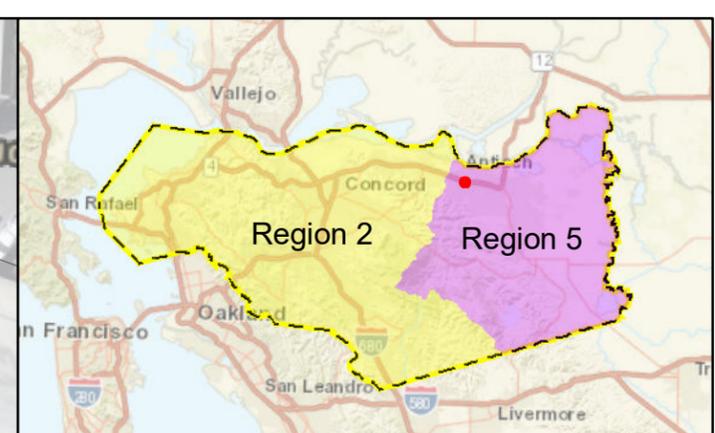
The cities of San Pablo, Walnut Creek, and Richmond (in conjunction with cities across the Bay Area) are proposing to establish a water quality trading/banking system for Contra Costa County to address the countywide load reduction requirements of the PCBs and mercury TMDLs. A water quality trading system has the ability to more efficiently and affordably improve water quality, reduce compliance pressures on Permittees, and decrease the overall costs of water quality improvements. In pursuit of such a system, these three cities have applied for an EPA grant. Additional information regarding how such a program could be used to achieve the requirements in MRP Provisions C.11/C.12 for PCBs and mercury load reductions through GI is provided in Appendix F of this Plan.

Appendix A. Potential Public Project Locations

Note: Resulting from prioritization, TAG review, site visits, and additional feedback from County

No.	Location	SWRP ID	Project Type	Project Area (acre) ^a	Impervious Surface (acre) ^a
1	Antioch	planned_705	Planned Unlined Bioretention	0.7	0.4
2	Antioch	planned_699	Planned Unlined Bioretention	0.9	0.7
3	Antioch	planned_712	Planned Unlined Bioretention	0.2	0.2
4	Concord	planned_836; planned_837	Planned Unlined Bioretention	0.9	0.6
5	Byron	planned_600	Planned Unlined Swale	2.9	1.7
6	Concord	planned_930	Planned Unlined Bioretention	1.3	0.9
7	Crockett-Port Costa	ROW_6054	ROW Opportunity	0.7 ^b	0.7 ^b
8	Knightsen	planned_360	Planned Water Quality Basin	0.7 ^b	0.4 ^b
9	Lafayette	planned_1079	Planned Unlined Bioretention	1.1	0.5
10	North Richmond	ROW_2768	ROW Opportunity	8.1	4.7
11	North Richmond	ROW_14957	ROW Opportunity	6.4 ^b	2.2 ^b
12	North Richmond	ROW_8096	ROW Opportunity	3.3 ^b	2.1 ^b
13	North Richmond	ROW_14519	ROW Opportunity	13.6 ^b	8.6 ^b
14	Pacheco	ROW_16577	ROW Opportunity	2.5	1.7
15	Pacheco	ROW_13183	ROW Opportunity	1.7	1.1
16	Pacheco	ROW_224	ROW Opportunity	1.3	0.9
17	Pittsburg	planned_713	Planned Unlined Bioretention	1.8	1.2
18	Richmond	planned_1292	Planned Unlined Bioretention	1.4	1.0
19	Richmond	planned_1284	Planned Unlined Bioretention	0.1	0.1
20	Richmond	planned_1290	Planned Unlined Bioretention	2.9	2.2
21	Rodeo	Parcel_256018	Parcel-Based Opportunity	2.3 ^b	2.3 ^b
22	Rodeo	planned_1097	Planned Unlined Bioretention	0.3	0.2
23	San Pablo	planned_1272	Planned Unlined Bioretention	3.8	3.3
24	San Pablo (Greenwood and Fordham)	N/A	ROW Opportunity	0.4 ^b	0.4 ^b
25	San Pablo (Montarabay)	planned_1177	County Requested	1.9 ^b	1.9 ^b
26	Unincorporated Martinez Neighborhoods	Parcel_243602	Parcel-Based Opportunity	2.0	1.3
27	Unincorporated Martinez Neighborhoods	planned_943	Planned Unlined Bioretention	0.3	0.1
28	Martinez	planned_1139; planned_1140	Planned Unlined Bioretention	0.4	0.4
29	Unincorporated Richmond Neighborhoods	planned_1182	Planned Unlined Bioretention	0.2	0.1
30	Walnut Creek	planned_966	Planned Unlined Bioretention	0.6	0.5
Total =				65 acres	42 acres

^a Project area and Impervious Surface quantities from Countywide Attainment Tool, else GIS (denoted ^b)



- Legend**
- Project Opportunity
 - Other Project Opportunity
 - Parcel Boundary
 - Storm Drain Line
 - Channel
 - Storm Drain Inlet

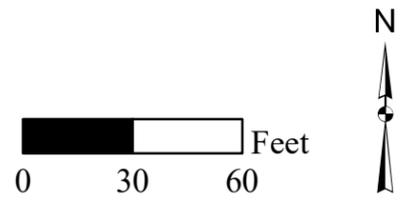
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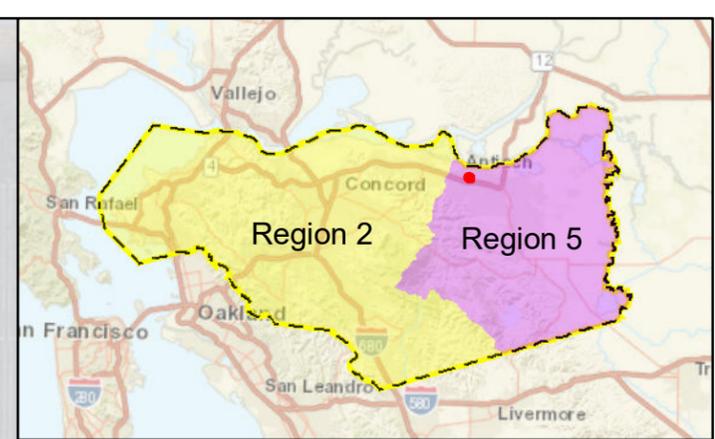
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Street Name

Project Name CCC_067342002

Location Antioch





- Legend**
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 - Storm Drain Line
 - Channel
 - Storm Drain Inlet

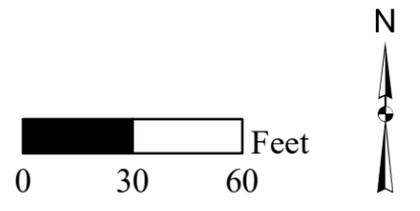
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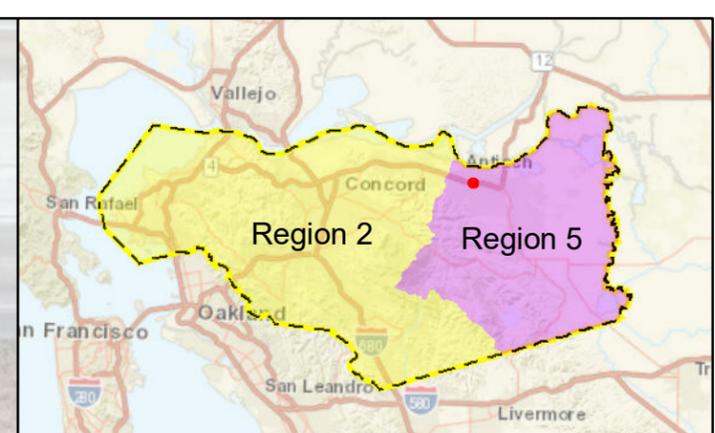
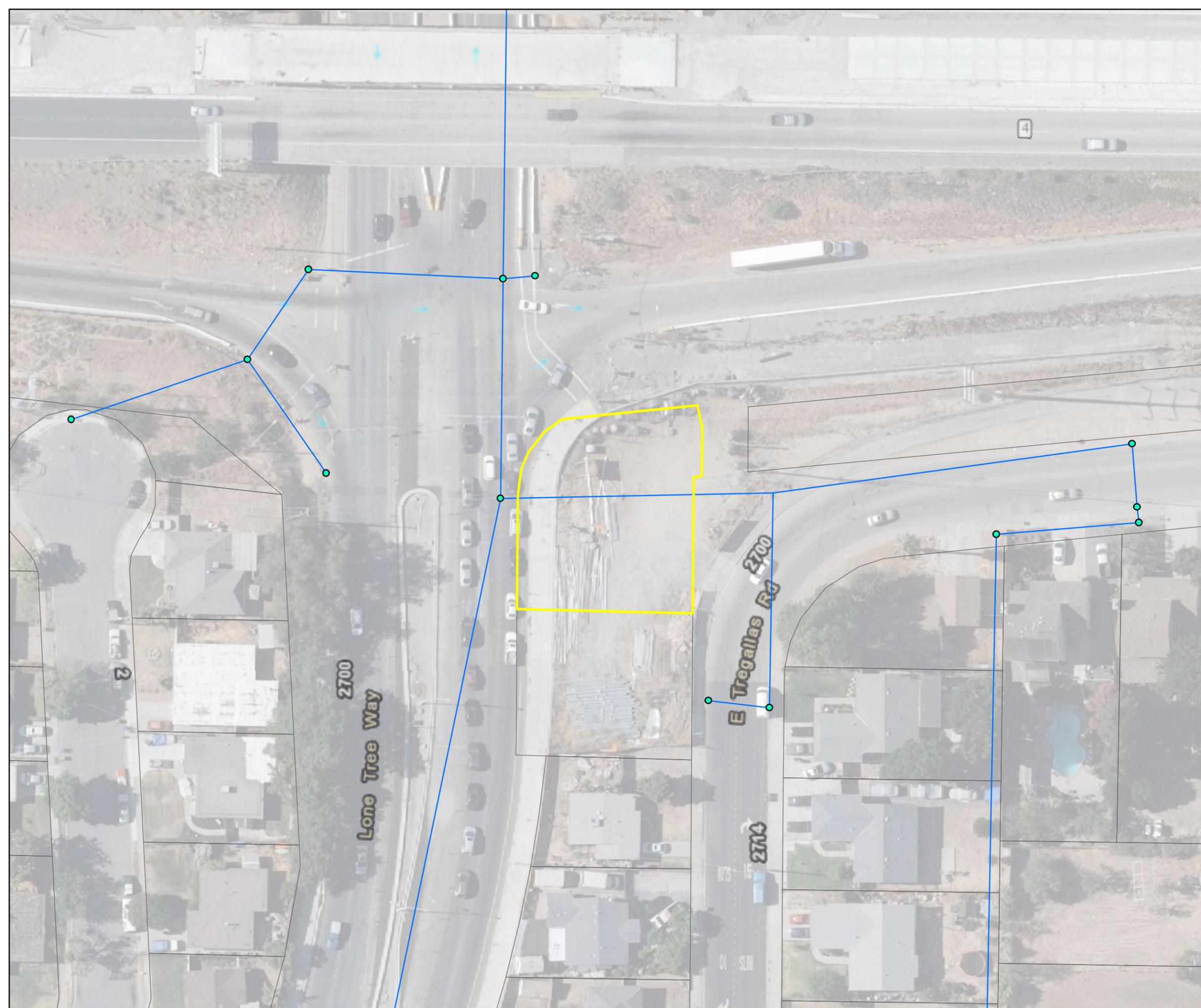
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Street Name

Project Name CCC_067221014

Location Antioch





- Legend**
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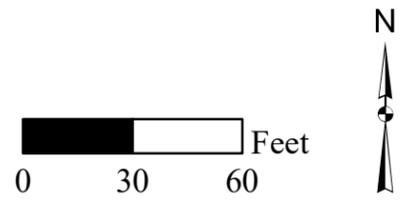
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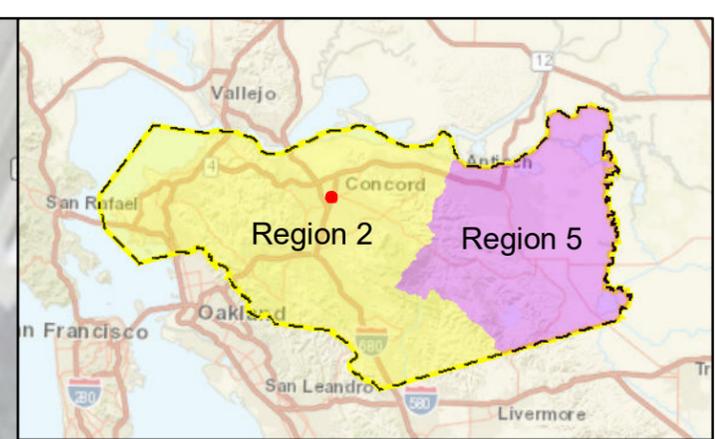
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Street Name

Project Name CCC_068151017

Location Antioch





- Legend**
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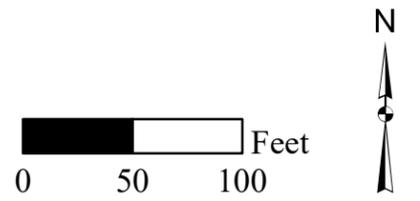
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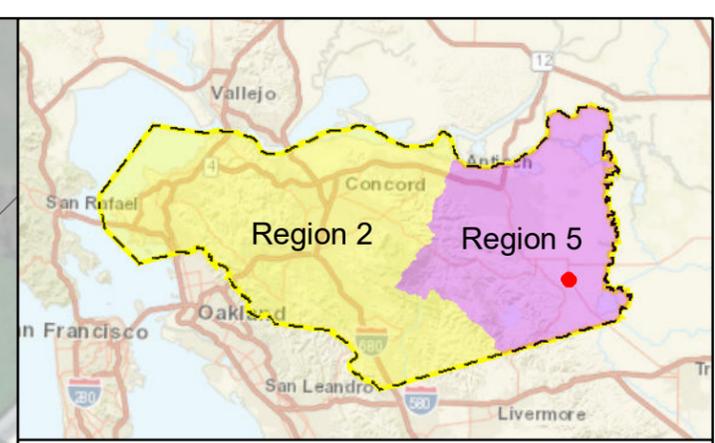
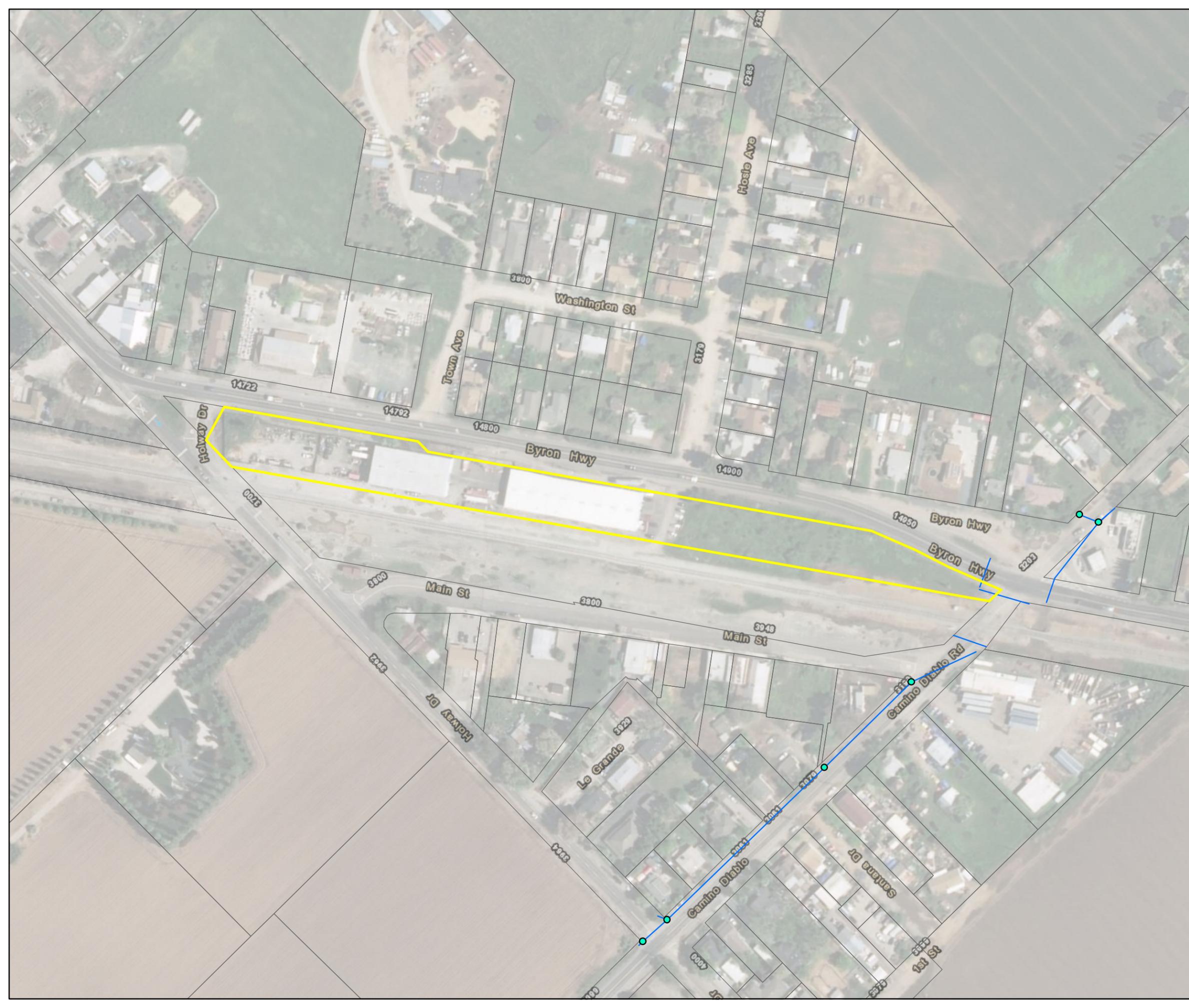
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Street Name

Project Name CCC_126020106 and CCC_126020101

Location Concord





- Legend**
- Project Opportunity
 - Other Project Opportunity
 - Parcel Boundary
 - Storm Drain Line
 - Channel
 - Storm Drain Inlet

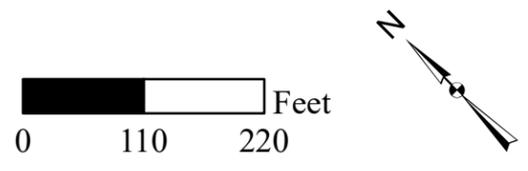
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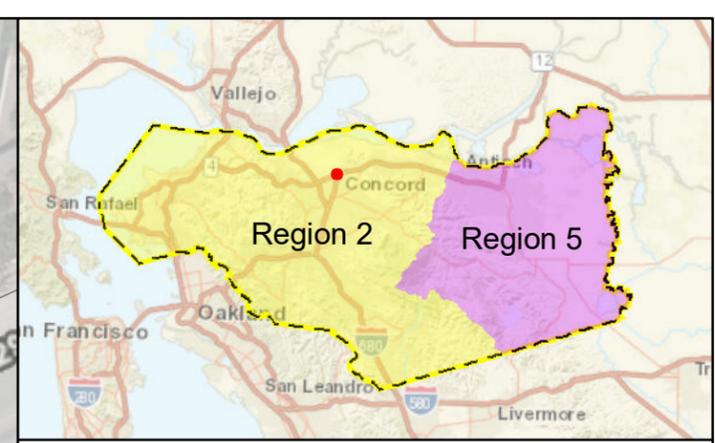
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Street Name

Project Name Byron old industrial bioswale

Location Byron





- Legend**
- Project Opportunity
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 - Storm Drain Inlet

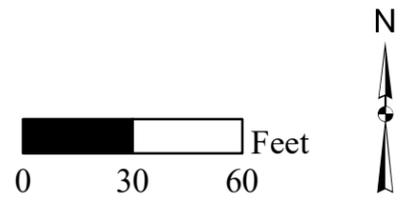
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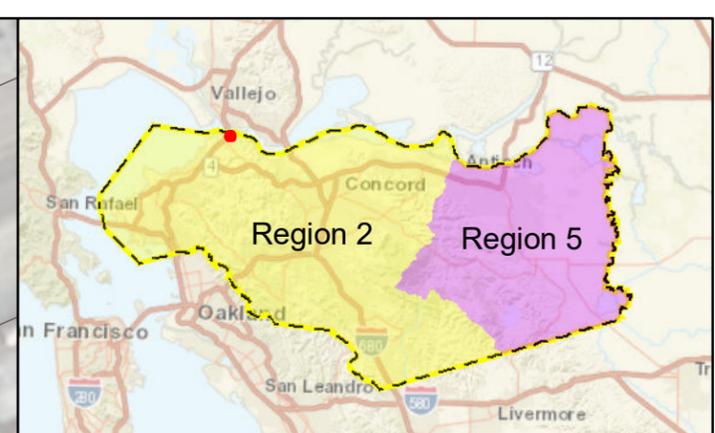
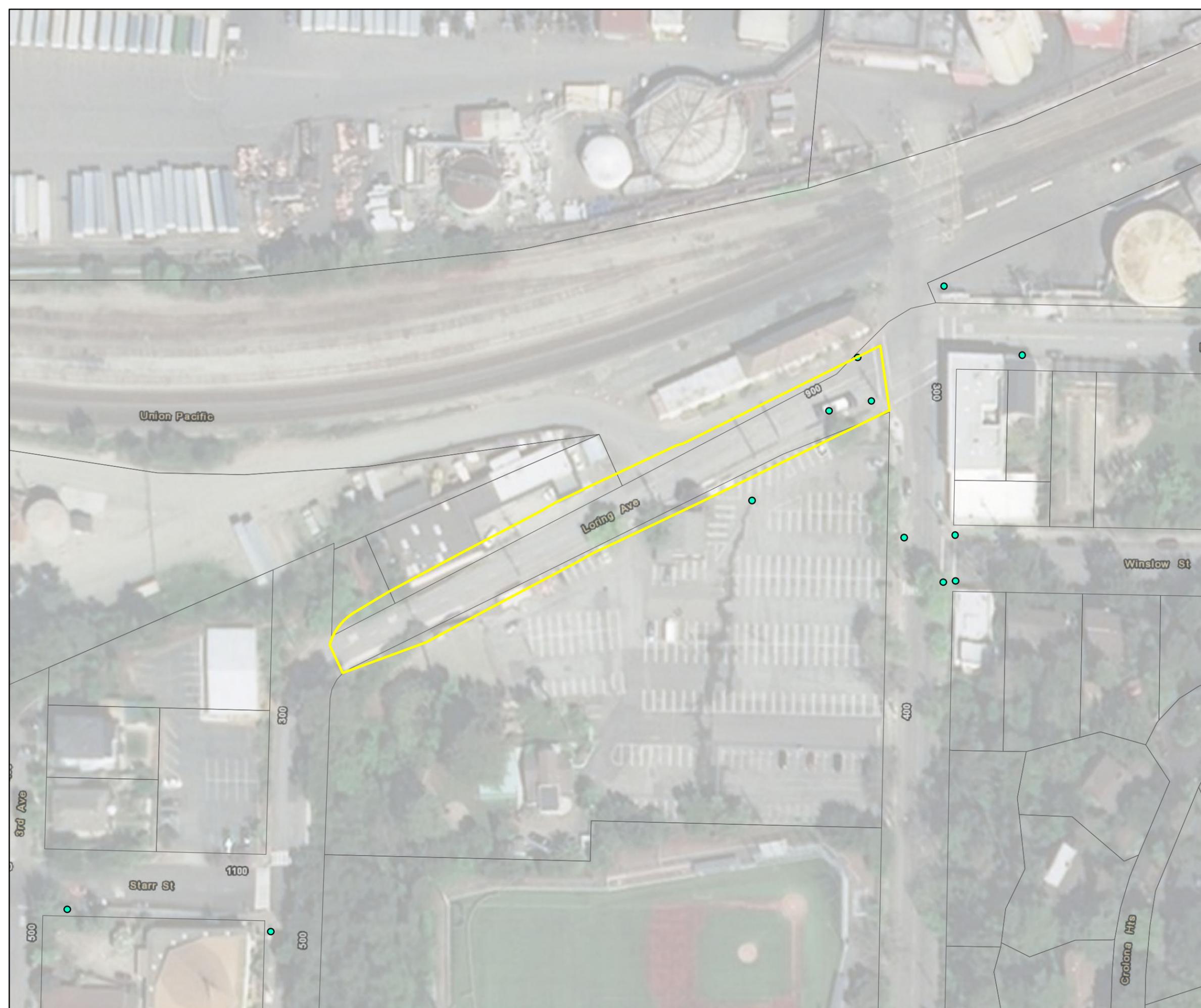
Street Name

Project Name CCC_159080036

Location Concord



**Contra Costa Public Works GI Plan
Project Opportunities**



- Legend**
- Project Opportunity
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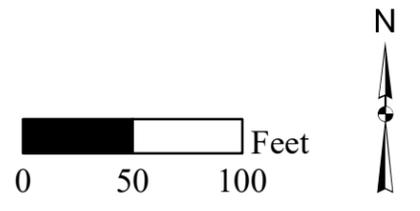
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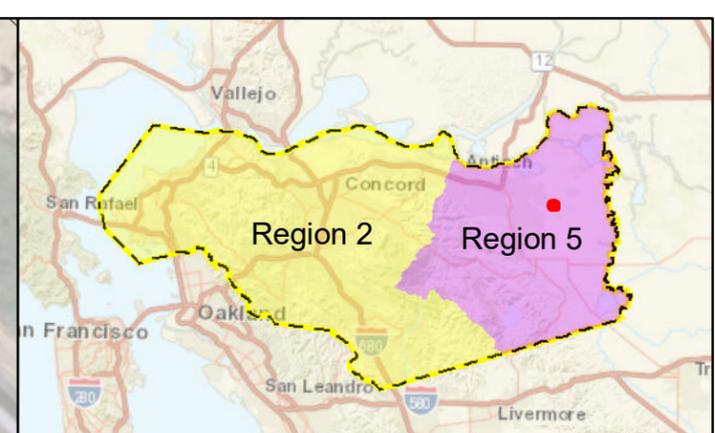
APN

Street Name DOWRELIO DR

Project Name

Location Crockett-Port Costa





- Legend**
- Project Opportunity
 - Other Project Opportunity
 - Parcel Boundary
 - Storm Drain Line
 - Channel
 - Storm Drain Inlet

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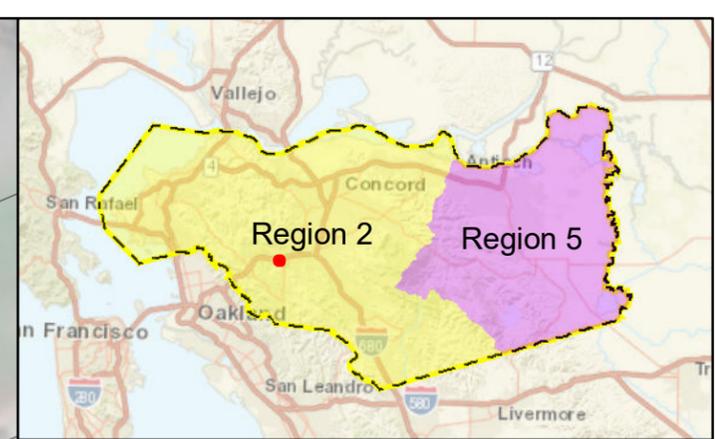
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Street Name Curlew Connex/Delta Road

Project Name Drainage Improvements

Location Knightsen





- Legend**
- Project Opportunity
 - Other Project Opportunity
 - Parcel Boundary
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 - Channel
 - Storm Drain Inlet

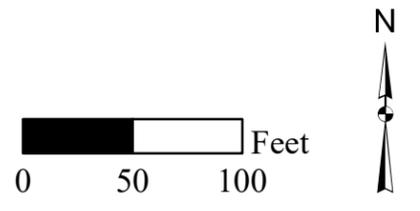
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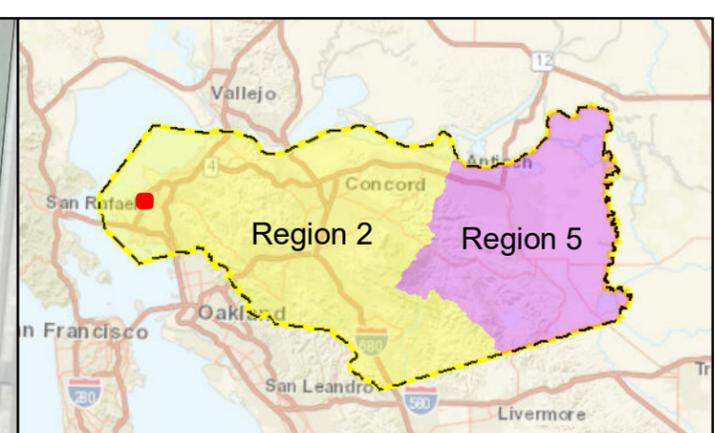
Street Name

Project Name CCC_241010049

Location Lafayette



**Contra Costa Public Works GI Plan
Project Opportunities**



- Legend**
- Project Opportunity
 - Other Project Opportunity
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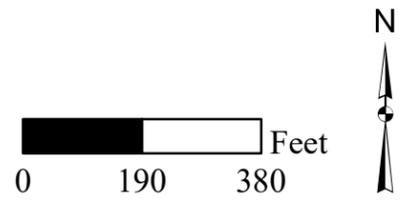
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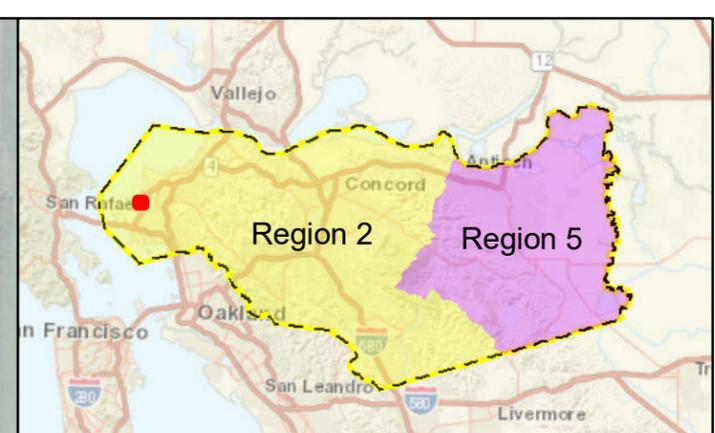
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Street Name BROOKSIDE DR

Project Name

Location North Richmond





- Legend**
- Project Opportunity
 - Other Project Opportunity
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 - Storm Drain Inlet

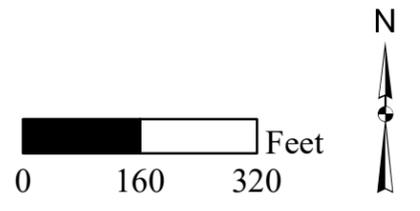
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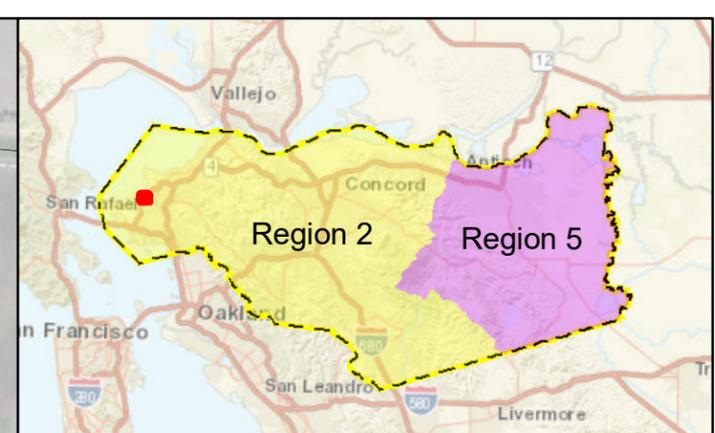
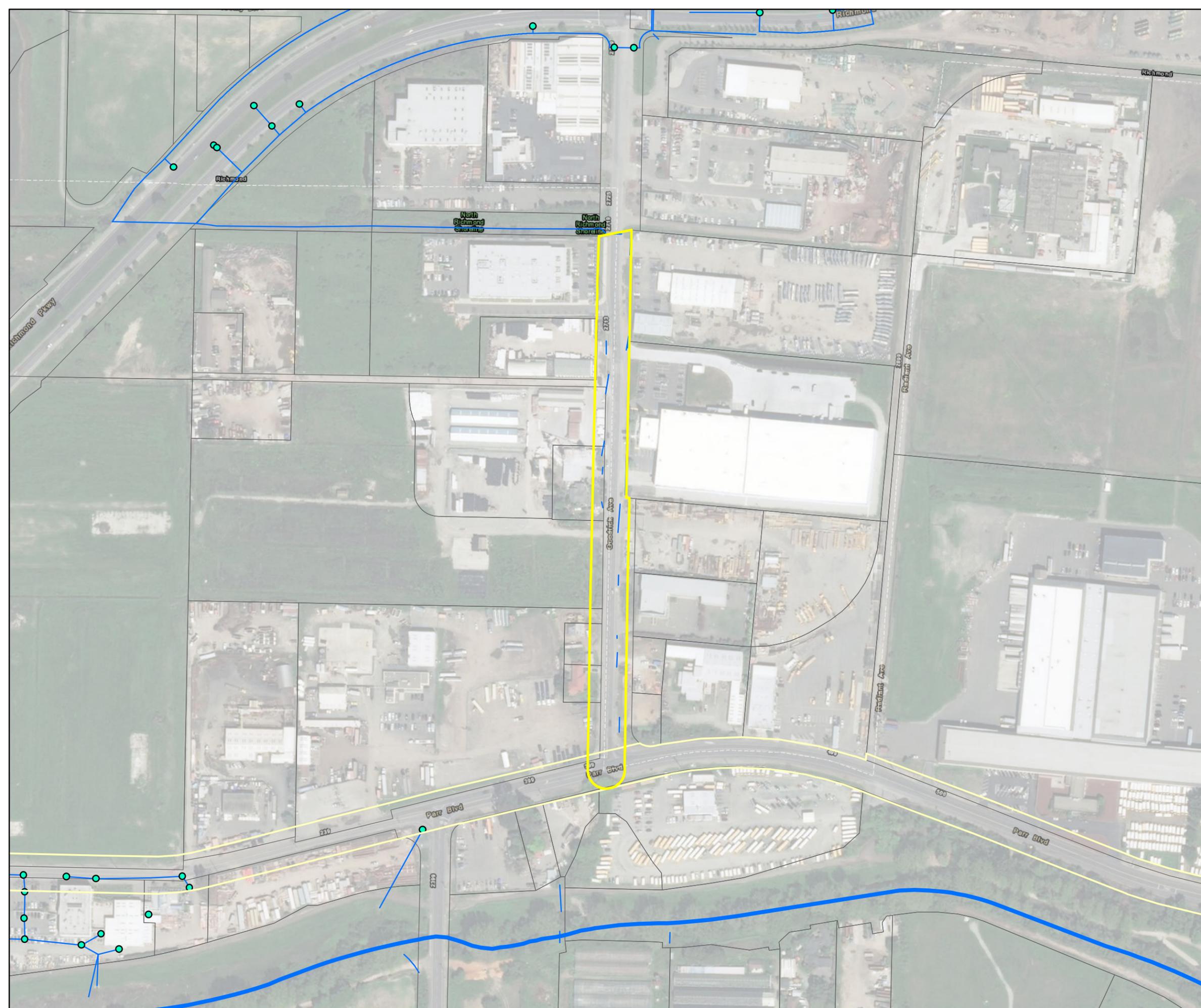
Street Name PITTSBURG AVE

Project Name

Location North Richmond



**Contra Costa Public Works GI Plan
Project Opportunities**



- Legend**
- Project Opportunity
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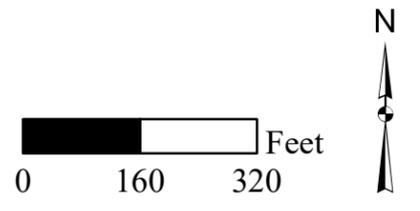
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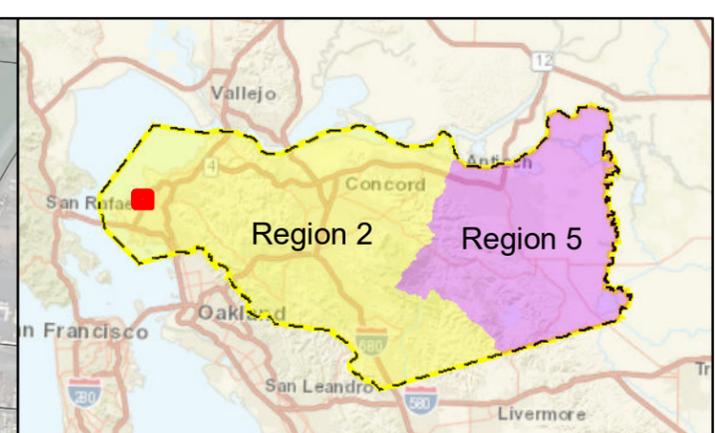
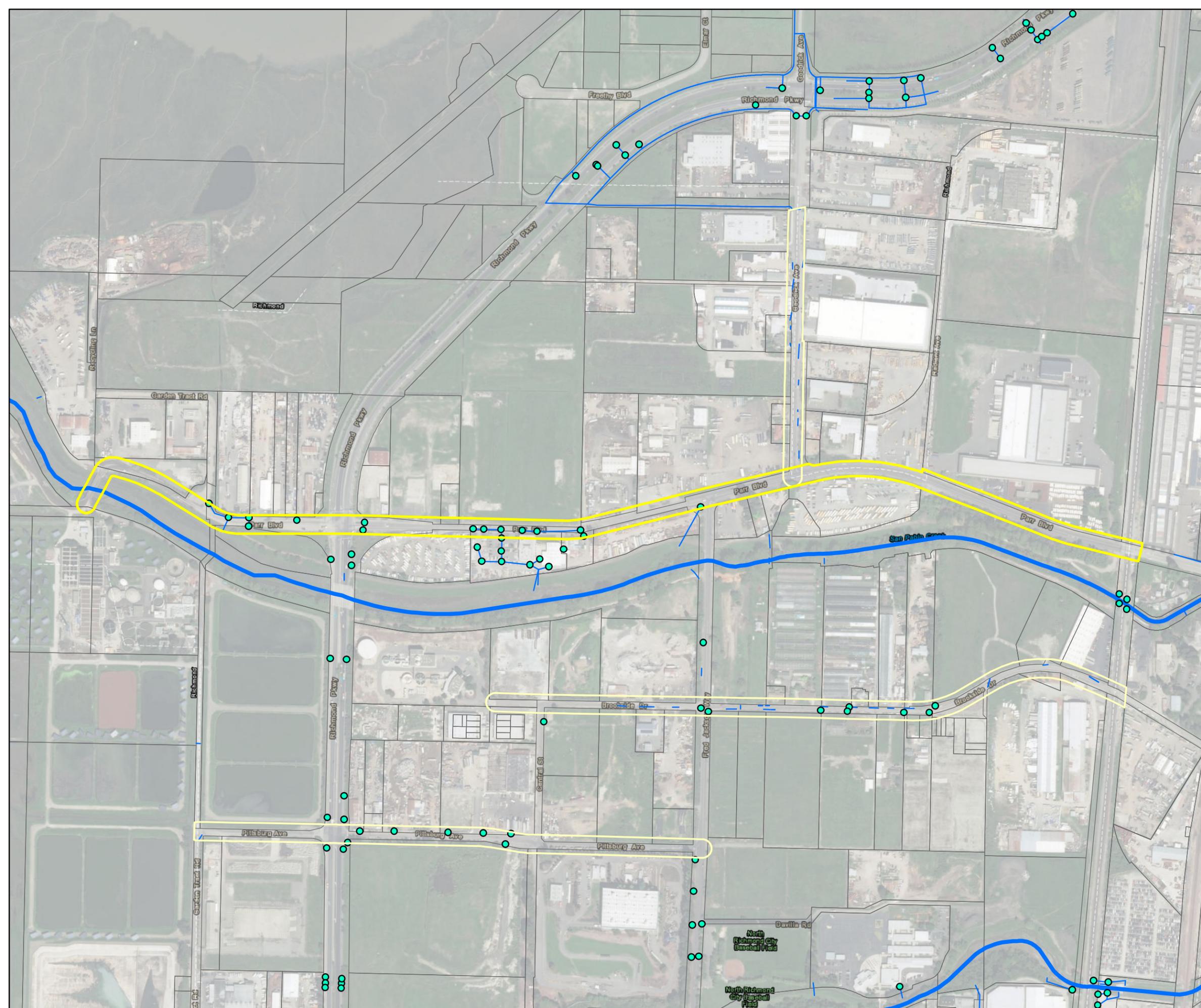
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Street Name GOODRICK AVE

Project Name

Location North Richmond





- Legend**
- Project Opportunity
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 - Storm Drain Inlet

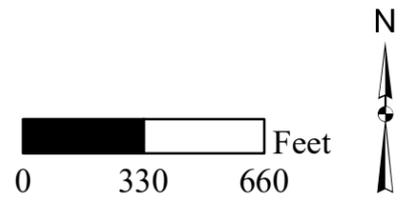
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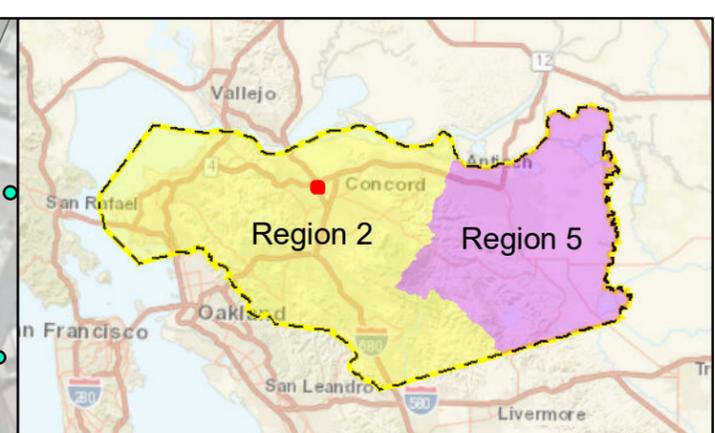
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Street Name PARR BLVD

Project Name

Location North Richmond





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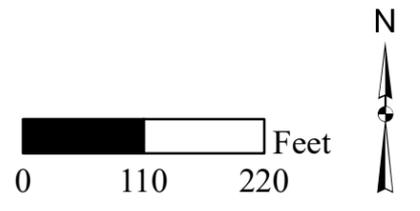
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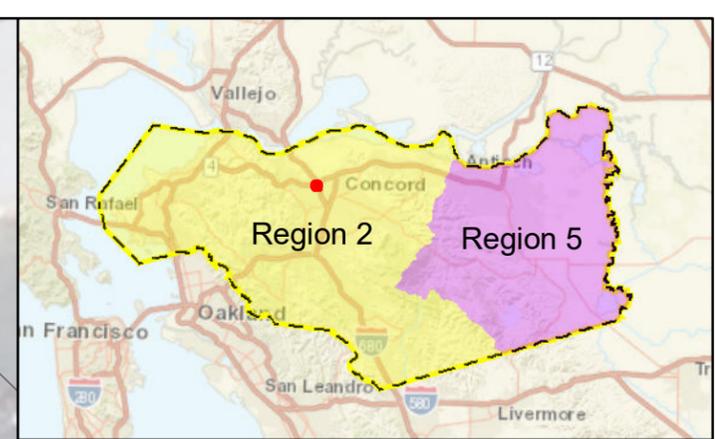
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Street Name S BUCHANAN CIR

Project Name

Location Pacheco





- Legend**
- Project Opportunity
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 - Storm Drain Inlet

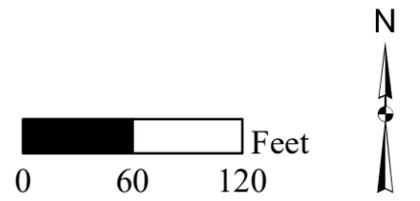
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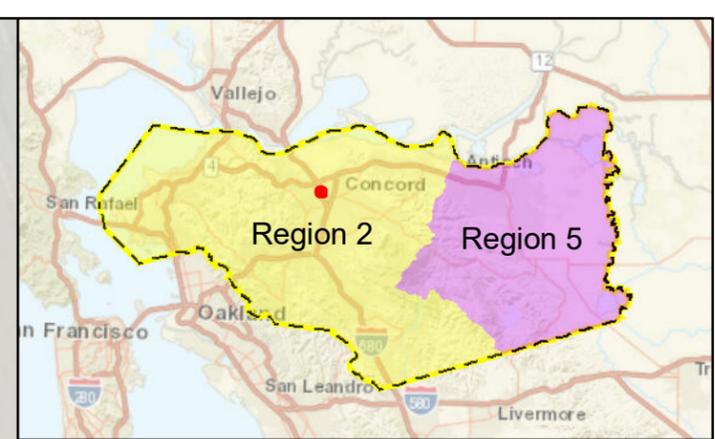
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Project Name

Location Pacheco





- Legend**
- Project Opportunity
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 - Storm Drain Line
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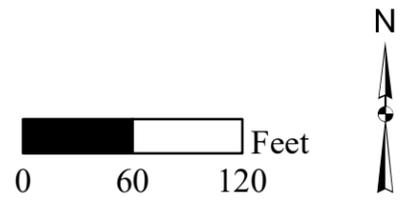
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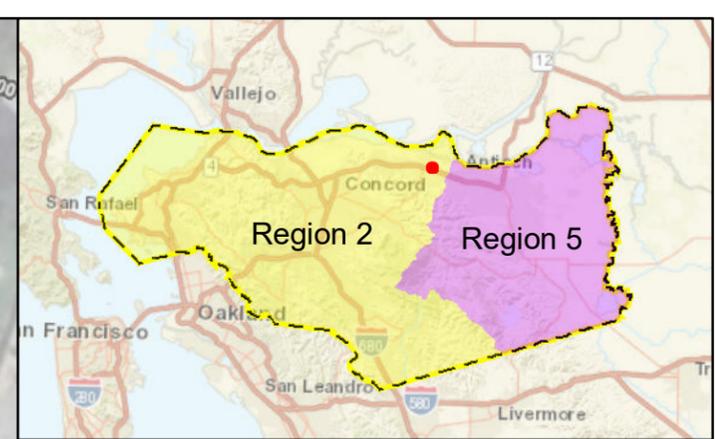
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Street Name 2ND AVE S

Project Name

Location Pacheco





- Legend**
- Project Opportunity
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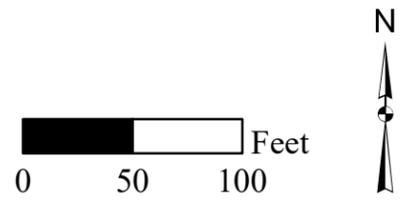
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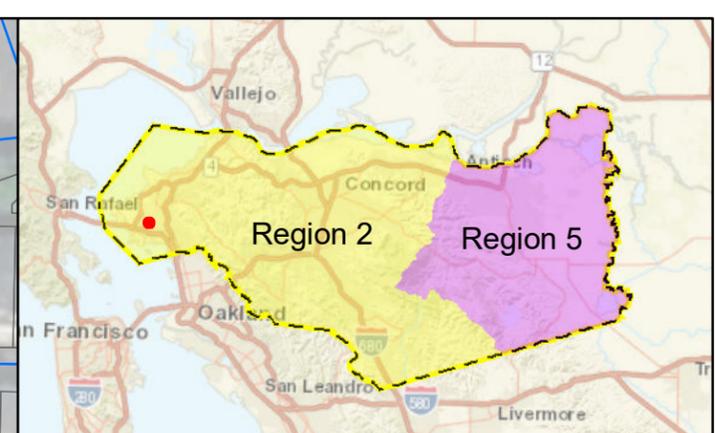
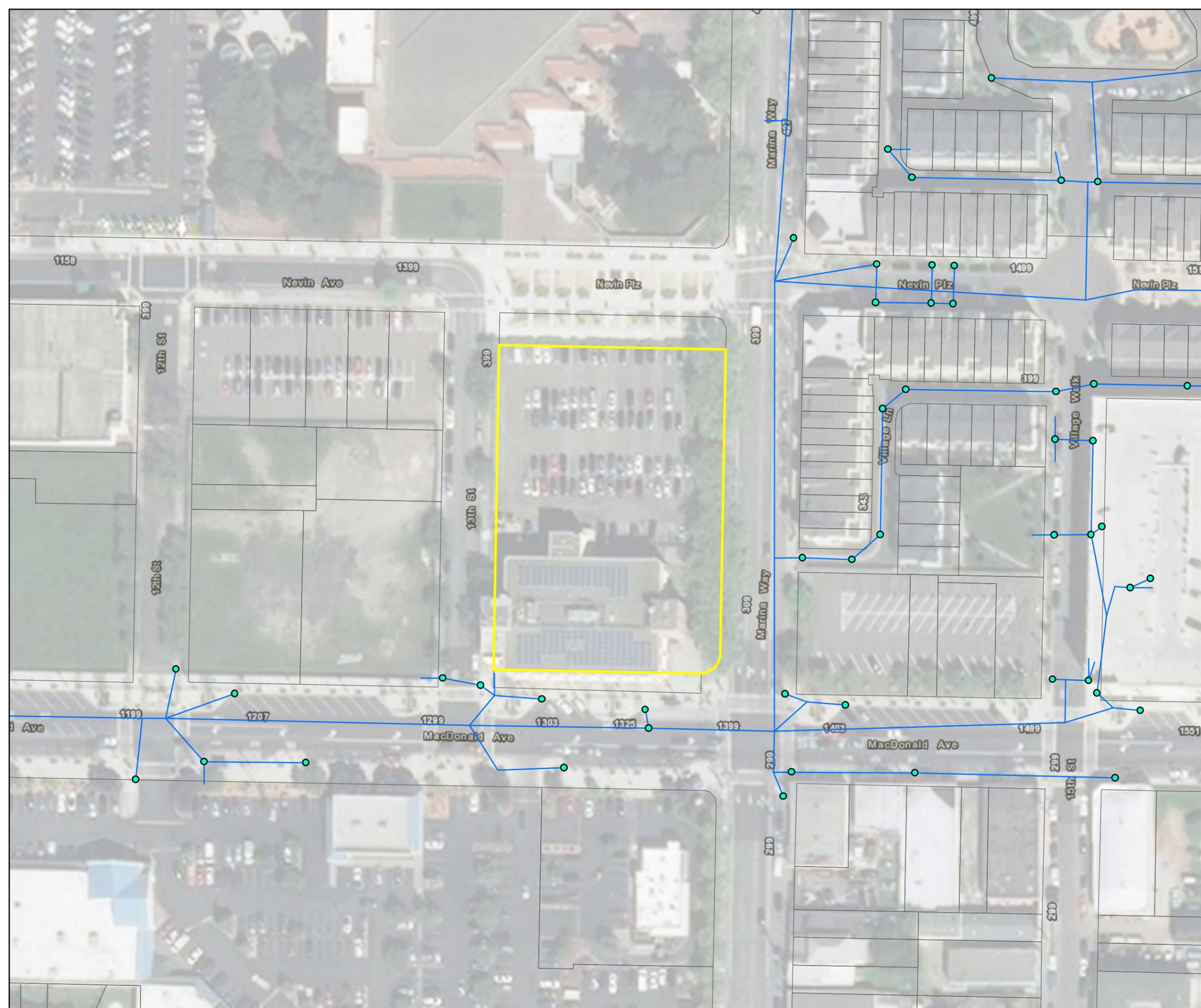
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Street Name

Project Name CCC_073140018

Location Pittsburg





- Legend**
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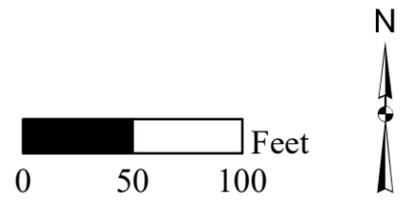
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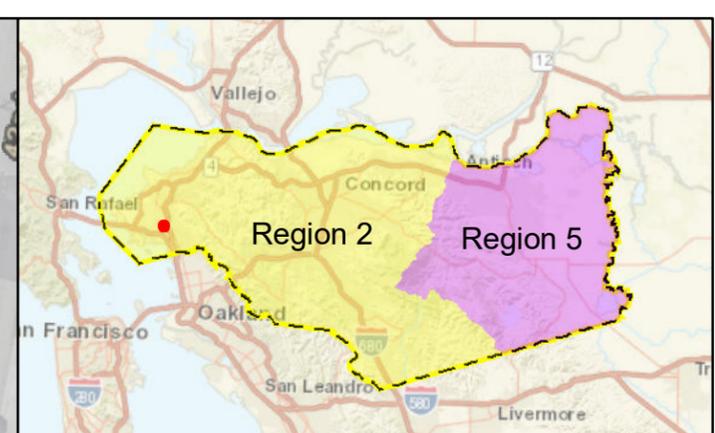
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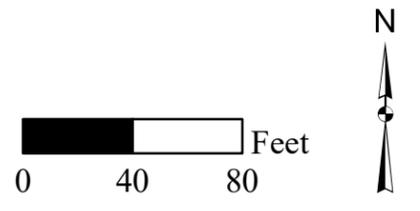
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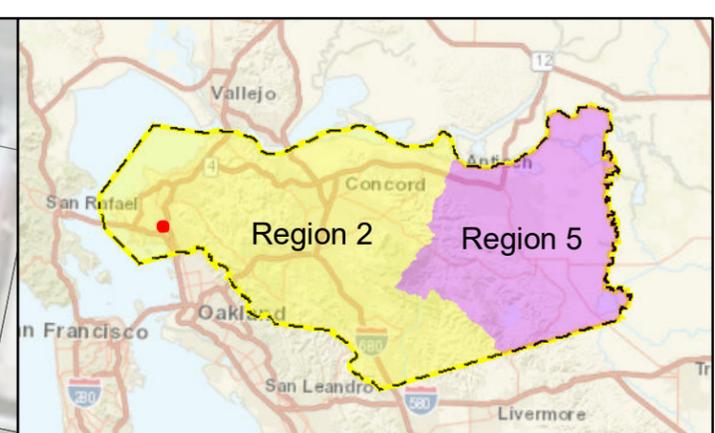




- Legend**
- Project Opportunity
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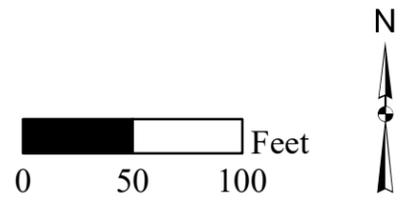
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 Street Name
 Project Name CCC_517320017
 Location Richmond



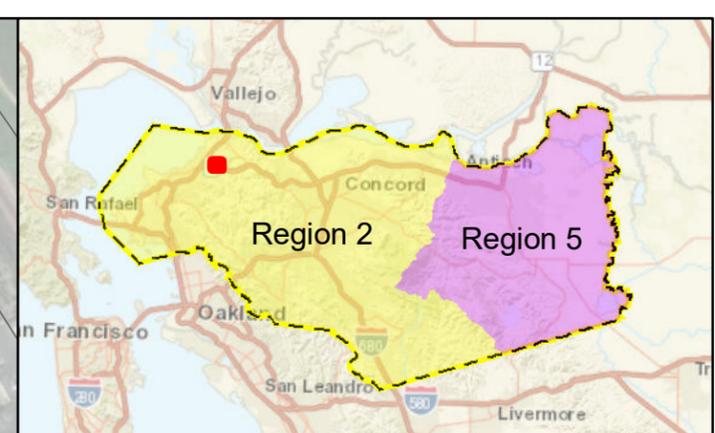


- Legend**
- Project Opportunity
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 - Parcel Boundary
 - Storm Drain Line
 - Channel
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Proj. No 20
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Street Name
Project Name CCC_517340004
Location Richmond



**Contra Costa Public Works GI Plan
 Project Opportunities**



- Legend**
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 - Other Project Opportunity
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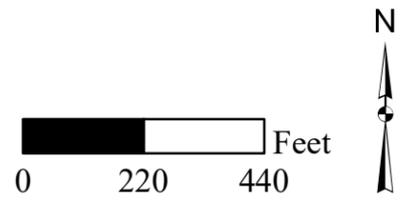
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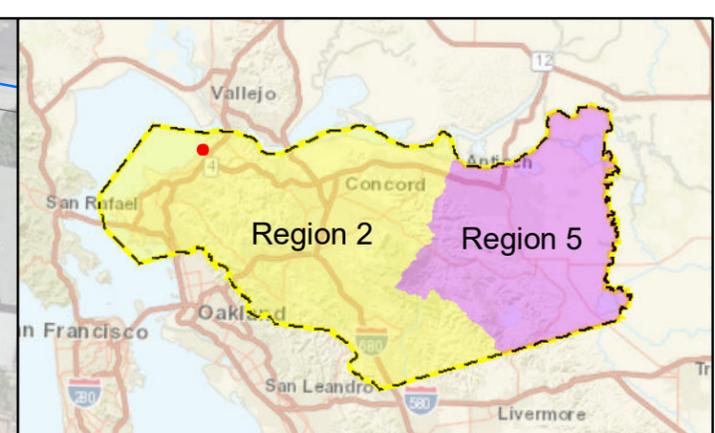
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Street Name

Project Name Contra Costa Goldfields GI

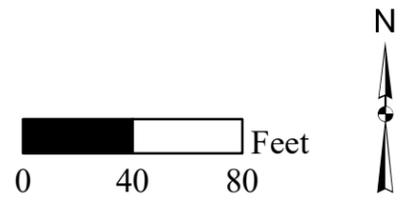
Location Rodeo

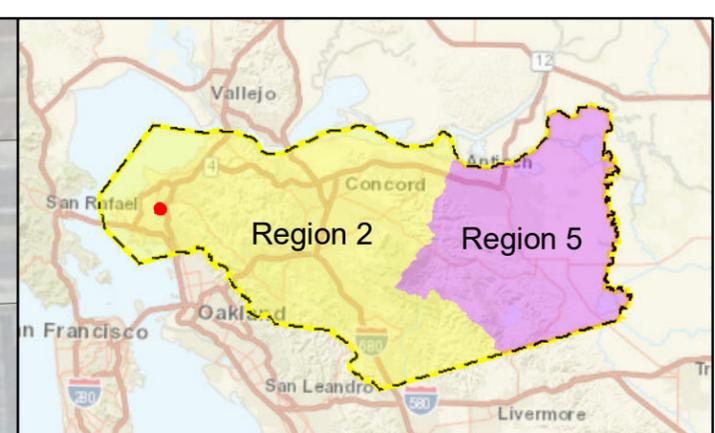




- Legend**
- Project Opportunity
 - Other Project Opportunity
 - Parcel Boundary
 - Storm Drain Line
 - Channel
 - Storm Drain Inlet

Proj. No 22
APN 357171006
Street Name
Project Name CCC_357171006
Location Rodeo





- Legend**
- Project Opportunity
 - Other Project Opportunity
 - Parcel Boundary
 - Storm Drain Line
 - Channel
 - Storm Drain Inlet

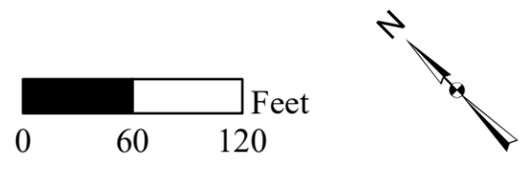
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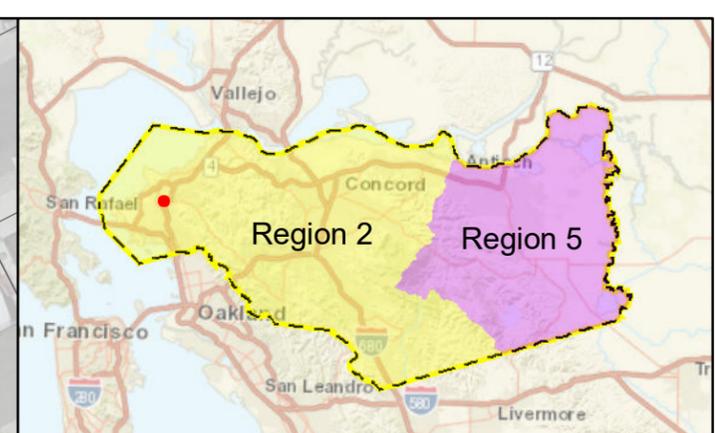
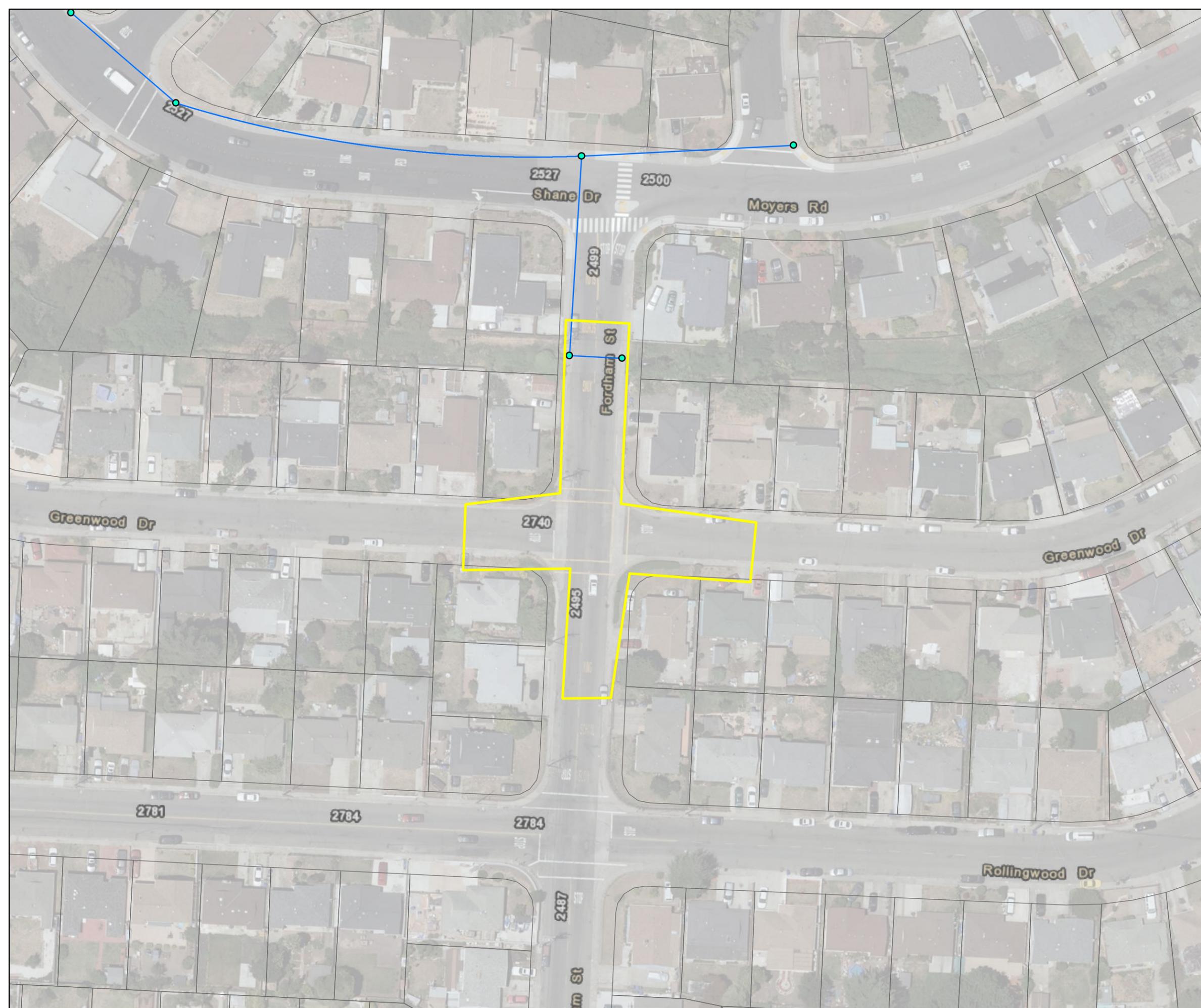
APN 417310008

Street Name

Project Name CCC_417310008

Location San Pablo





- Legend**
- Project Opportunity
 - Other Project Opportunity
 - Parcel Boundary
 - Storm Drain Line
 - Channel
 - Storm Drain Inlet

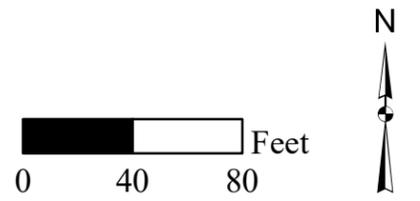
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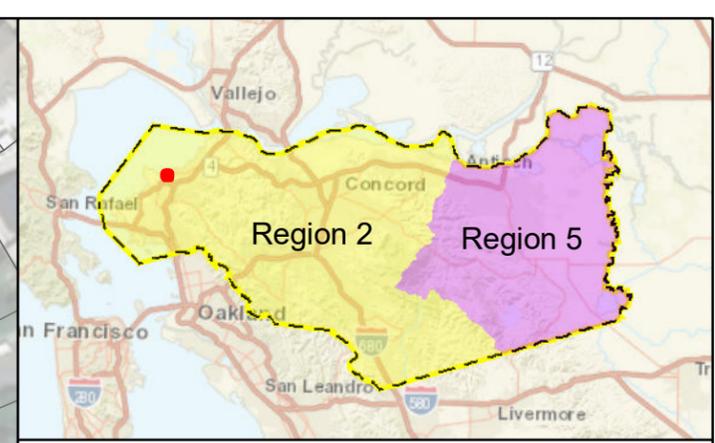
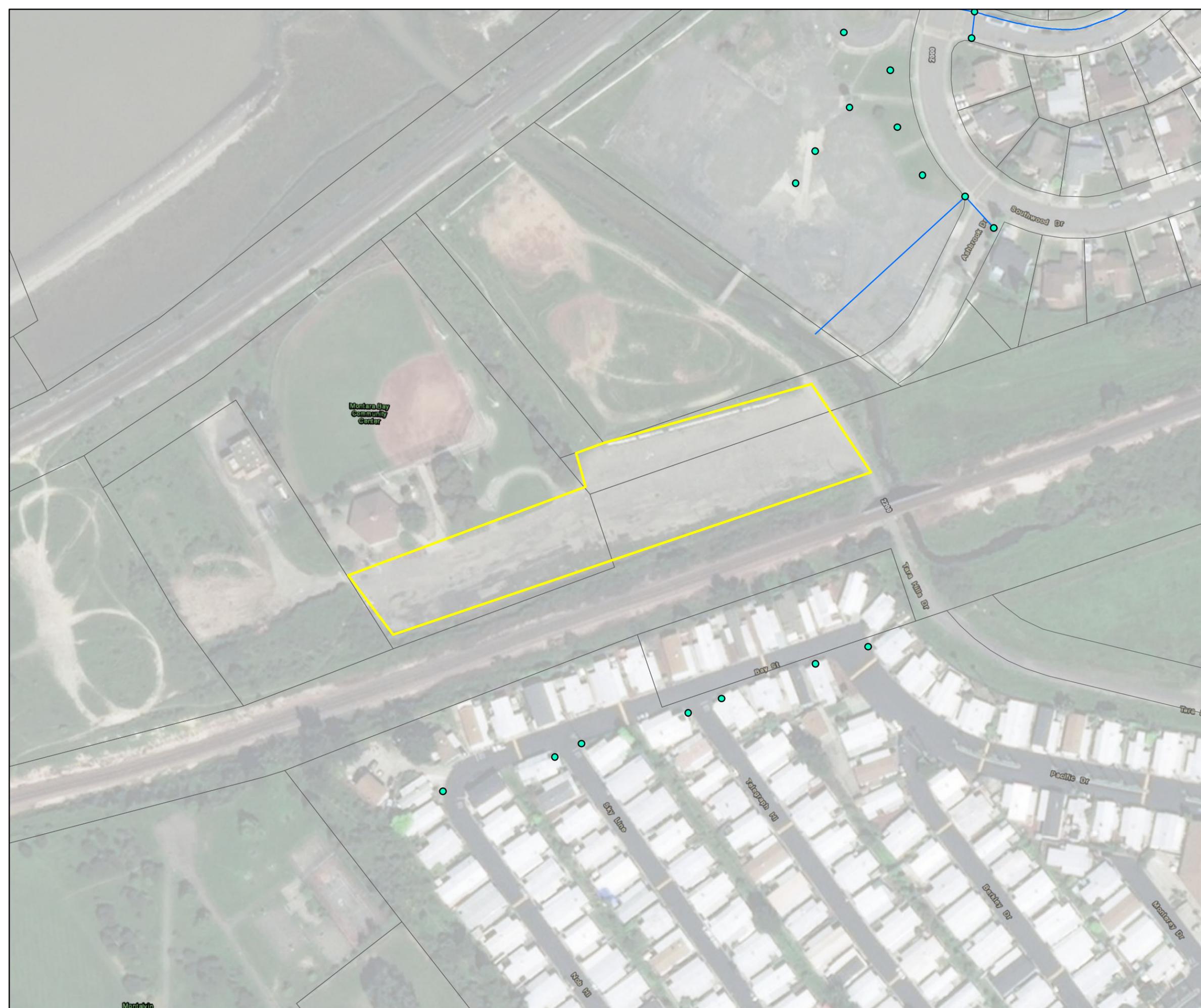
APN

Street Name Greenwood Dr.

Project Name Greenwood Dr. at Fordham St.

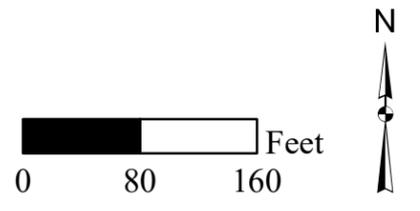
Location San Pablo

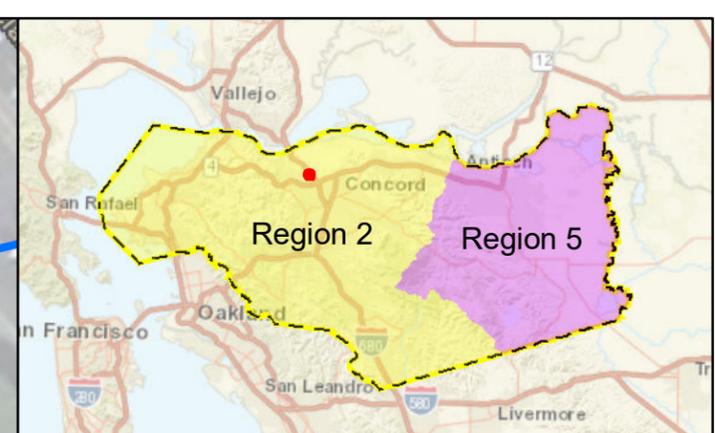




- Legend**
- Project Opportunity
 - Other Project Opportunity
 - Parcel Boundary
 - Storm Drain Line
 - Channel
 - Storm Drain Inlet

Proj. No 25
APN 403020013
Street Name
Project Name CCC_403020013
Location San Pablo





- Legend**
- Project Opportunity
 - Other Project Opportunity
 - Parcel Boundary
 - Storm Drain Line
 - Channel
 - Storm Drain Inlet

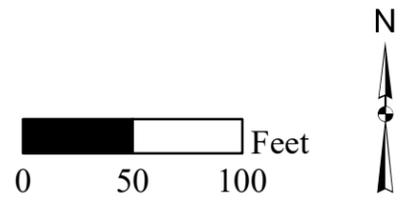
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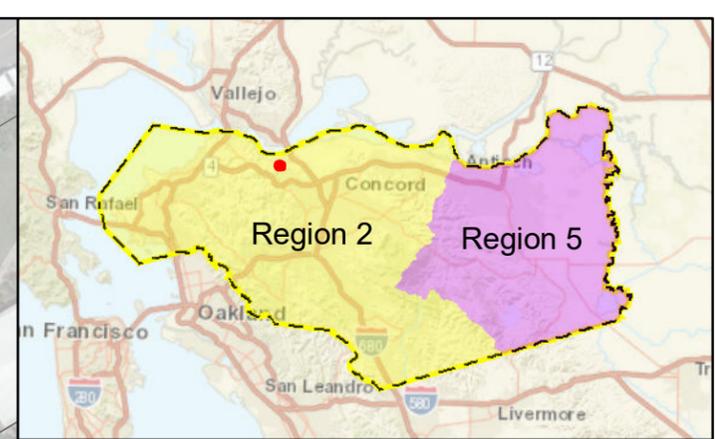
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Street Name

Project Name

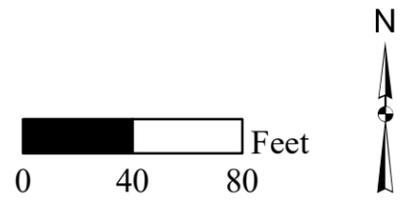
Location Unincorporated Martinez Neighborhoods

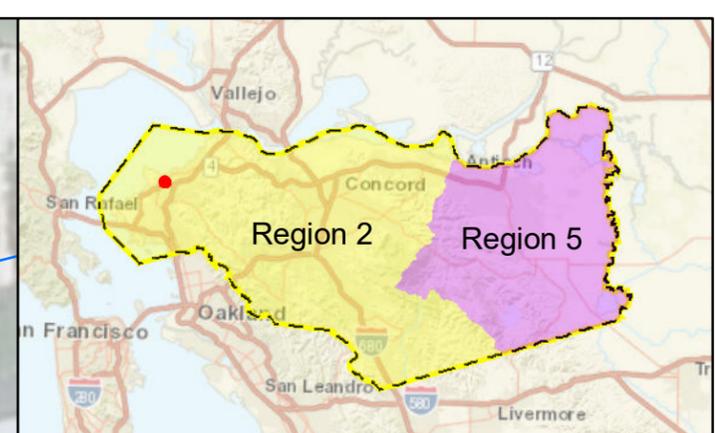




- Legend**
- Project Opportunity
 - Other Project Opportunity
 - Parcel Boundary
 - Storm Drain Line
 - Channel
 - Storm Drain Inlet

Proj. No 28
APN 373202002 and 373202003
Street Name
Project Name CCC_373202002
Location Martinez





- Legend**
- Project Opportunity
 - Other Project Opportunity
 - Parcel Boundary
 - Storm Drain Line
 - Channel
 - Storm Drain Inlet

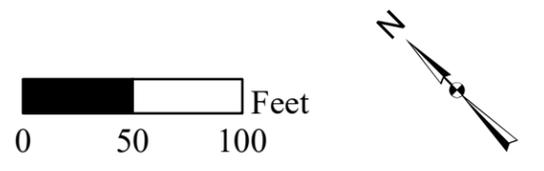
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APN 405121002

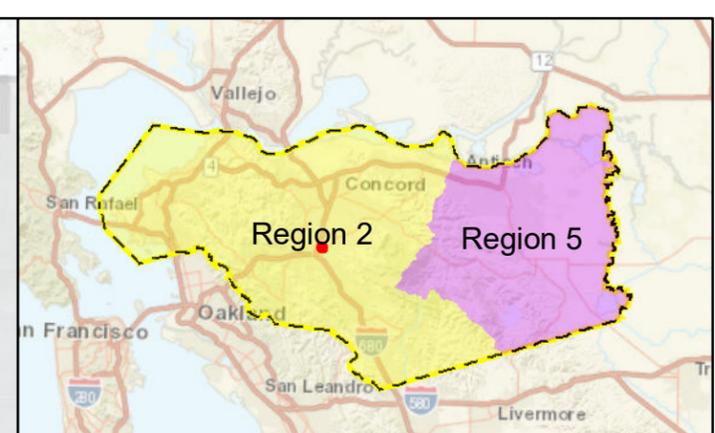
Street Name

Project Name CCC_405121002

Location Unincorporated Richmond Neighborhoods

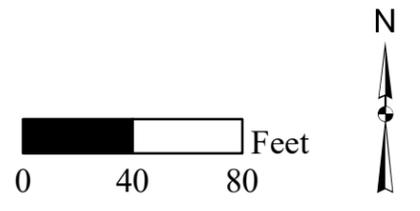


**Contra Costa Public Works GI Plan
Project Opportunities**



- Legend**
- Project Opportunity
 - Other Project Opportunity
 - Parcel Boundary
 - Storm Drain Line
 - Channel
 - Storm Drain Inlet

Proj. No 30
APN 173142016
Street Name
Project Name CCC_173142016
Location Walnut Creek



Appendix B. Green Infrastructure Guidelines for Streetscapes and Project Design

Included in this appendix:

1. National Association of City Transportation Officials, *Urban Street Stormwater Guide*, 2017.
2. San Mateo Countywide Water Pollution Prevention Program, *San Mateo County Sustainable Green Streets and Parking Lots Design Guidebook*, First Edition, 2009.

Urban Street Stormwater Guide



National Association of City Transportation Officials

Access via: <https://nacto.org/publication/urban-street-stormwater-guide/>

San Mateo County Sustainable Green Streets and Parking Lots Design Guidebook

First Edition ~ January 2009



Prepared by:

Nevue Ngan Associates
Sherwood Design Engineers

<< El Camino Real
Green Street Concept Sketch
San Mateo County, California

Access via:

<https://www.flowstobay.org/documents/municipalities/sustainable%20streets/San%20Mateo%20Guidebook.pdf>

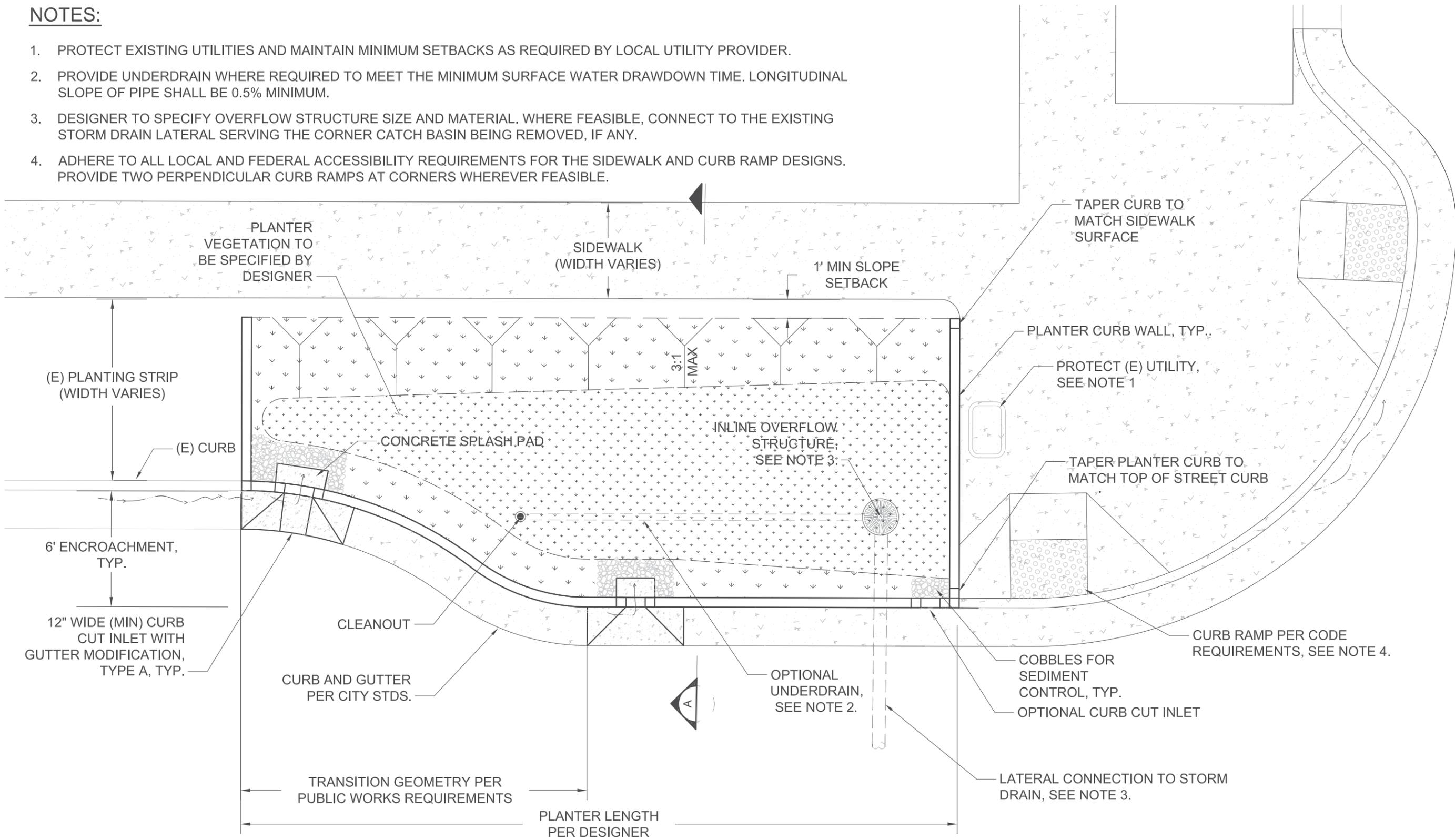
Appendix C. Green Infrastructure Specifications and Typical Design Details

Included in this appendix:

1. BASMAA, *Urban Greening Typical GI Details*, 2017.
2. CASQA and LIDI, *Bioretention Details*, 2017.
3. SFPUC, *San Francisco Stormwater Management Requirements and Design Guidelines*, Appendix B, 2016.

NOTES:

1. PROTECT EXISTING UTILITIES AND MAINTAIN MINIMUM SETBACKS AS REQUIRED BY LOCAL UTILITY PROVIDER.
2. PROVIDE UNDERDRAIN WHERE REQUIRED TO MEET THE MINIMUM SURFACE WATER DRAWDOWN TIME. LONGITUDINAL SLOPE OF PIPE SHALL BE 0.5% MINIMUM.
3. DESIGNER TO SPECIFY OVERFLOW STRUCTURE SIZE AND MATERIAL. WHERE FEASIBLE, CONNECT TO THE EXISTING STORM DRAIN LATERAL SERVING THE CORNER CATCH BASIN BEING REMOVED, IF ANY.
4. ADHERE TO ALL LOCAL AND FEDERAL ACCESSIBILITY REQUIREMENTS FOR THE SIDEWALK AND CURB RAMP DESIGNS. PROVIDE TWO PERPENDICULAR CURB RAMPS AT CORNERS WHEREVER FEASIBLE.



BASMAA URBAN GREENING TYPICAL GI DETAILS
BULBOUT ALTERNATIVE 1

SLOPED SIDES, INLINE OVERFLOW STRUCTURE, CURB CUT INLET TYPE A

SCALE:
1"=5'

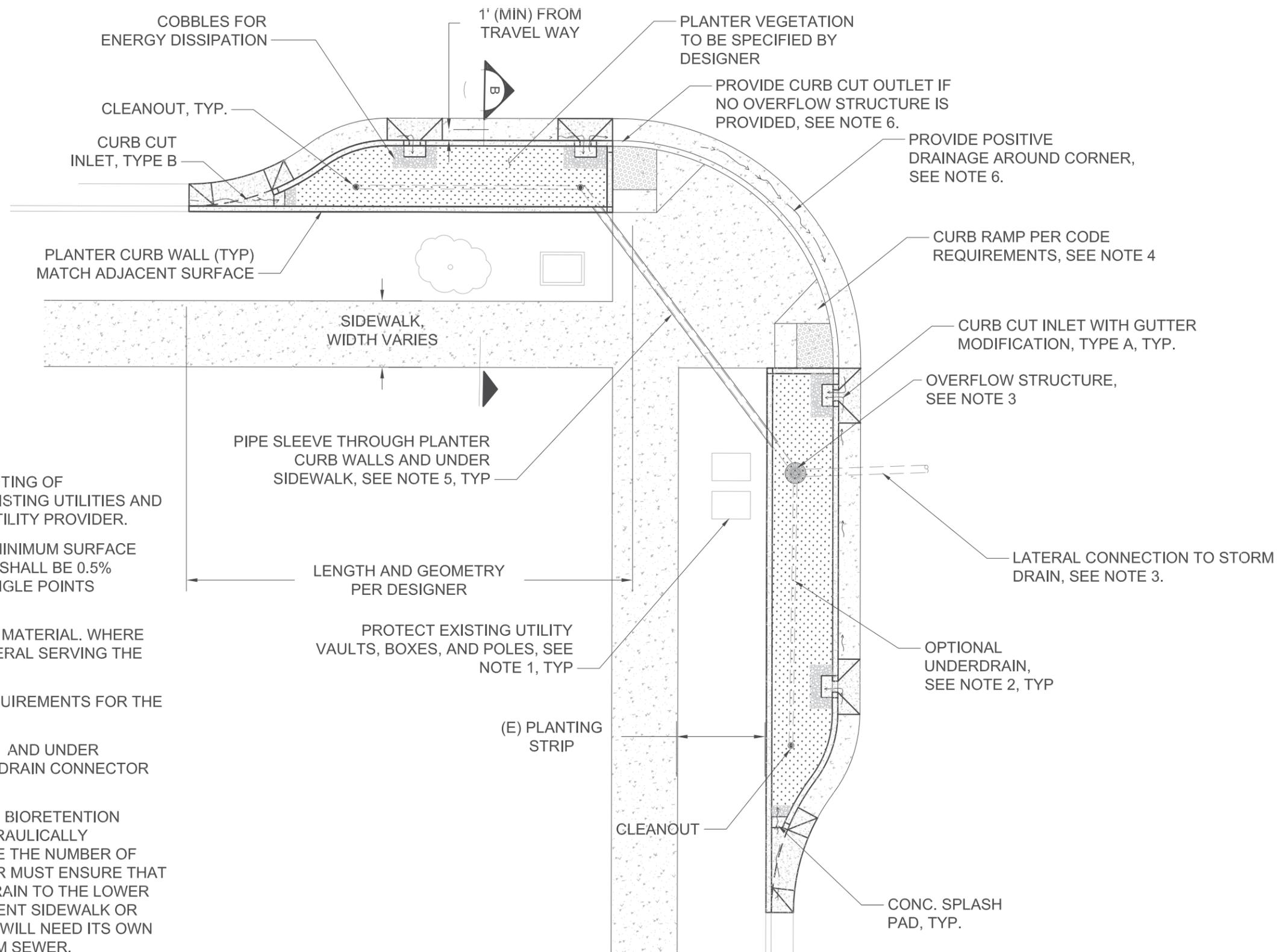
DRAWN BY:
BF

CHECKED BY:
SD

DATE :
APRIL 14, 2017

SHEET NUMBER

C-1.1



NOTES:

1. AVOID UTILITY CONFLICTS WHEREVER FEASIBLE IN THE SITING OF BIORETENTION PLANTERS. IF UNAVOIDABLE, PROTECT EXISTING UTILITIES AND MAINTAIN MINIMUM SETBACKS AS REQUIRED BY LOCAL UTILITY PROVIDER.
2. PROVIDE UNDERDRAIN WHERE REQUIRED TO MEET THE MINIMUM SURFACE WATER DRAWDOWN TIME. LONGITUDINAL SLOPE OF PIPE SHALL BE 0.5% MINIMUM. PROVIDE CLEANOUT AT UPSTREAM END AND ANGLE POINTS EXCEEDING 45 DEGREES.
3. DESIGNER TO SPECIFY OVERFLOW STRUCTURE SIZE AND MATERIAL. WHERE FEASIBLE, CONNECT TO THE EXISTING STORM DRAIN LATERAL SERVING THE CORNER CATCH BASIN BEING REMOVED, IF ANY.
4. ADHERE TO ALL LOCAL AND FEDERAL ACCESSIBILITY REQUIREMENTS FOR THE SIDEWALK AND CURB RAMP DESIGNS.
5. PROVIDE PIPE SLEEVES THROUGH PLANTER CURB WALLS AND UNDER SIDEWALK TO ALLOW FOR THE PASSING OF SOLID UNDERDRAIN CONNECTOR PIPES.
6. IF THE GRADES AND EXISTING SITE CONSTRAINTS ALLOW, BIORETENTION PLANTERS ON EITHER SIDE OF THE CORNER CAN BE HYDRAULICALLY CONNECTED TO OPTIMIZE TREATMENT AREA AND REDUCE THE NUMBER OF CONNECTIONS TO THE STORM SEWER SYSTEM. DESIGNER MUST ENSURE THAT THE HIGHER BIORETENTION PLANTER CAN POSITIVELY DRAIN TO THE LOWER BIORETENTION PLANTER WITHOUT FLOODING THE ADJACENT SIDEWALK OR ROADWAY. IF INFEASIBLE, EACH BIORETENTION PLANTER WILL NEED ITS OWN OVERFLOW STRUCTURE AND CONNECTION TO THE STORM SEWER.

**BASMAA URBAN GREENING TYPICAL GI DETAILS
BULBOUT ALTERNATIVE 2**

WALLED BIORETENTION ON BOTH SIDES OF CORNER, CURB CUT INLETS TYPE A & B

SCALE:
1"=10'

DRAWN BY:
BF

CHECKED BY:
SD

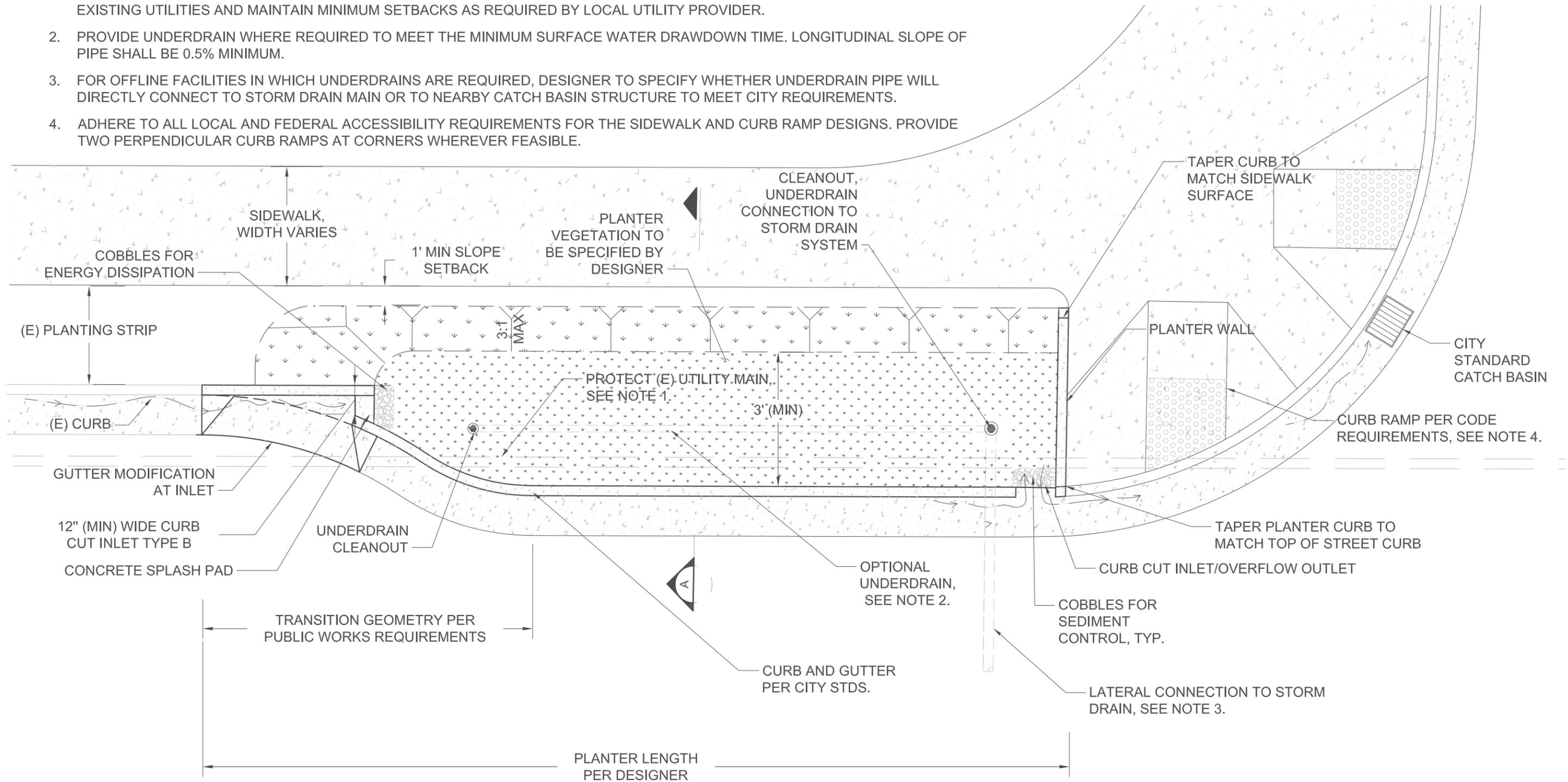
DATE :
APRIL 14, 2017

SHEET NUMBER

C-1.2

NOTES:

1. AVOID UTILITY CONFLICTS WHENEVER POSSIBLE IN THE SITING OF BIORETENTION PLANTERS. IF UNAVOIDABLE, PROTECT EXISTING UTILITIES AND MAINTAIN MINIMUM SETBACKS AS REQUIRED BY LOCAL UTILITY PROVIDER.
2. PROVIDE UNDERDRAIN WHERE REQUIRED TO MEET THE MINIMUM SURFACE WATER DRAWDOWN TIME. LONGITUDINAL SLOPE OF PIPE SHALL BE 0.5% MINIMUM.
3. FOR OFFLINE FACILITIES IN WHICH UNDERDRAINS ARE REQUIRED, DESIGNER TO SPECIFY WHETHER UNDERDRAIN PIPE WILL DIRECTLY CONNECT TO STORM DRAIN MAIN OR TO NEARBY CATCH BASIN STRUCTURE TO MEET CITY REQUIREMENTS.
4. ADHERE TO ALL LOCAL AND FEDERAL ACCESSIBILITY REQUIREMENTS FOR THE SIDEWALK AND CURB RAMP DESIGNS. PROVIDE TWO PERPENDICULAR CURB RAMP AT CORNERS WHEREVER FEASIBLE.



**BASMAA URBAN GREENING TYPICAL GI DETAILS
BULBOUT ALTERNATIVE 3**

SLOPED AND WALLED SIDES, CURB CUT INLET TYPE B, CURB CUT OVERFLOW ONLY

SCALE:
1"=5'

DRAWN BY:
BF

CHECKED BY:
SD

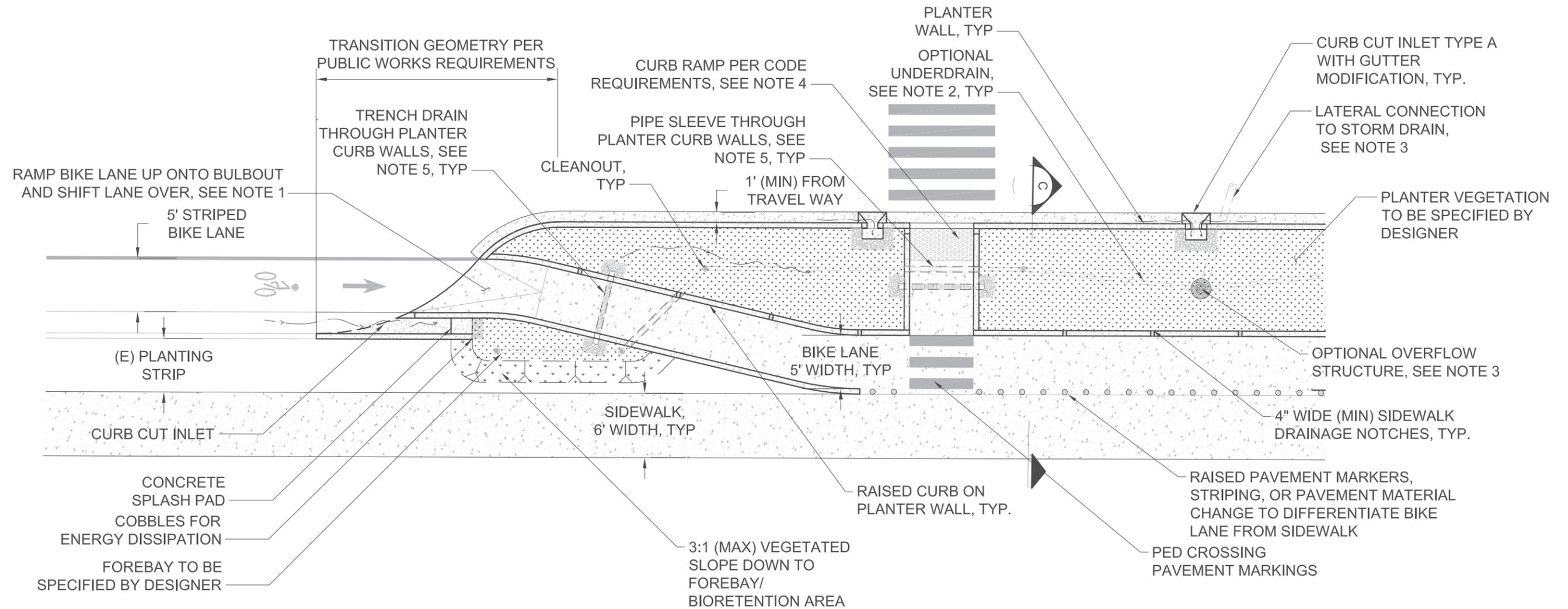
DATE :
APRIL 14, 2017

SHEET NUMBER

C-1.3

NOTES:

1. FOR HORIZONTAL BIKE LANE SHIFT, PROVIDE MAXIMUM 1:5 TRANSITION RATE.
2. PROVIDE UNDERDRAIN WHERE REQUIRED TO MEET THE MINIMUM SURFACE WATER DRAWDOWN TIME. LONGITUDINAL SLOPE OF PIPE SHALL BE 0.5% MINIMUM. PROVIDE CLEANOUT AT UPSTREAM END AND ANGLE POINTS EXCEEDING 45 DEGREES.
3. DESIGNER TO SPECIFY OVERFLOW STRUCTURE SIZE AND MATERIAL. WHERE FEASIBLE, CONNECT TO THE EXISTING STORM DRAIN LATERAL SERVING THE CORNER CATCH BASIN BEING REMOVED, IF ANY.
4. ADHERE TO ALL LOCAL AND FEDERAL ACCESSIBILITY REQUIREMENTS FOR THE SIDEWALK AND CURB RAMP DESIGNS.
5. PROVIDE TRENCH DRAINS THROUGH PLANTER CURB WALLS TO ALLOW FOR THE HYDRAULIC CONNECTION OF SEPARATED BIORETENTION PLANTERS AND PIPE SLEEVES FOR THE PASSING OF SOLID UNDERDRAIN CONNECTOR PIPES.



**BASMAA URBAN GREENING TYPICAL GI DETAILS
BULBOUT ALTERNATIVE 4**

MIDBLOCK BULBOUT WITH RAISED BIKE LANE AND PEDESTRIAN CROSSING

SCALE:
1"=10'

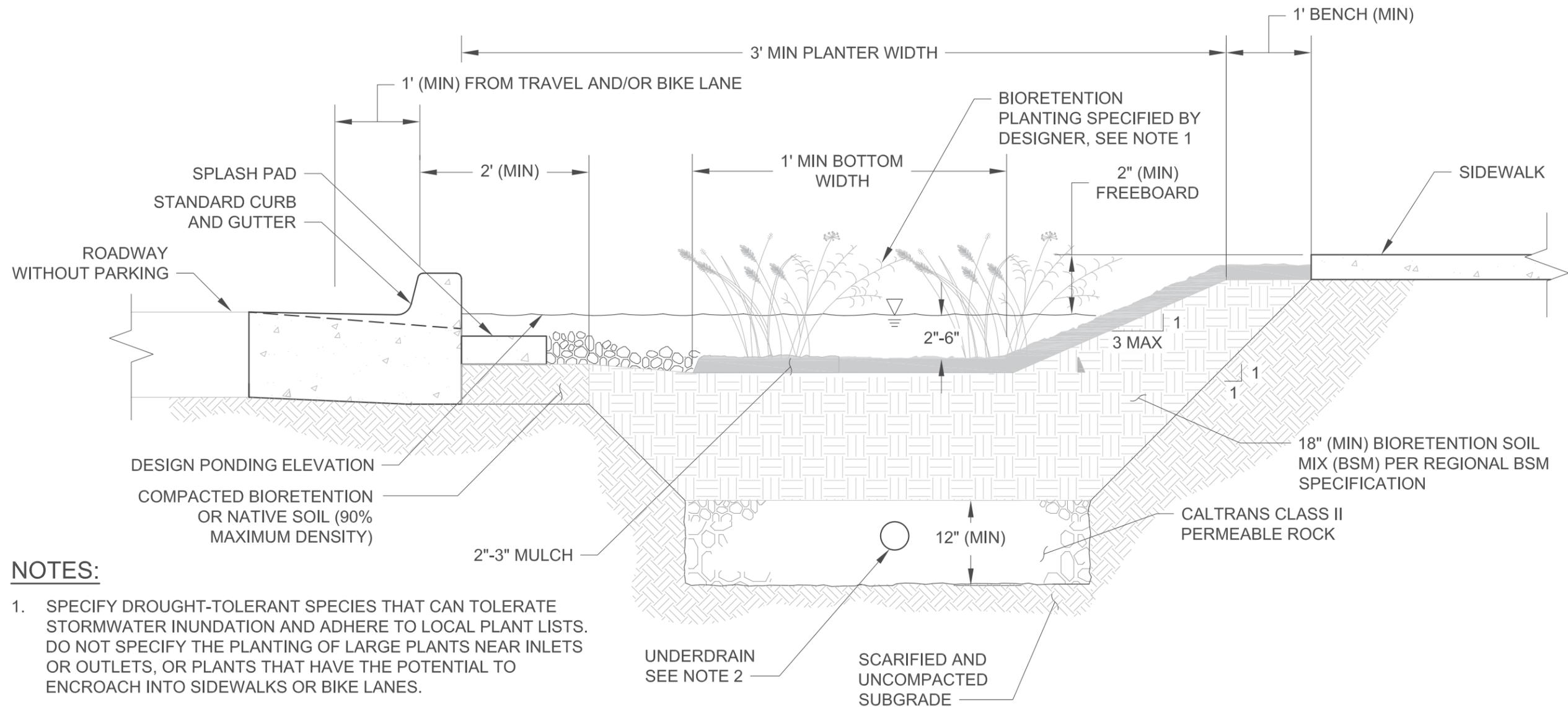
DRAWN BY:
BF

CHECKED BY:
SD

DATE :
APRIL 14, 2017

SHEET NUMBER

C-1.4



NOTES:

1. SPECIFY DROUGHT-TOLERANT SPECIES THAT CAN TOLERATE STORMWATER INUNDATION AND ADHERE TO LOCAL PLANT LISTS. DO NOT SPECIFY THE PLANTING OF LARGE PLANTS NEAR INLETS OR OUTLETS, OR PLANTS THAT HAVE THE POTENTIAL TO ENCROACH INTO SIDEWALKS OR BIKE LANES.
2. UNDERDRAIN PLACEMENT IS DEPENDENT ON SUBGRADE SOIL CONDITIONS. FOR TYPE B/C SOILS, THE UNDERDRAIN MAY BE ELEVATED TOWARDS THE TOP OF THE AGGREGATE STORAGE LAYER, APPROXIMATELY 3" BELOW BOTTOM OF BIORETENTION SOIL. FOR TYPE D SOILS, THE UNDERDRAIN SHALL BE PLACED 2" ABOVE THE SUBGRADE.

BIORETENTION BULBOUT SECTION A

BASMAA URBAN GREENING TYPICAL GI DETAILS
SECTION A-A
SLOPED SIDES / NO CURB WALLS

SCALE:
3/4"=1'

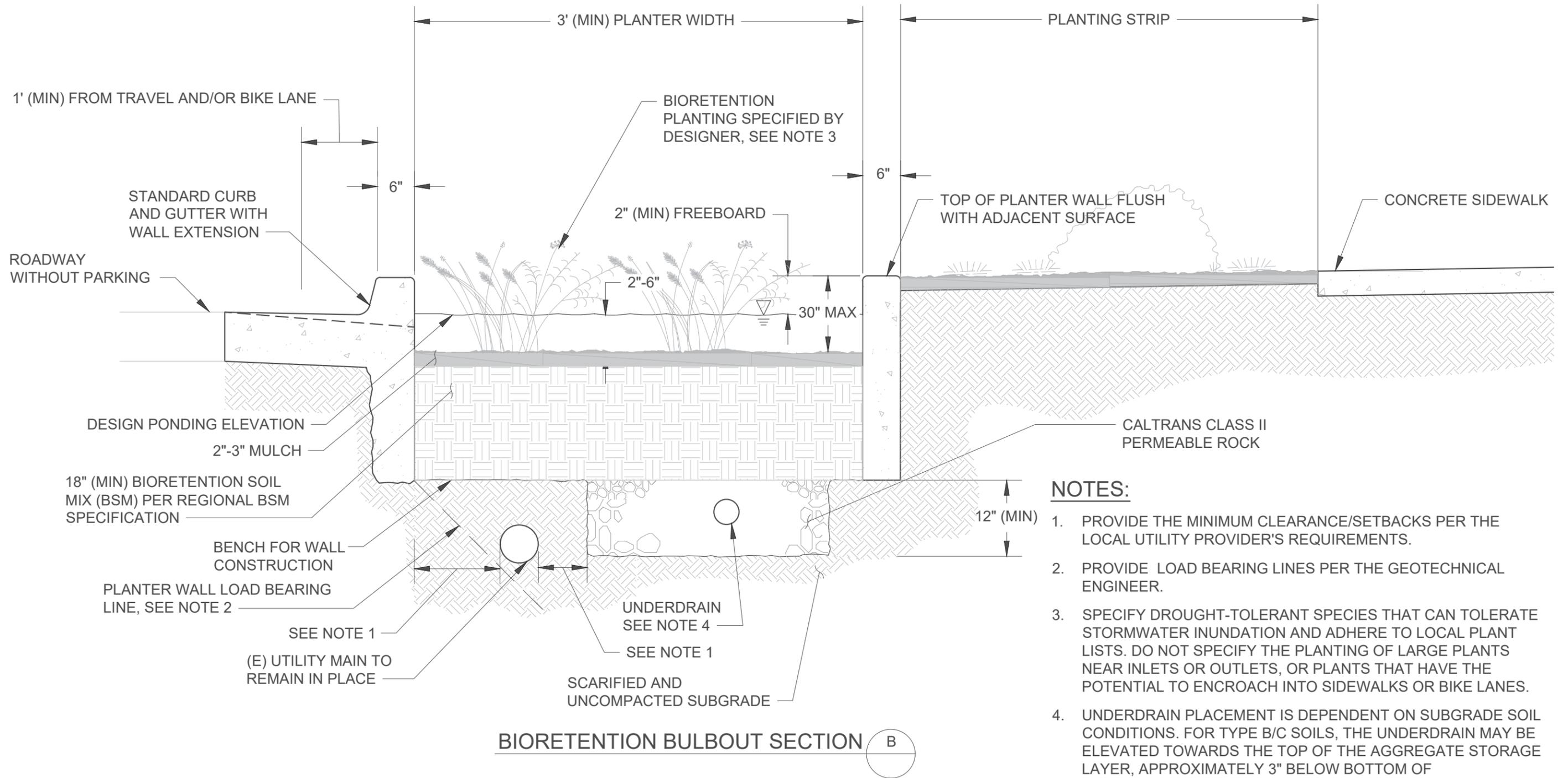
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CHECKED BY:
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DATE :
APRIL 14, 2017

SHEET NUMBER

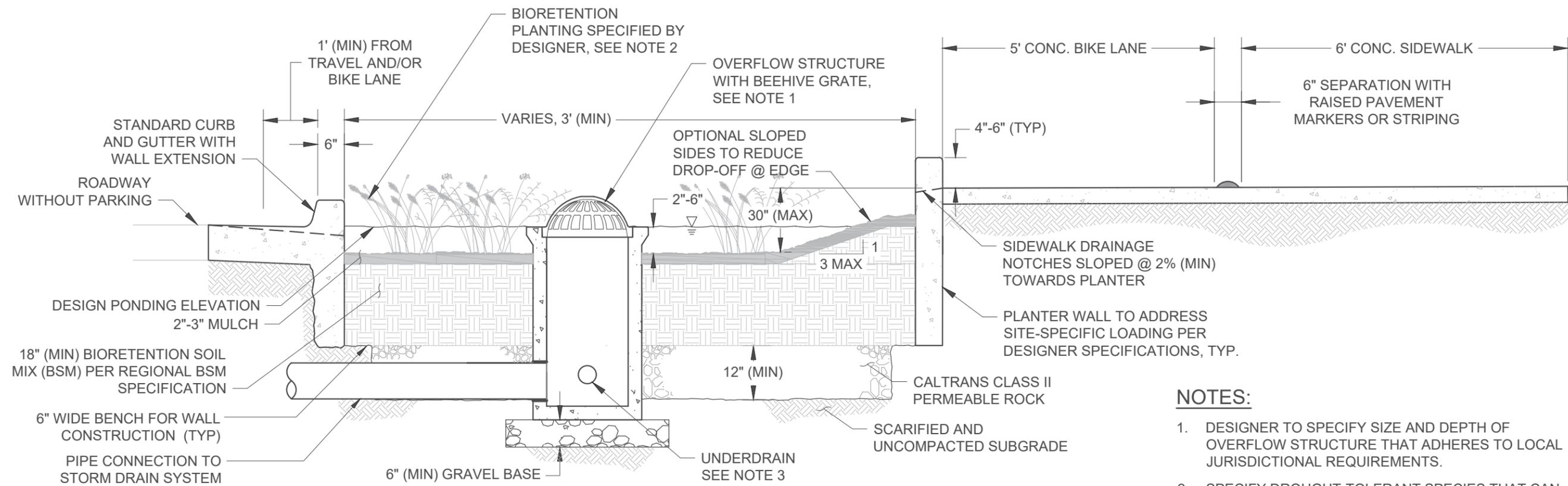
S-A-A



- NOTES:**
1. PROVIDE THE MINIMUM CLEARANCE/SETBACKS PER THE LOCAL UTILITY PROVIDER'S REQUIREMENTS.
 2. PROVIDE LOAD BEARING LINES PER THE GEOTECHNICAL ENGINEER.
 3. SPECIFY DROUGHT-TOLERANT SPECIES THAT CAN TOLERATE STORMWATER INUNDATION AND ADHERE TO LOCAL PLANT LISTS. DO NOT SPECIFY THE PLANTING OF LARGE PLANTS NEAR INLETS OR OUTLETS, OR PLANTS THAT HAVE THE POTENTIAL TO ENCROACH INTO SIDEWALKS OR BIKE LANES.
 4. UNDERDRAIN PLACEMENT IS DEPENDENT ON SUBGRADE SOIL CONDITIONS. FOR TYPE B/C SOILS, THE UNDERDRAIN MAY BE ELEVATED TOWARDS THE TOP OF THE AGGREGATE STORAGE LAYER, APPROXIMATELY 3" BELOW BOTTOM OF BIORETENTION SOIL. FOR TYPE D SOILS, THE UNDERDRAIN SHALL BE PLACED 2" ABOVE THE SUBGRADE.

BIORETENTION BULBOUT SECTION (B)

<p>BASMAA URBAN GREENING TYPICAL GI DETAILS</p> <p>SECTION B-B</p> <p><i>WALLS ON BOTH SIDES, UTILITY MAIN PROTECTION</i></p>	SCALE: 3/4"=1'	DATE : April 14, 2017
	DRAWN BY: BF	SHEET NUMBER
CHECKED BY: SD	S-B-B	



MIDBLOCK BULBOUT SECTION C

NOTES:

- DESIGNER TO SPECIFY SIZE AND DEPTH OF OVERFLOW STRUCTURE THAT ADHERES TO LOCAL JURISDICTIONAL REQUIREMENTS.
- SPECIFY DROUGHT-TOLERANT SPECIES THAT CAN TOLERATE STORMWATER INUNDATION AND ADHERE TO LOCAL PLANT LISTS. DO NOT SPECIFY THE PLANTING OF LARGE PLANTS NEAR INLETS OR OUTLETS, OR PLANTS THAT HAVE THE POTENTIAL TO ENCROACH INTO SIDEWALKS OR BIKE LANES.
- UNDERDRAIN PLACEMENT IS DEPENDENT ON SUBGRADE SOIL CONDITIONS. FOR TYPE B/C SOILS, THE UNDERDRAIN MAY BE ELEVATED TOWARDS THE TOP OF THE AGGREGATE STORAGE LAYER, APPROXIMATELY 3" BELOW BOTTOM OF BIORETENTION SOIL. FOR TYPE D SOILS, THE UNDERDRAIN SHALL BE PLACED 2" ABOVE THE SUBGRADE.

BASMAA URBAN GREENING TYPICAL GI DETAILS
SECTION C-C
RAISED BIKE LANE, OVERFLOW STRUCTURE

SCALE: 1"=2'	DATE : April 14, 2017
DRAWN BY: BF	SHEET NUMBER
CHECKED BY: SD	S-C-C

CASQA-LIDI BIORETENTION DETAILS

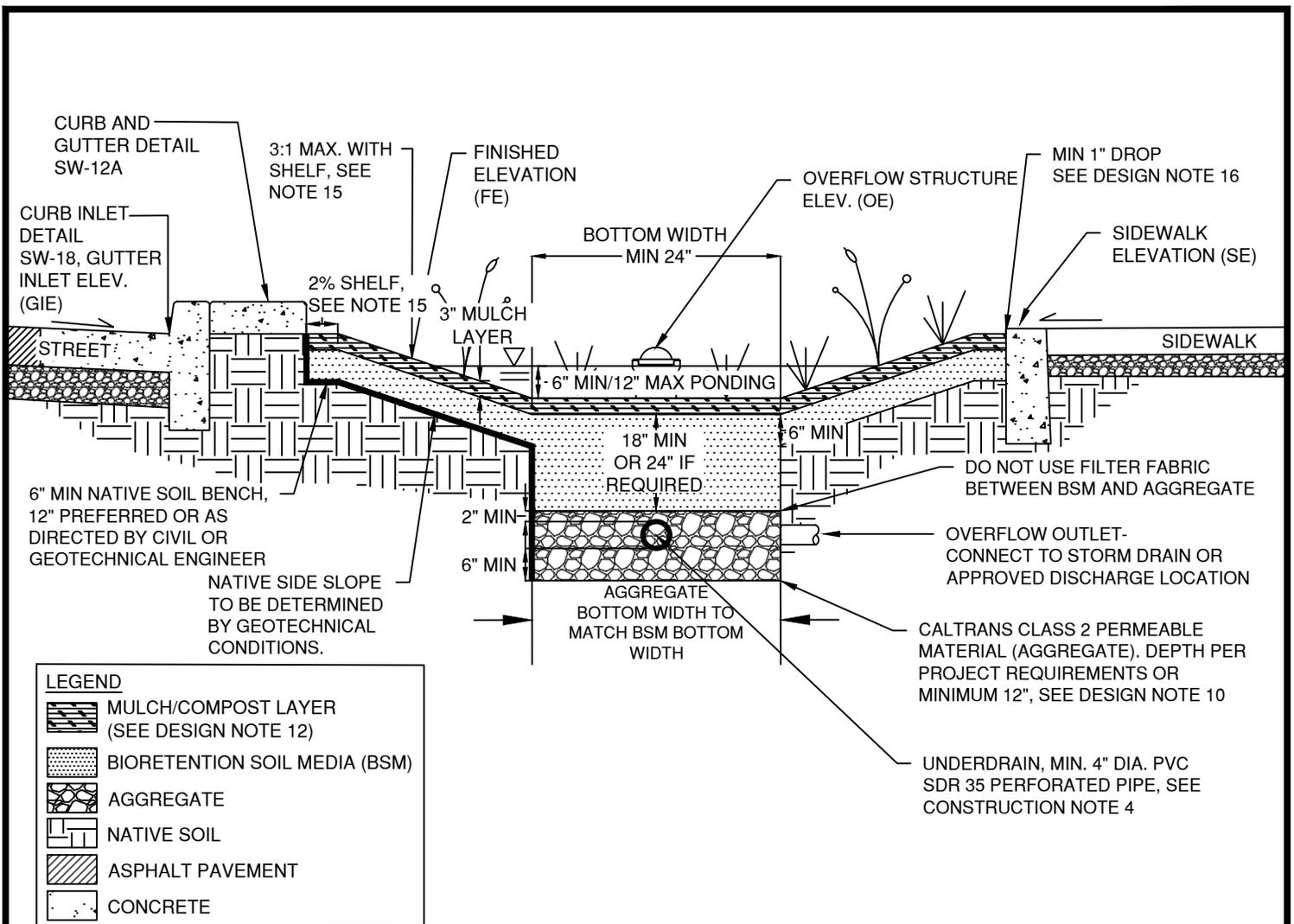
TABLE OF CONTENTS

NAME	NO.
STREET SIDE BIORETENTION (WITH PARKING)	
STREET SLOPE-SIDED BIORETENTION, WITH PARKING, WITH UNDERDRAIN	SW-1
STREET SLOPE-SIDED BIORETENTION, WITH PARKING, NO UNDERDRAIN	SW-1A
STREET BIORETENTION PLANTER BOX, WITH PARKING, WITH UNDERDRAIN	SW-2
STREET BIORETENTION PLANTER BOX, WITH PARKING, NO UNDERDRAIN	SW-2A
STREET SIDE BIORETENTION (NO PARKING)	
STREET SLOPE-SIDED BIORETENTION, NO PARKING, WITH UNDERDRAIN	SW-3
STREET SLOPE-SIDED BIORETENTION, NO PARKING, NO UNDERDRAIN	SW-3A
STREET BIORETENTION PLANTER BOX, NO PARKING, WITH UNDERDRAIN	SW-4
STREET BIORETENTION PLANTER BOX, NO PARKING, NO UNDERDRAIN	SW-4A
STREET BIORETENTION BULB OUT, NO PARKING, NO UNDERDRAIN	SW-5
STREET BIORETENTION BULB OUT, MID BLOCK CROSSING PLAN VIEW	SW-5.1
PARKING LOT BIORETENTION	
PARKING LOT SLOPE-SIDED BIORETENTION, WITH UNDERDRAIN	SW-6
PARKING LOT SLOPE-SIDED BIORETENTION, NO UNDERDRAIN	SW-6A
PARKING LOT BIORETENTION PLANTER BOX, WITH UNDERDRAIN	SW-7
PARKING LOT BIORETENTION PLANTER BOX, NO UNDERDRAIN	SW-7A
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PLANTER BOX, NO PARKING	SW-9
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CURB AND GUTTER	SW-12A
DEEP CURB	SW-13
THICKENED EDGE SIDEWALK	SW-14
FLUSH CURB AT SIDEWALK	SW-15
PARKING LOT EDGE OPTIONS	SW-16
CURB CUT INLET FOR PLANTERS	SW-17
CURB CUT INLET FOR SLOPE SIDED BIORETENTION FACILITY	SW-18
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CONCRETE CHECK DAM	SW-21
OVERFLOW STRUCTURE WITH BEEHIVE GRATE	SW-22
OVERFLOW STRUCTURE COLLAR	SW-22A

CASQA-LIDI BIORETENTION DETAILS

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NAME	NO.
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IMPERMEABLE LINER CONNECTION	SW-24
OTHER	
PERVIOUS PAVEMENT	SW-25
PLANTING INUNDATION ZONES & BIORETENTION PLANT LIST	SW-26
DRYWELL STORMWATER BMP	SW-27
SPECIFICATIONS	



CONSTRUCTION NOTES

1. MAINTAIN UNDISTURBED NATIVE SOIL BENCH TO SUPPORT ADJACENT SIDEWALK/ROAD. SEQUENCE WORK TO CONSTRUCT CURBS BEFORE EXCAVATING BIORETENTION AREA FOR AGGREGATE AND BSM.
2. SCARIFY SUBGRADE BEFORE INSTALLING BIORETENTION AREA AGGREGATE AND BSM.
3. FACILITY EXCAVATION TO ALLOW FOR SPECIFIED AGGREGATE, BSM, AND MULCH DEPTHS TO ACHIEVE FINISHED ELEVATIONS ON CIVIL PLANS.
4. INSTALL UNDERDRAIN WITH HOLES FACING DOWN. TOP OF UNDERDRAIN 6" BELOW TOP OF AGGREGATE LAYER. UNDERDRAIN SLOPE MAY BE FLAT.
5. PLACE BSM IN 6" LIFTS. COMPACT EACH 6" LIFT OF BSM WITH LANDSCAPE ROLLER OR BY LIGHTLY WETTING. IF WETTING, LET DRY OVERNIGHT BEFORE PLANTING.
6. DO NOT WORK WITHIN BIORETENTION AREA DURING RAIN OR UNDER WET CONDITIONS.
7. KEEP HEAVY MACHINERY OUTSIDE BIORETENTION AREA LIMITS.
8. STORMWATER SHOULD BE DIRECTED AWAY FROM BIORETENTION UNTIL CONSTRUCTION IS COMPLETE AND DRAINAGE AREA VEGETATION IS STABILIZED.

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS

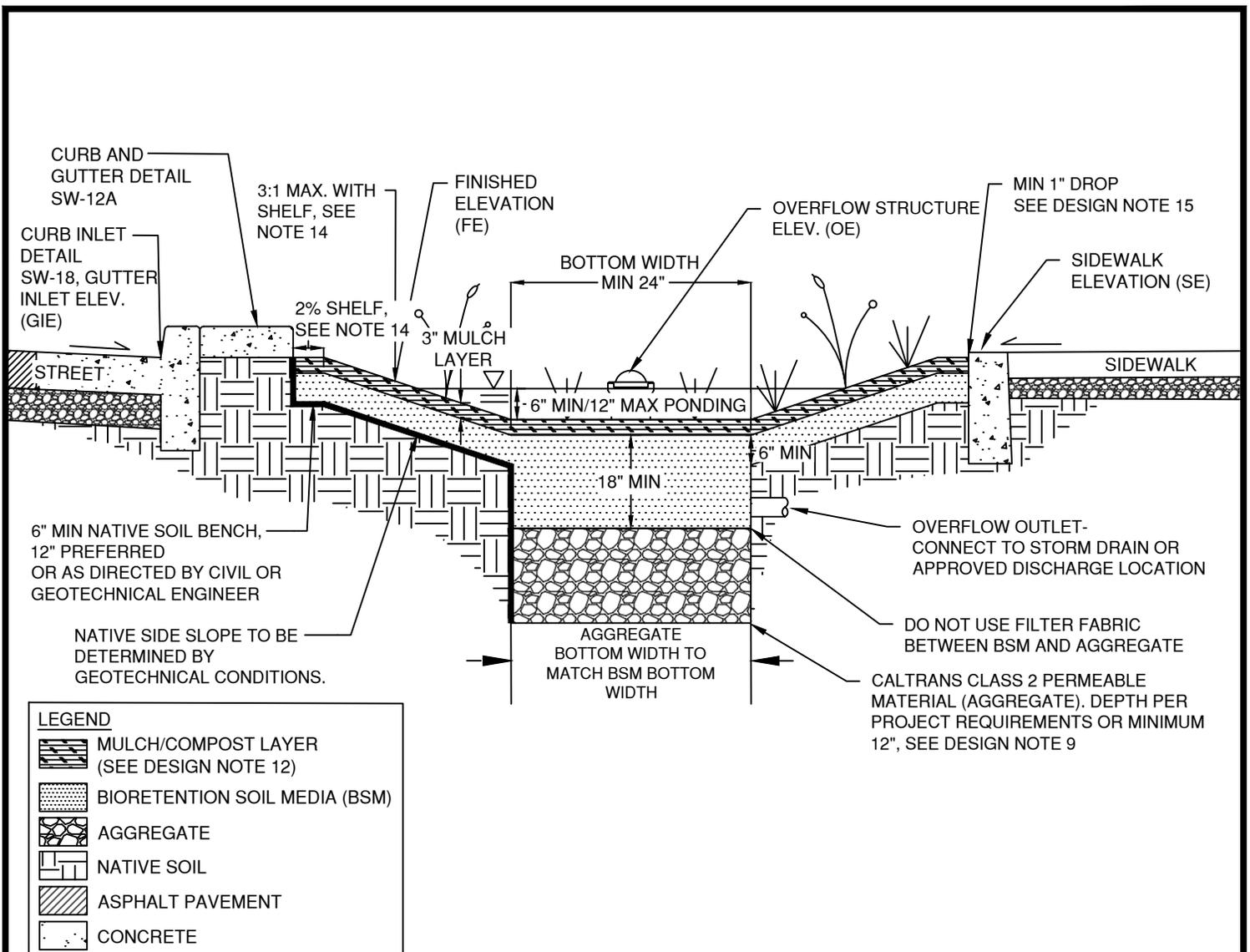
  <p>DEVELOPED UNDER PROP. 84 GRANT</p>	APPROVED BY:	<p>STREET SLOPE-SIDED BIORETENTION WITH PARKING, WITH UNDERDRAIN</p> <p>USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION</p>	STANDARD PLAN NO.
	VERSION:		<p>SW-1</p> <p>SHEET 1 OF 2</p>
	08/31/2017		

DESIGN NOTES

1. BIORETENTION FACILITY DESIGN SHOULD OPTIMIZE THE FLAT BOTTOM DIMENSIONS (I.E., WIDTH, LENGTH) TO MAXIMIZE THE FUNCTIONAL AREA OF THE FACILITY.
2. CAPTURE AND CONVEY OVERFLOW TO STORM DRAIN SYSTEM (DETAIL SW-22, SW-23). ALTERNATIVELY, CONVEY OVERFLOW TO APPROVED DISCHARGE LOCATION THROUGH OTHER OVERLAND METHODS (IE. CURB CUTS, SIDEWALK UNDERDRAIN, WEIR, ETC.).
3. PROVIDE SPOT ELEVATIONS AT INLETS AND OVERFLOW STRUCTURES ON CIVIL PLANS (FE, OE, GIE, SIE), PER DETAIL SW-18.
4. DUE TO SITE VARIABILITY, TO ENSURE THE LONG-TERM STRUCTURAL STABILITY OF THE BIORETENTION FACILITY AND ANY ADJACENT INFRASTRUCTURE CONSULT WITH A GEOTECHNICAL ENGINEER.
5. A VERTICAL LINER MAY BE USED FOR BIORETENTION FACILITIES TO PREVENT LATERAL FLOW AND TO SEPARATE THE NATIVE SOIL FROM THE BSM AND THE AGGREGATE, HOWEVER A HORIZONTAL LINER SHALL NOT BE USED.
6. DO NOT USE FILTER FABRIC BETWEEN BSM AND AGGREGATE.
7. PROVIDE CAPPED, THREADED PVC CLEANOUT FOR UNDERDRAIN, 4" MIN. DIA. WITH SWEEP BEND.
8. PROVIDE A CLEAN-OUT/OBSERVATION PORT IN EACH FACILITY, PER BIORETENTION TECHNICAL SPECIFICATIONS.
9. ON LONGITUDINAL SLOPE, USE CHECK DAMS (DETAILS SW-20, SW-21)
10. DEPTH OF AGGREGATE DETERMINED BY FACILITY SIZING. IF CALTRANS CLASS 2 PERMEABLE IS NOT AVAILABLE, SUBSTITUTE CLASS 3 PERMEABLE WITH AN OVERLYING 3" DEEP CHOKING LAYER OF EITHER CALTRANS COURSE AGGREGATE 1/2" (NO. 4) OR 3/4" X (NO.4) OPEN-GRADED AGGREGATE.
11. BIORETENTION SOIL MEDIA (BSM) SPECIFICATION PER BIORETENTION TECHNICAL SPECIFICATIONS.
12. PLANT SELECTION PER BIORETENTION TECHNICAL SPECIFICATIONS.
13. MULCH PER BIORETENTION TECHNICAL SPECIFICATIONS.
14. LOCATE ENERGY DISSIPATION AS SPECIFIED IN INLET DETAILS.
15. NATIVE SIDE SLOPE 4:1 (H:V) PREFERRED, 3:1 WITH SHELF. 6" MINIMUM SHELF WITH 2% SLOPE TOWARDS FACILITY ADJACENT TO PEDESTRIAN USE OR CURB UNLESS 4:1 SLOPE PROVIDED.
16. INCLUDE AT LEAST 1" DROP FROM CURB ABOVE MULCH LAYER.
17. AVOID DECORATIVE USE OF COBBLE THAT CAN INTERFERE WITH WITH INFILTRATION.

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS

 DEVELOPED UNDER PROP. 84 GRANT	 central coast LIDI	APPROVED BY:	STREET SLOPE-SIDED BIORETENTION WITH PARKING, WITH UNDERDRAIN	STANDARD PLAN NO.
		VERSION: 08/31/2017		USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION



CONSTRUCTION NOTES

1. MAINTAIN UNDISTURBED NATIVE SOIL BENCH TO SUPPORT ADJACENT SIDEWALK/ROAD. SEQUENCE WORK TO CONSTRUCT CURBS BEFORE EXCAVATING BIORETENTION AREA FOR AGGREGATE AND BSM.
2. SCARIFY SUBGRADE BEFORE INSTALLING BIORETENTION AREA AGGREGATE AND BSM.
3. FACILITY EXCAVATION TO ALLOW FOR SPECIFIED AGGREGATE, BSM, AND MULCH DEPTHS TO ACHIEVE FINISHED ELEVATIONS ON CIVIL PLANS.
4. PLACE BSM IN 6" LIFTS. COMPACT EACH 6" LIFT OF BSM WITH LANDSCAPE ROLLER OR BY LIGHTLY WETTING. IF WETTING, LET DRY OVERNIGHT BEFORE PLANTING.
5. DO NOT WORK WITHIN BIORETENTION AREA DURING RAIN OR UNDER WET CONDITIONS.
6. KEEP HEAVY MACHINERY OUTSIDE BIORETENTION AREA LIMITS.
7. STORMWATER SHOULD BE DIRECTED AWAY FROM BIORETENTION UNTIL CONSTRUCTION IS COMPLETE AND DRAINAGE AREA VEGETATION IS STABILIZED.

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS

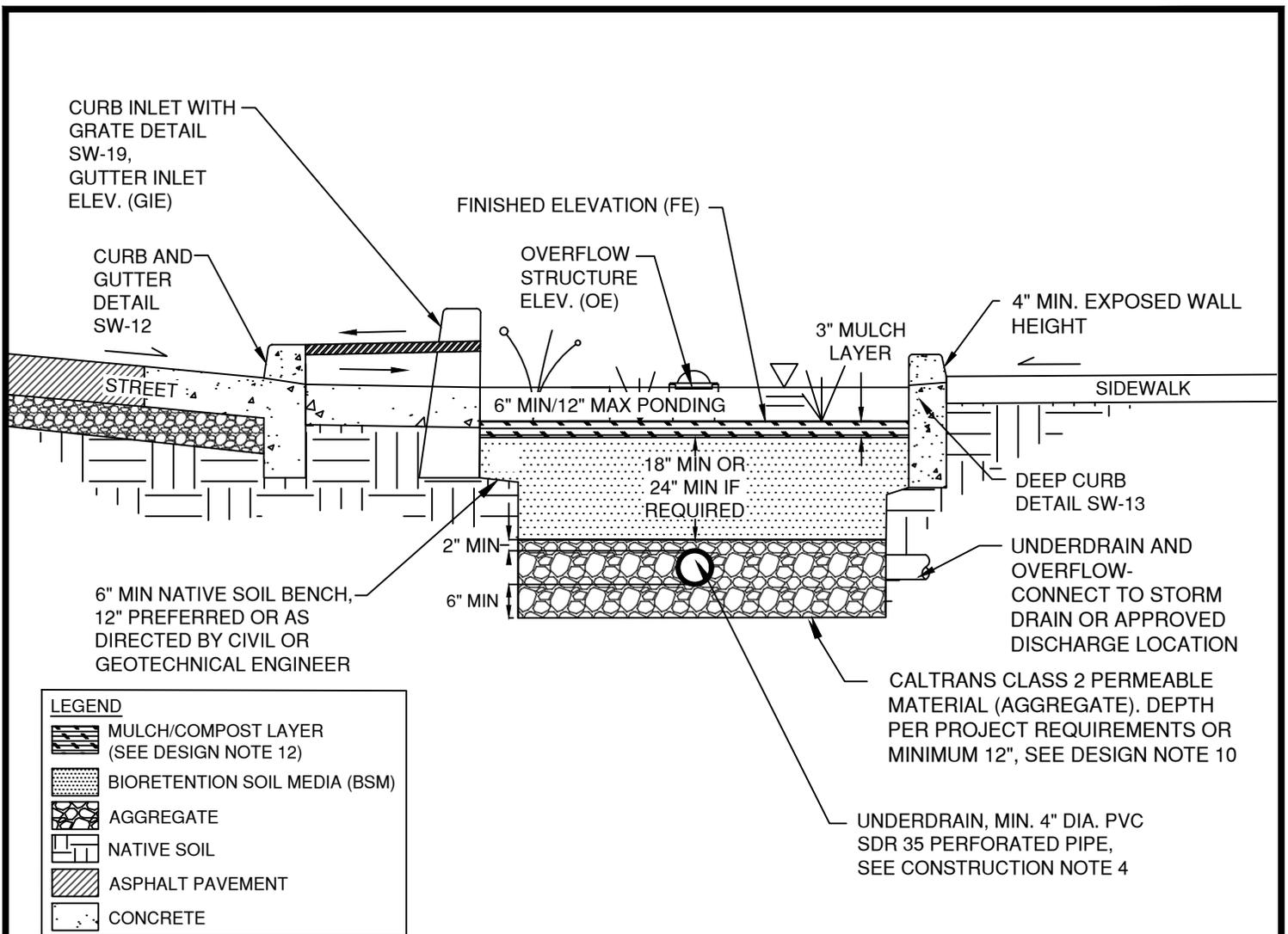
  <p>DEVELOPED UNDER PROP. 84 GRANT</p>	APPROVED BY:	STREET SLOPE-SIDED BIORETENTION, WITH PARKING, NO UNDERDRAIN	STANDARD PLAN NO.
	VERSION: 08/31/2017		SW-1A
USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION		SHEET 1 OF 2	

DESIGN NOTES

1. BIORETENTION FACILITY DESIGN SHOULD OPTIMIZE THE FLAT BOTTOM DIMENSIONS (I.E., WIDTH, LENGTH) TO MAXIMIZE THE FUNCTIONAL AREA OF THE FACILITY.
2. CAPTURE AND CONVEY OVERFLOW TO STORM DRAIN SYSTEM (DETAIL SW-22, SW-23). ALTERNATIVELY, CONVEY OVERFLOW TO APPROVED DISCHARGE LOCATION THROUGH OTHER OVERLAND METHODS (IE. CURB CUTS, SIDEWALK UNDERDRAIN, WEIR, ETC.).
3. PROVIDE SPOT ELEVATIONS AT INLETS AND OVERFLOW STRUCTURES ON CIVIL PLANS (FE, OE, GIE, SIE), PER DETAIL SW-18.
4. DUE TO SITE VARIABILITY, TO ENSURE THE LONG-TERM STRUCTURAL STABILITY OF THE BIORETENTION FACILITY AND ANY ADJACENT INFRASTRUCTURE CONSULT WITH A GEOTECHNICAL ENGINEER.
5. A VERTICAL LINER MAY BE USED FOR BIORETENTION FACILITIES TO PREVENT LATERAL FLOW AND TO SEPARATE THE NATIVE SOIL FROM THE BSM AND THE AGGREGATE, HOWEVER A HORIZONTAL LINER SHALL NOT BE USED.
6. DO NOT USE FILTER FABRIC BETWEEN BSM AND AGGREGATE.
7. PROVIDE A CLEAN-OUT/OBSERVATION PORT IN EACH FACILITY, PER BIORETENTION TECHNICAL SPECIFICATIONS.
8. ON LONGITUDINAL SLOPE, USE CHECK DAMS (DETAILS SW-20, SW-21)
9. USE AND DEPTH OF AGGREGATE DETERMINED BY FACILITY SIZING. IF CALTRANS CLASS 2 PERMEABLE IS NOT AVAILABLE, SUBSTITUTE CLASS 3 PERMEABLE WITH AN OVERLYING 3" DEEP CHOKING LAYER OF EITHER CALTRANS COURSE AGGREGATE 1/2" (NO. 4) OR 3/4" X (NO. 4) OPEN-GRADED AGGREGATE.
10. BIORETENTION SOIL MEDIA (BSM) SPECIFICATION PER BIORETENTION TECHNICAL SPECIFICATIONS.
11. PLANT SELECTION PER BIORETENTION TECHNICAL SPECIFICATIONS.
12. MULCH PER BIORETENTION TECHNICAL SPECIFICATIONS.
13. LOCATE ENERGY DISSIPATION AS SPECIFIED IN INLET DETAILS.
14. NATIVE SIDE SLOPE 4:1 (H:V) PREFERRED, 3:1 WITH SHELF. 6" MINIMUM SHELF WITH 2% SLOPE TOWARDS FACILITY ADJACENT TO PEDESTRIAN USE OR CURB UNLESS 4:1 SLOPE PROVIDED.
15. INCLUDE AT LEAST 1" DROP FROM CURB ABOVE MULCH LAYER.
16. AVOID DECORATIVE USE OF COBBLE THAT CAN INTERFERE WITH WITH INFILTRATION.

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS

  DEVELOPED UNDER PROP. 84 GRANT	APPROVED BY:	STREET SLOPE-SIDED BIORETENTION, WITH PARKING, NO UNDERDRAIN	STANDARD PLAN NO. SW-1A
	VERSION: 08/31/2017		USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION



CONSTRUCTION NOTES

1. MAINTAIN UNDISTURBED NATIVE SOIL BENCH TO SUPPORT ADJACENT SIDEWALK/ROAD. SEQUENCE WORK TO CONSTRUCT CURBS BEFORE EXCAVATING BIORETENTION AREA FOR AGGREGATE AND BSM.
2. SCARIFY SUBGRADE BEFORE INSTALLING BIORETENTION AREA AGGREGATE AND BSM.
3. FACILITY EXCAVATION TO ALLOW FOR SPECIFIED AGGREGATE, BSM, AND MULCH DEPTHS TO ACHIEVE FINISHED ELEVATIONS ON CIVIL PLANS.
4. INSTALL UNDERDRAIN WITH HOLES FACING DOWN. TOP OF UNDERDRAIN 6" BELOW TOP OF AGGREGATE LAYER. UNDERDRAIN SLOPE MAY BE FLAT.
5. COMPACT EACH 6" LIFT OF BSM WITH LANDSCAPE ROLLER OR BY LIGHTLY WETTING. IF WETTING, LET DRY OVERNIGHT BEFORE PLANTING.
6. DO NOT WORK WITHIN BIORETENTION AREA DURING RAIN OR UNDER WET CONDITIONS.
7. KEEP HEAVY MACHINERY OUTSIDE BIORETENTION AREA LIMITS.
8. STORMWATER SHOULD BE DIRECTED AWAY FROM BIORETENTION UNTIL CONSTRUCTION IS COMPLETE AND DRAINAGE AREA VEGETATION IS STABILIZED.

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS



DEVELOPED UNDER PROP. 84 GRANT

APPROVED BY:

VERSION:

08/31/2017

**STREET BIORETENTION PLANTER BOX,
WITH PARKING, WITH UNDERDRAIN**

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION

STANDARD PLAN NO.

SW-2

SHEET 1 OF 2

DESIGN NOTES

1. BIORETENTION FACILITY DESIGN SHOULD OPTIMIZE THE FLAT BOTTOM DIMENSIONS (I.E., WIDTH, LENGTH) TO MAXIMIZE THE FUNCTIONAL AREA OF THE FACILITY.
2. CAPTURE AND CONVEY OVERFLOW TO STORM DRAIN SYSTEM (DETAIL SW-22, SW-23). ALTERNATIVELY, CONVEY OVERFLOW TO APPROVED DISCHARGE LOCATION THROUGH OTHER OVERLAND METHODS (IE. CURB CUTS, SIDEWALK UNDERDRAIN, WEIR, ETC.).
3. PROVIDE SPOT ELEVATIONS AT INLETS AND OVERFLOW STRUCTURES ON CIVIL PLANS (FE, OE, GIE, SIE), PER DETAIL SW-18.
4. DUE TO SITE VARIABILITY, TO ENSURE THE LONG-TERM STRUCTURAL STABILITY OF THE BIORETENTION FACILITY AND ANY ADJACENT INFRASTRUCTURE CONSULT WITH A GEOTECHNICAL ENGINEER.
5. A VERTICAL LINER MAY BE USED FOR BIORETENTION FACILITIES TO PREVENT LATERAL FLOW AND TO SEPARATE THE NATIVE SOIL FROM THE BSM AND THE AGGREGATE, HOWEVER A HORIZONTAL LINER SHALL NOT BE USED.
6. DO NOT USE FILTER FABRIC BETWEEN BSM AND AGGREGATE.
7. PROVIDE CAPPED, THREADED PVC CLEANOUT FOR UNDERDRAIN, 4" MIN. DIA. WITH SWEEP BEND.
8. PROVIDE A CLEAN-OUT/OBSERVATION PORT IN EACH FACILITY, PER BIORETENTION TECHNICAL SPECIFICATIONS.
9. ON LONGITUDINAL SLOPE, USE CHECK DAMS (DETAILS SW-20, SW-21)
10. USE AND DEPTH OF AGGREGATE DETERMINED BY FACILITY SIZING. IF CALTRANS CLASS 2 PERMEABLE IS NOT AVAILABLE, SUBSTITUTE CLASS 3 PERMEABLE WITH AN OVERLYING 3" DEEP CHOKING LAYER OF EITHER CALTRANS COURSE AGGREGATE 1/2" (NO. 4) OR 3/4" X (NO. 4) OPEN-GRADED AGGREGATE.
11. BIORETENTION SOIL MEDIA (BSM) SPECIFICATION PER BIORETENTION TECHNICAL SPECIFICATIONS.
12. PLANT SELECTION PER BIORETENTION TECHNICAL SPECIFICATIONS.
13. MULCH PER BIORETENTION TECHNICAL SPECIFICATIONS.
14. LOCATE ENERGY DISSIPATION AS SPECIFIED IN INLET DETAILS.
15. AVOID DECORATIVE USE OF COBBLE THAT CAN INTERFERE WITH WITH INFILTRATION.

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS



DEVELOPED UNDER PROP. 84 GRANT

APPROVED BY:

VERSION:
08/31/2017

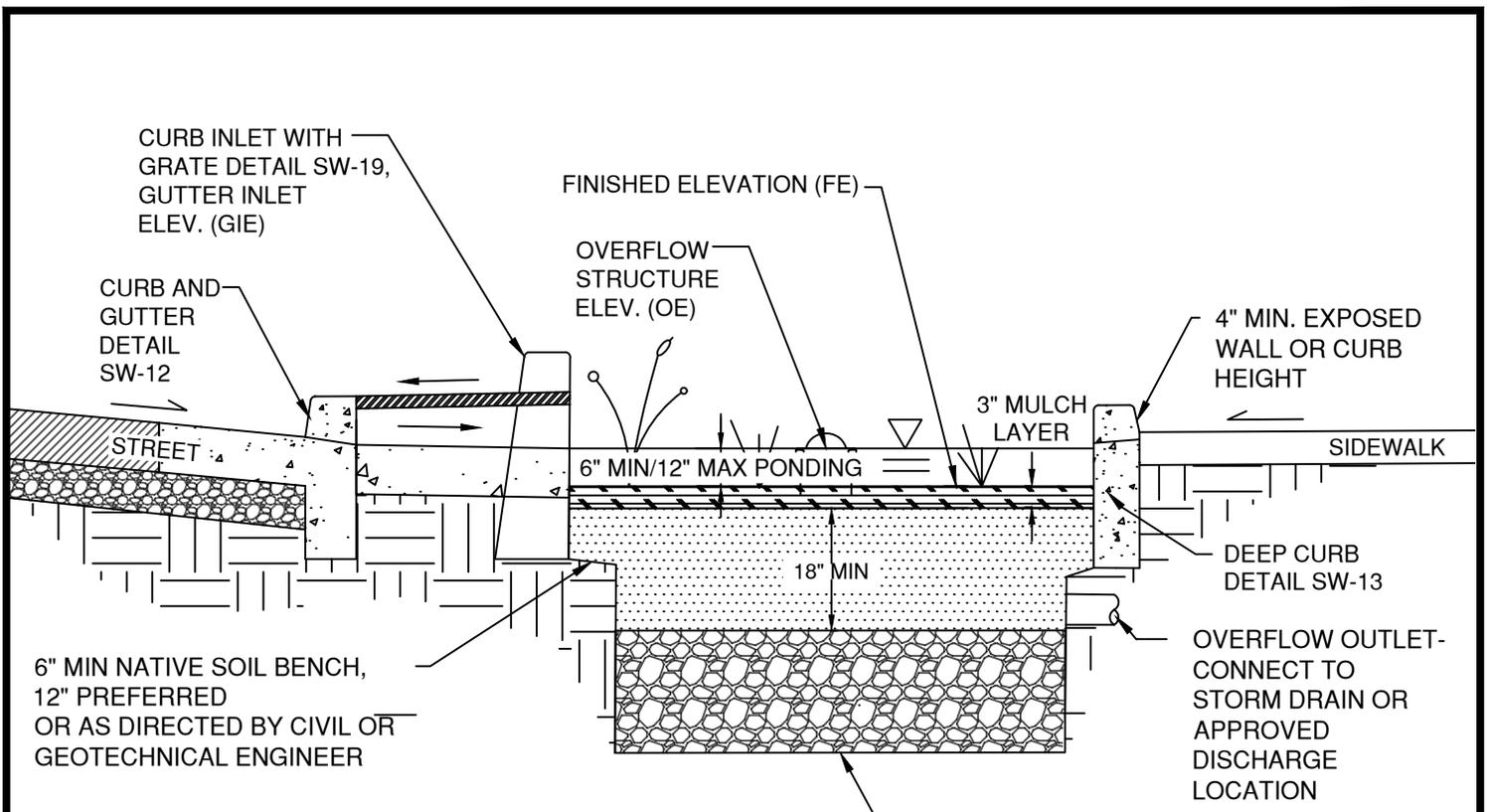
STREET BIORETENTION PLANTER BOX,
WITH PARKING, WITH UNDERDRAIN

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION

STANDARD PLAN NO.

SW-2

SHEET 2 OF 2



LEGEND	
	MULCH/COMPOST LAYER (SEE DESIGN NOTE 12)
	BIORETENTION SOIL MEDIA (BSM)
	AGGREGATE
	NATIVE SOIL
	ASPHALT PAVEMENT
	CONCRETE

CALTRANS CLASS 2 PERMEABLE MATERIAL (AGGREGATE). DEPTH PER PROJECT REQUIREMENTS OR MINIMUM 12", SEE DESIGN NOTE 9

CONSTRUCTION NOTES

1. MAINTAIN UNDISTURBED NATIVE SOIL BENCH TO SUPPORT ADJACENT SIDEWALK/ROAD. SEQUENCE WORK TO CONSTRUCT CURBS BEFORE EXCAVATING BIORETENTION AREA FOR AGGREGATE AND BSM.
2. SCARIFY SUBGRADE BEFORE INSTALLING BIORETENTION AREA AGGREGATE AND BSM.
3. FACILITY EXCAVATION TO ALLOW FOR SPECIFIED AGGREGATE, BSM, AND MULCH DEPTHS TO ACHIEVE FINISHED ELEVATIONS ON CIVIL PLANS.
4. COMPACT EACH 6" LIFT OF BSM WITH LANDSCAPE ROLLER OR BY LIGHTLY WETTING. IF WETTING, LET DRY OVERNIGHT BEFORE PLANTING.
5. DO NOT WORK WITHIN BIORETENTION AREA DURING RAIN OR UNDER WET CONDITIONS.
6. KEEP HEAVY MACHINERY OUTSIDE BIORETENTION AREA LIMITS.
7. STORMWATER SHOULD BE DIRECTED AWAY FROM BIORETENTION UNTIL CONSTRUCTION IS COMPLETE AND DRAINAGE AREA VEGETATION IS STABILIZED.

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS			
 DEVELOPED UNDER PROP. 84 GRANT		APPROVED BY: VERSION: 08/31/2017	STREET BIORETENTION PLANTER BOX, WITH PARKING, NO UNDERDRAIN STANDARD PLAN NO. SW-2A SHEET 1 OF 2
USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION			

DESIGN NOTES

1. BIORETENTION FACILITY DESIGN SHOULD OPTIMIZE THE FLAT BOTTOM DIMENSIONS (I.E., WIDTH, LENGTH) TO MAXIMIZE THE FUNCTIONAL AREA OF THE FACILITY.
2. CAPTURE AND CONVEY OVERFLOW TO STORM DRAIN SYSTEM (DETAIL SW-22, SW-23). ALTERNATIVELY, CONVEY OVERFLOW TO APPROVED DISCHARGE LOCATION THROUGH OTHER OVERLAND METHODS (IE. CURB CUTS, SIDEWALK UNDERDRAIN, WEIR, ETC.).
3. PROVIDE SPOT ELEVATIONS AT INLETS AND OVERFLOW STRUCTURES ON CIVIL PLANS (FE, OE, GIE, SIE), PER DETAIL SW-18.
4. DUE TO SITE VARIABILITY, TO ENSURE THE LONG-TERM STRUCTURAL STABILITY OF THE BIORETENTION FACILITY AND ANY ADJACENT INFRASTRUCTURE CONSULT WITH A GEOTECHNICAL ENGINEER.
5. A VERTICAL LINER MAY BE USED FOR BIORETENTION FACILITIES TO PREVENT LATERAL FLOW AND TO SEPARATE THE NATIVE SOIL FROM THE BSM AND THE AGGREGATE, HOWEVER A HORIZONTAL LINER SHALL NOT BE USED.
6. DO NOT USE FILTER FABRIC BETWEEN BSM AND AGGREGATE.
7. PROVIDE A CLEAN-OUT/OBSERVATION PORT IN EACH FACILITY, PER BIORETENTION TECHNICAL SPECIFICATIONS.
8. ON LONGITUDINAL SLOPE, USE CHECK DAMS (DETAILS SW-20, SW-21)
9. USE AND DEPTH OF AGGREGATE DETERMINED BY FACILITY SIZING. IF CALTRANS CLASS 2 PERMEABLE IS NOT AVAILABLE, SUBSTITUTE CLASS 3 PERMEABLE WITH AN OVERLYING 3" DEEP CHOKING LAYER OF EITHER CALTRANS COURSE AGGREGATE 1/2" (NO. 4) OR 3/4" X (NO. 4) OPEN-GRADED AGGREGATE.
10. BIORETENTION SOIL MEDIA (BSM) SPECIFICATION PER BIORETENTION TECHNICAL SPECIFICATIONS.
11. PLANT SELECTION PER BIORETENTION TECHNICAL SPECIFICATIONS.
12. MULCH PER BIORETENTION TECHNICAL SPECIFICATIONS.
13. LOCATE ENERGY DISSIPATION AS SPECIFIED IN INLET DETAILS.
14. AVOID DECORATIVE USE OF COBBLE THAT CAN INTERFERE WITH WITH INFILTRATION.

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS



DEVELOPED UNDER PROP. 84 GRANT

APPROVED BY:

VERSION:
08/31/2017

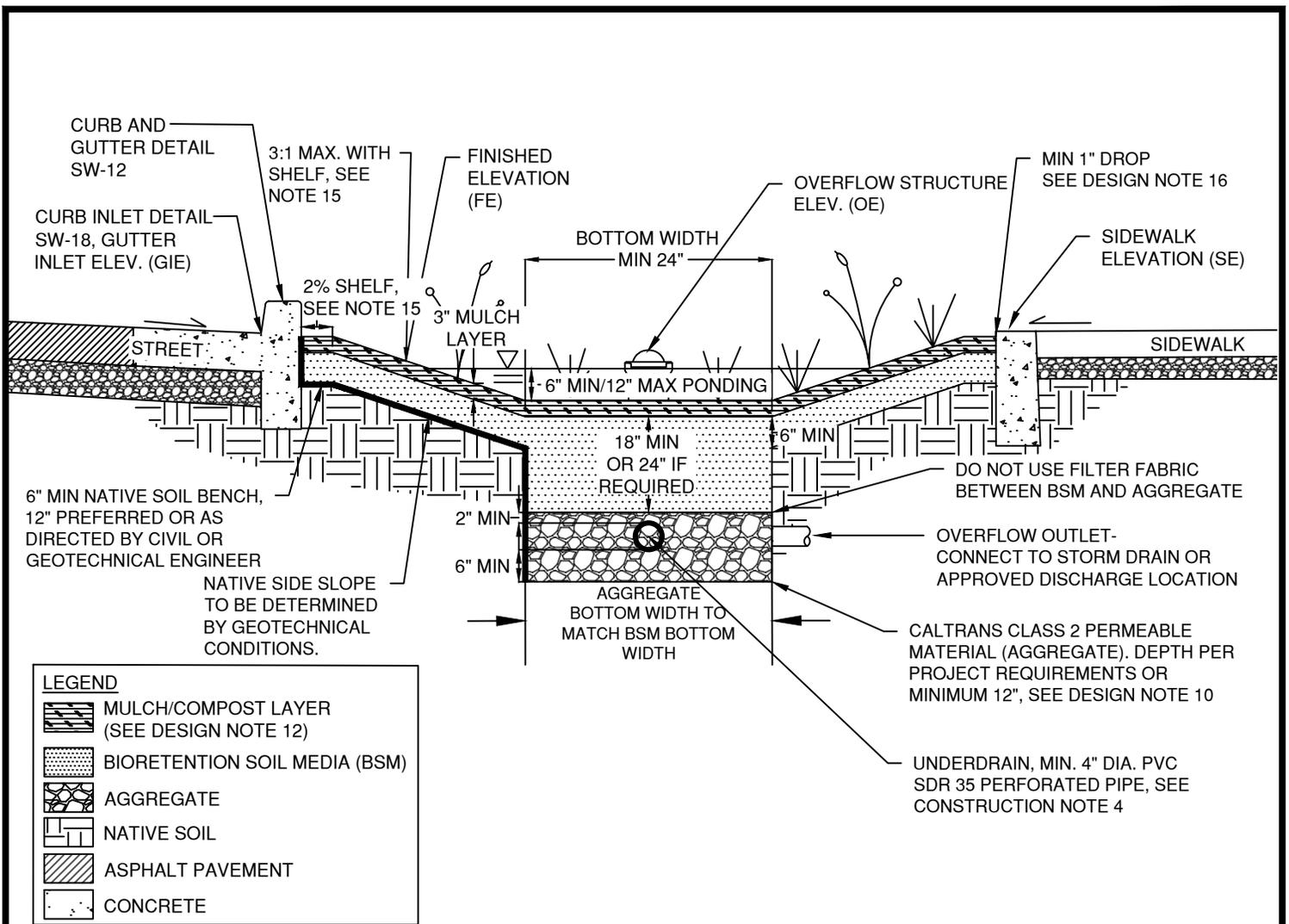
STREET BIORETENTION PLANTER BOX,
WITH PARKING, NO UNDERDRAIN

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION

STANDARD PLAN NO.

SW-2A

SHEET 2 OF 2



CONSTRUCTION NOTES

1. MAINTAIN UNDISTURBED NATIVE SOIL BENCH TO SUPPORT ADJACENT SIDEWALK/ROAD. SEQUENCE WORK TO CONSTRUCT CURBS BEFORE EXCAVATING BIORETENTION AREA FOR AGGREGATE AND BSM.
2. SCARIFY SUBGRADE BEFORE INSTALLING BIORETENTION AREA AGGREGATE AND BSM.
3. FACILITY EXCAVATION TO ALLOW FOR SPECIFIED AGGREGATE, BSM, AND MULCH DEPTHS TO ACHIEVE FINISHED ELEVATIONS ON CIVIL PLANS.
4. INSTALL UNDERDRAIN WITH HOLES FACING DOWN. TOP OF UNDERDRAIN 6" BELOW TOP OF AGGREGATE LAYER. UNDERDRAIN SLOPE MAY BE FLAT.
5. PLACE BSM IN 6" LIFTS. COMPACT EACH 6" LIFT OF BSM WITH LANDSCAPE ROLLER OR BY LIGHTLY WETTING. IF WETTING, LET DRY OVERNIGHT BEFORE PLANTING.
6. DO NOT WORK WITHIN BIORETENTION AREA DURING RAIN OR UNDER WET CONDITIONS.
7. KEEP HEAVY MACHINERY OUTSIDE BIORETENTION AREA LIMITS.
8. STORMWATER SHOULD BE DIRECTED AWAY FROM BIORETENTION UNTIL CONSTRUCTION IS COMPLETE AND DRAINAGE AREA VEGETATION IS STABILIZED.

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS

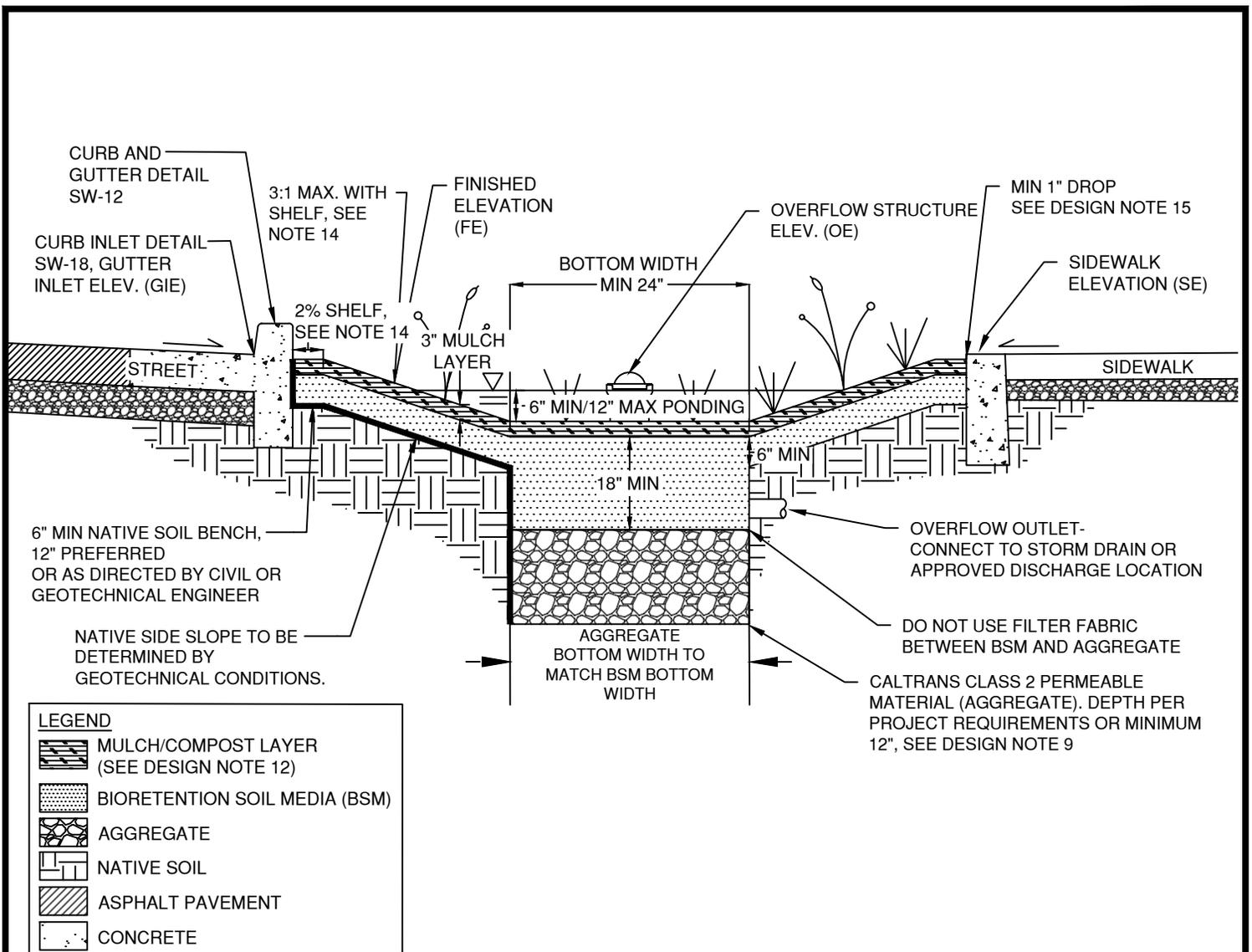
  <p>DEVELOPED UNDER PROP. 84 GRANT</p>	APPROVED BY:	<p>STREET SLOPE-SIDED BIORETENTION, NO PARKING, WITH UNDERDRAIN</p> <p>USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION</p>	STANDARD PLAN NO.
	VERSION: 08/31/2017		<p>SW-3</p> <p>SHEET 1 OF 2</p>

DESIGN NOTES

1. BIORETENTION FACILITY DESIGN SHOULD OPTIMIZE THE FLAT BOTTOM DIMENSIONS (I.E., WIDTH, LENGTH) TO MAXIMIZE THE FUNCTIONAL AREA OF THE FACILITY.
2. CAPTURE AND CONVEY OVERFLOW TO STORM DRAIN SYSTEM (DETAIL SW-22, SW-23). ALTERNATIVELY, CONVEY OVERFLOW TO APPROVED DISCHARGE LOCATION THROUGH OTHER OVERLAND METHODS (IE. CURB CUTS, SIDEWALK UNDERDRAIN, WEIR, ETC.).
3. PROVIDE SPOT ELEVATIONS AT INLETS AND OVERFLOW STRUCTURES ON CIVIL PLANS (FE, OE, GIE, SIE), PER DETAIL SW-18.
4. DUE TO SITE VARIABILITY, TO ENSURE THE LONG-TERM STRUCTURAL STABILITY OF THE BIORETENTION FACILITY AND ANY ADJACENT INFRASTRUCTURE CONSULT WITH A GEOTECHNICAL ENGINEER.
5. A VERTICAL LINER MAY BE USED FOR BIORETENTION FACILITIES TO PREVENT LATERAL FLOW AND TO SEPARATE THE NATIVE SOIL FROM THE BSM AND THE AGGREGATE, HOWEVER A HORIZONTAL LINER SHALL NOT BE USED.
6. DO NOT USE FILTER FABRIC BETWEEN BSM AND AGGREGATE.
7. PROVIDE CAPPED, THREADED PVC CLEANOUT FOR UNDERDRAIN, 4" MIN. DIA. WITH SWEEP BEND.
8. PROVIDE A CLEAN-OUT/OBSERVATION PORT IN EACH FACILITY, PER BIORETENTION TECHNICAL SPECIFICATIONS.
9. ON LONGITUDINAL SLOPE, USE CHECK DAMS (DETAILS SW-20, SW-21)
10. DEPTH OF AGGREGATE DETERMINED BY FACILITY SIZING. IF CALTRANS CLASS 2 PERMEABLE IS NOT AVAILABLE, SUBSTITUTE CLASS 3 PERMEABLE WITH AN OVERLYING 3" DEEP CHOKING LAYER OF EITHER CALTRANS COURSE AGGREGATE 1/2" (NO. 4) OR 3/4" X (NO.4) OPEN-GRADED AGGREGATE.
11. BIORETENTION SOIL MEDIA (BSM) SPECIFICATION PER BIORETENTION TECHNICAL SPECIFICATIONS.
12. PLANT SELECTION PER BIORETENTION TECHNICAL SPECIFICATIONS.
13. MULCH PER BIORETENTION TECHNICAL SPECIFICATIONS.
14. LOCATE ENERGY DISSIPATION AS SPECIFIED IN INLET DETAILS.
15. NATIVE SIDE SLOPE 4:1 (H:V) PREFERRED, 3:1 WITH SHELF. 6" MINIMUM SHELF WITH 2% SLOPE TOWARDS FACILITY ADJACENT TO PEDESTRIAN USE OR CURB UNLESS 4:1 SLOPE PROVIDED.
16. INCLUDE AT LEAST 1" DROP FROM CURB ABOVE MULCH LAYER.
17. AVOID DECORATIVE USE OF COBBLE THAT CAN INTERFERE WITH WITH INFILTRATION.

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS

  <p>DEVELOPED UNDER PROP. 84 GRANT</p>	APPROVED BY:	<p>STREET SLOPE-SIDED BIORETENTION, NO PARKING, WITH UNDERDRAIN</p> <p>USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION</p>	STANDARD PLAN NO.
	VERSION: 08/31/2017		<p>SW-3</p> <p>SHEET 2 OF 2</p>



CONSTRUCTION NOTES

1. MAINTAIN UNDISTURBED NATIVE SOIL BENCH TO SUPPORT ADJACENT SIDEWALK/ROAD. SEQUENCE WORK TO CONSTRUCT CURBS BEFORE EXCAVATING BIORETENTION AREA FOR AGGREGATE AND BSM.
2. SCARIFY SUBGRADE BEFORE INSTALLING BIORETENTION AREA AGGREGATE AND BSM.
3. FACILITY EXCAVATION TO ALLOW FOR SPECIFIED AGGREGATE, BSM, AND MULCH DEPTHS TO ACHIEVE FINISHED ELEVATIONS ON CIVIL PLANS.
4. PLACE BSM IN 6" LIFTS. COMPACT EACH 6" LIFT OF BSM WITH LANDSCAPE ROLLER OR BY LIGHTLY WETTING. IF WETTING, LET DRY OVERNIGHT BEFORE PLANTING.
5. DO NOT WORK WITHIN BIORETENTION AREA DURING RAIN OR UNDER WET CONDITIONS.
6. KEEP HEAVY MACHINERY OUTSIDE BIORETENTION AREA LIMITS.
7. STORMWATER SHOULD BE DIRECTED AWAY FROM BIORETENTION UNTIL CONSTRUCTION IS COMPLETE AND DRAINAGE AREA VEGETATION IS STABILIZED.

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS

  <p>DEVELOPED UNDER PROP. 84 GRANT</p>	APPROVED BY:	<p>STREET SLOPE-SIDED BIORETENTION, NO PARKING, NO UNDERDRAIN</p>	STANDARD PLAN NO.
	VERSION: 08/31/2017		USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION

DESIGN NOTES

1. BIORETENTION FACILITY DESIGN SHOULD OPTIMIZE THE FLAT BOTTOM DIMENSIONS (I.E., WIDTH, LENGTH) TO MAXIMIZE THE FUNCTIONAL AREA OF THE FACILITY.
2. CAPTURE AND CONVEY OVERFLOW TO STORM DRAIN SYSTEM (DETAIL SW-22, SW-23). ALTERNATIVELY, CONVEY OVERFLOW TO APPROVED DISCHARGE LOCATION THROUGH OTHER OVERLAND METHODS (IE. CURB CUTS, SIDEWALK UNDERDRAIN, WEIR, ETC.).
3. PROVIDE SPOT ELEVATIONS AT INLETS AND OVERFLOW STRUCTURES ON CIVIL PLANS (FE, OE, GIE, SIE), PER DETAIL SW-18.
4. DUE TO SITE VARIABILITY, TO ENSURE THE LONG-TERM STRUCTURAL STABILITY OF THE BIORETENTION FACILITY AND ANY ADJACENT INFRASTRUCTURE CONSULT WITH A GEOTECHNICAL ENGINEER.
5. A VERTICAL LINER MAY BE USED FOR BIORETENTION FACILITIES TO PREVENT LATERAL FLOW AND TO SEPARATE THE NATIVE SOIL FROM THE BSM AND THE AGGREGATE, HOWEVER A HORIZONTAL LINER SHALL NOT BE USED.
6. DO NOT USE FILTER FABRIC BETWEEN BSM AND AGGREGATE.
7. PROVIDE A CLEAN-OUT/OBSERVATION PORT IN EACH FACILITY, PER BIORETENTION TECHNICAL SPECIFICATIONS.
8. ON LONGITUDINAL SLOPE, USE CHECK DAMS (DETAILS SW-20, SW-21)
9. USE AND DEPTH OF AGGREGATE DETERMINED BY FACILITY SIZING. IF CALTRANS CLASS 2 PERMEABLE IS NOT AVAILABLE, SUBSTITUTE CLASS 3 PERMEABLE WITH AN OVERLYING 3" DEEP CHOKING LAYER OF EITHER CALTRANS COURSE AGGREGATE 1/2" (NO. 4) OR 3/4" X (NO. 4) OPEN-GRADED AGGREGATE.
10. BIORETENTION SOIL MEDIA (BSM) SPECIFICATION PER BIORETENTION TECHNICAL SPECIFICATIONS.
11. PLANT SELECTION PER BIORETENTION TECHNICAL SPECIFICATIONS.
12. MULCH PER BIORETENTION TECHNICAL SPECIFICATIONS.
13. LOCATE ENERGY DISSIPATION AS SPECIFIED IN INLET DETAILS.
14. NATIVE SIDE SLOPE 4:1 (H:V) PREFERRED, 3:1 WITH SHELF. 6" MINIMUM SHELF WITH 2% SLOPE TOWARDS FACILITY ADJACENT TO PEDESTRIAN USE OR CURB UNLESS 4:1 SLOPE PROVIDED.
15. INCLUDE AT LEAST 1" DROP FROM CURB ABOVE MULCH LAYER.
16. AVOID DECORATIVE USE OF COBBLE THAT CAN INTERFERE WITH WITH INFILTRATION.

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS



DEVELOPED UNDER PROP. 84 GRANT

APPROVED BY:

VERSION:
08/31/2017

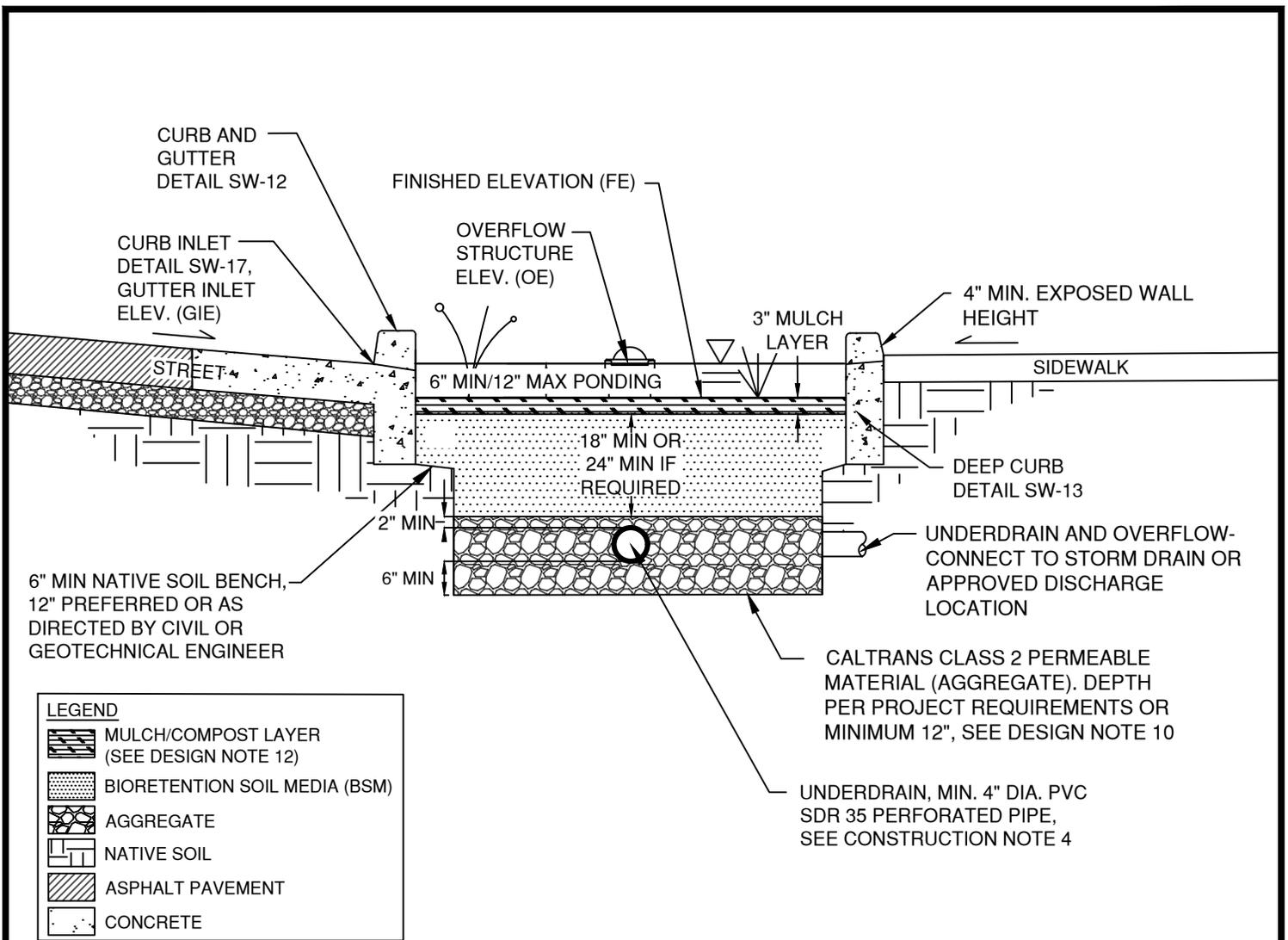
STREET SLOPE-SIDED BIORETENTION, NO
PARKING, NO UNDERDRAIN

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION

STANDARD PLAN NO.

SW-3A

SHEET 2 OF 2



LEGEND	
	MULCH/COMPOST LAYER (SEE DESIGN NOTE 12)
	BIORETENTION SOIL MEDIA (BSM)
	AGGREGATE
	NATIVE SOIL
	ASPHALT PAVEMENT
	CONCRETE

CONSTRUCTION NOTES

1. MAINTAIN UNDISTURBED NATIVE SOIL BENCH TO SUPPORT ADJACENT SIDEWALK/ROAD. SEQUENCE WORK TO CONSTRUCT CURBS BEFORE EXCAVATING BIORETENTION AREA FOR AGGREGATE AND BSM.
2. SCARIFY SUBGRADE BEFORE INSTALLING BIORETENTION AREA AGGREGATE AND BSM.
3. FACILITY EXCAVATION TO ALLOW FOR SPECIFIED AGGREGATE, BSM, AND MULCH DEPTHS TO ACHIEVE FINISHED ELEVATIONS ON CIVIL PLANS.
4. INSTALL UNDERDRAIN WITH HOLES FACING DOWN. TOP OF UNDERDRAIN 6" BELOW TOP OF AGGREGATE LAYER. UNDERDRAIN SLOPE MAY BE FLAT.
5. COMPACT EACH 6" LIFT OF BSM WITH LANDSCAPE ROLLER OR BY LIGHTLY WETTING. IF WETTING, LET DRY OVERNIGHT BEFORE PLANTING.
6. DO NOT WORK WITHIN BIORETENTION AREA DURING RAIN OR UNDER WET CONDITIONS.
7. KEEP HEAVY MACHINERY OUTSIDE BIORETENTION AREA LIMITS.
8. STORMWATER SHOULD BE DIRECTED AWAY FROM BIORETENTION UNTIL CONSTRUCTION IS COMPLETE AND DRAINAGE AREA VEGETATION IS STABILIZED.

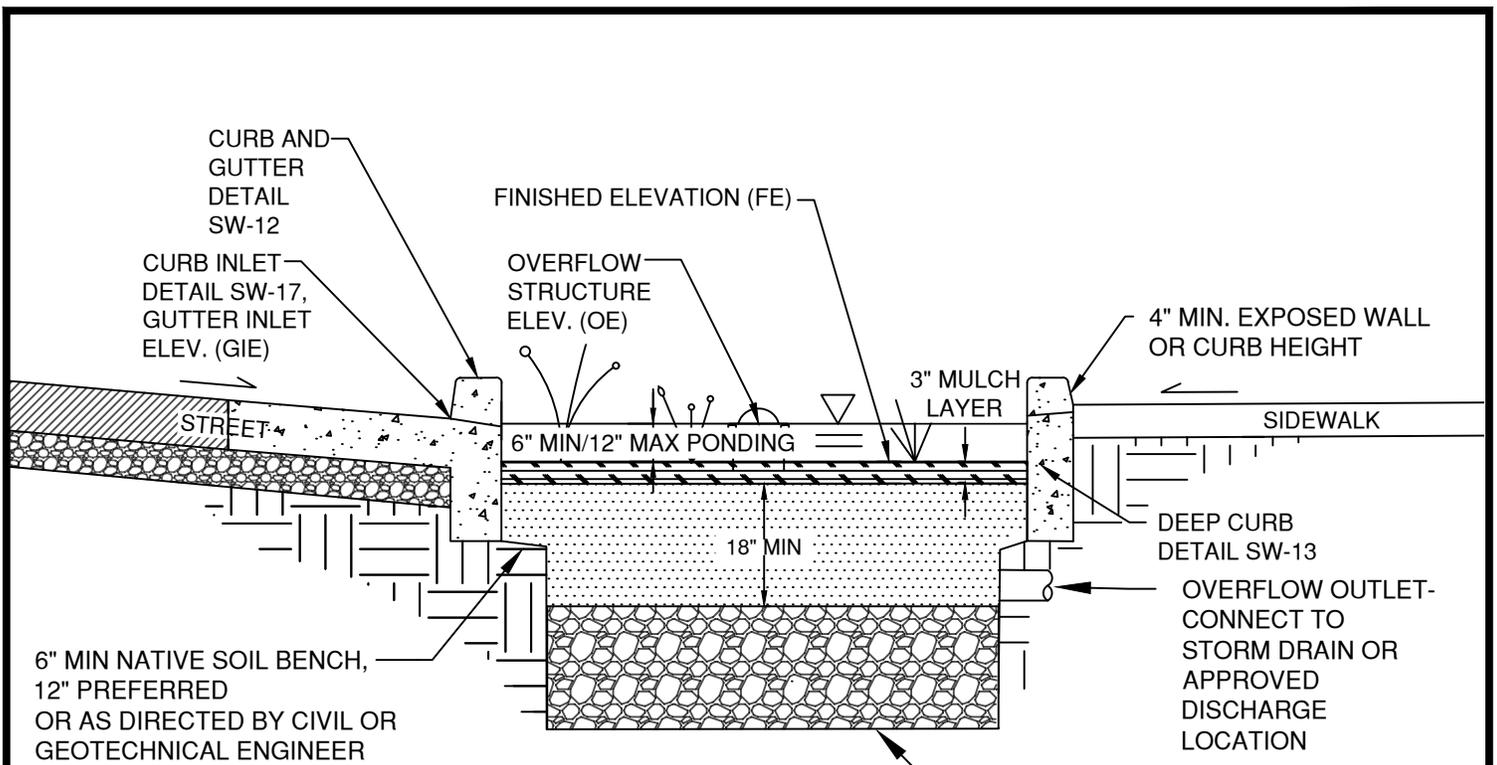
LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS			
 DEVELOPED UNDER PROP. 84 GRANT		APPROVED BY: VERSION: 08/31/2017	STREET BIORETENTION PLANTER BOX, NO PARKING, WITH UNDERDRAIN STANDARD PLAN NO. SW-4 SHEET 1 OF 2
USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION			

DESIGN NOTES

1. BIORETENTION FACILITY DESIGN SHOULD OPTIMIZE THE FLAT BOTTOM DIMENSIONS (I.E., WIDTH, LENGTH) TO MAXIMIZE THE FUNCTIONAL AREA OF THE FACILITY.
2. CAPTURE AND CONVEY OVERFLOW TO STORM DRAIN SYSTEM (DETAIL SW-22, SW-23). ALTERNATIVELY, CONVEY OVERFLOW TO APPROVED DISCHARGE LOCATION THROUGH OTHER OVERLAND METHODS (IE. CURB CUTS, SIDEWALK UNDERDRAIN, WEIR, ETC.).
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6. DO NOT USE FILTER FABRIC BETWEEN BSM AND AGGREGATE.
7. PROVIDE CAPPED, THREADED PVC CLEANOUT FOR UNDERDRAIN, 4" MIN. DIA. WITH SWEEP BEND.
8. PROVIDE A CLEAN-OUT/OBSERVATION PORT IN EACH FACILITY, PER BIORETENTION TECHNICAL SPECIFICATIONS.
9. ON LONGITUDINAL SLOPE, USE CHECK DAMS (DETAILS SW-20, SW-21)
10. USE AND DEPTH OF AGGREGATE DETERMINED BY FACILITY SIZING. IF CALTRANS CLASS 2 PERMEABLE IS NOT AVAILABLE, SUBSTITUTE CLASS 3 PERMEABLE WITH AN OVERLYING 3" DEEP CHOKING LAYER OF EITHER CALTRANS COURSE AGGREGATE 1/2" (NO. 4) OR 3/4" X (NO. 4) OPEN-GRADED AGGREGATE.
11. BIORETENTION SOIL MEDIA (BSM) SPECIFICATION PER BIORETENTION TECHNICAL SPECIFICATIONS.
12. PLANT SELECTION PER BIORETENTION TECHNICAL SPECIFICATIONS.
13. MULCH PER BIORETENTION TECHNICAL SPECIFICATIONS.
14. LOCATE ENERGY DISSIPATION AS SPECIFIED IN INLET DETAILS.
15. AVOID DECORATIVE USE OF COBBLE THAT CAN INTERFERE WITH WITH INFILTRATION.

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS

 DEVELOPED UNDER PROP. 84 GRANT		APPROVED BY:	STREET BIORETENTION PLANTER BOX, NO PARKING, WITH UNDERDRAIN	STANDARD PLAN NO.
		VERSION: 08/31/2017		USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION



LEGEND	
	MULCH/COMPOST LAYER (SEE DESIGN NOTE 12)
	BIORETENTION SOIL MEDIA (BSM)
	AGGREGATE
	NATIVE SOIL
	ASPHALT PAVEMENT
	CONCRETE

CONSTRUCTION NOTES

1. MAINTAIN UNDISTURBED NATIVE SOIL BENCH TO SUPPORT ADJACENT SIDEWALK/ROAD. SEQUENCE WORK TO CONSTRUCT CURBS BEFORE EXCAVATING BIORETENTION AREA FOR AGGREGATE AND BSM.
2. SCARIFY SUBGRADE BEFORE INSTALLING BIORETENTION AREA AGGREGATE AND BSM.
3. FACILITY EXCAVATION TO ALLOW FOR SPECIFIED AGGREGATE, BSM, AND MULCH DEPTHS TO ACHIEVE FINISHED ELEVATIONS ON CIVIL PLANS.
4. COMPACT EACH 6" LIFT OF BSM WITH LANDSCAPE ROLLER OR BY LIGHTLY WETTING. IF WETTING, LET DRY OVERNIGHT BEFORE PLANTING.
5. DO NOT WORK WITHIN BIORETENTION AREA DURING RAIN OR UNDER WET CONDITIONS.
6. KEEP HEAVY MACHINERY OUTSIDE BIORETENTION AREA LIMITS.
7. STORMWATER SHOULD BE DIRECTED AWAY FROM BIORETENTION UNTIL CONSTRUCTION IS COMPLETE AND DRAINAGE AREA VEGETATION IS STABILIZED.

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS

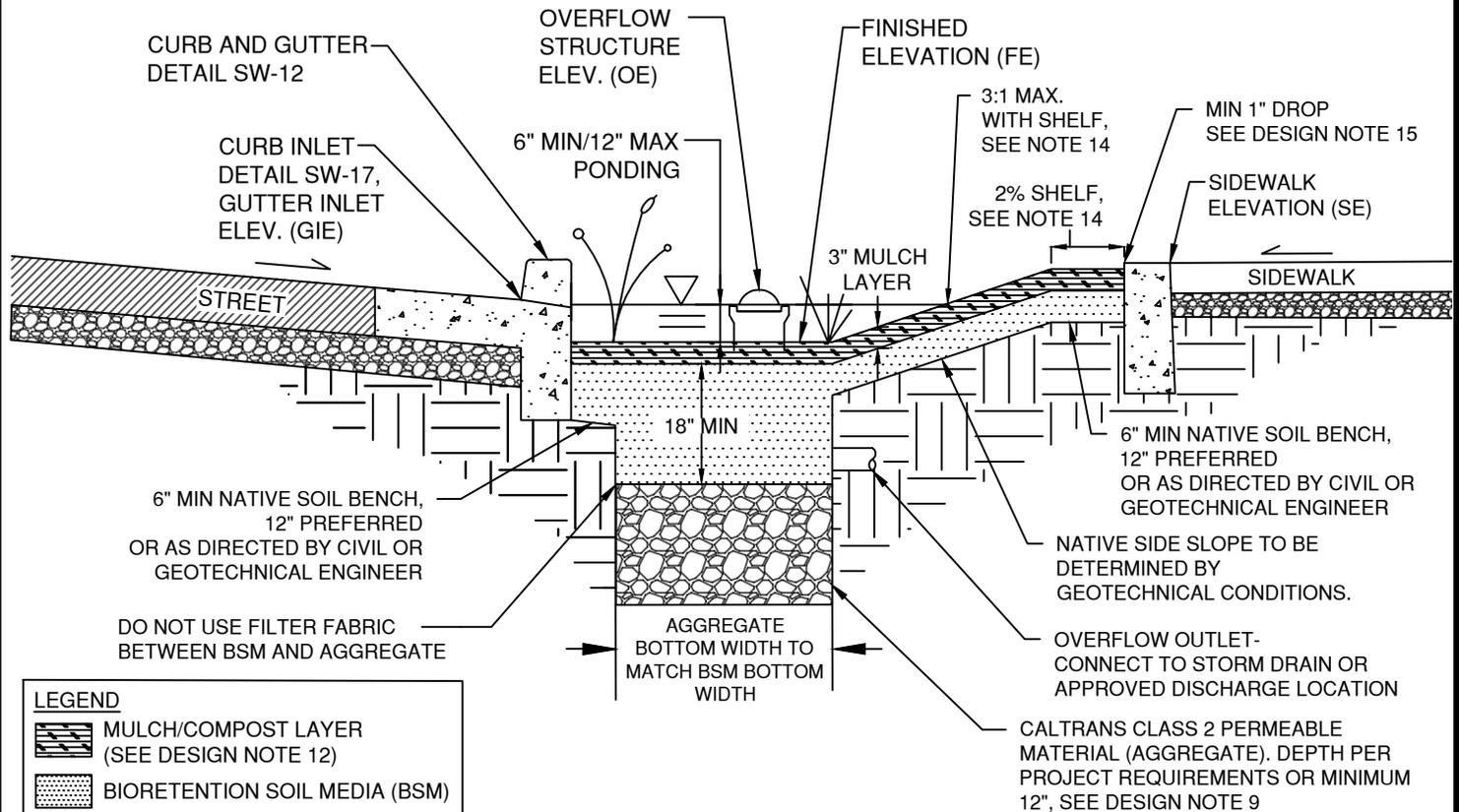
<p>DEVELOPED UNDER PROP. 84 GRANT</p>	APPROVED BY:	<p>STREET BIORETENTION PLANTER BOX, NO PARKING, NO UNDERDRAIN</p>	STANDARD PLAN NO.
	VERSION: 08/31/2017		USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION

DESIGN NOTES

1. BIORETENTION FACILITY DESIGN SHOULD OPTIMIZE THE FLAT BOTTOM DIMENSIONS (I.E., WIDTH, LENGTH) TO MAXIMIZE THE FUNCTIONAL AREA OF THE FACILITY.
2. CAPTURE AND CONVEY OVERFLOW TO STORM DRAIN SYSTEM (DETAIL SW-22, SW-23). ALTERNATIVELY, CONVEY OVERFLOW TO APPROVED DISCHARGE LOCATION THROUGH OTHER OVERLAND METHODS (IE. CURB CUTS, SIDEWALK UNDERDRAIN, WEIR, ETC.).
3. PROVIDE SPOT ELEVATIONS AT INLETS AND OVERFLOW STRUCTURES ON CIVIL PLANS (FE, OE, GIE, SIE), PER DETAIL SW-18.
4. DUE TO SITE VARIABILITY, TO ENSURE THE LONG-TERM STRUCTURAL STABILITY OF THE BIORETENTION FACILITY AND ANY ADJACENT INFRASTRUCTURE CONSULT WITH A GEOTECHNICAL ENGINEER.
5. A VERTICAL LINER MAY BE USED FOR BIORETENTION FACILITIES TO PREVENT LATERAL FLOW AND TO SEPARATE THE NATIVE SOIL FROM THE BSM AND THE AGGREGATE, HOWEVER A HORIZONTAL LINER SHALL NOT BE USED.
6. DO NOT USE FILTER FABRIC BETWEEN BSM AND AGGREGATE.
7. PROVIDE A CLEAN-OUT/OBSERVATION PORT IN EACH FACILITY, PER BIORETENTION TECHNICAL SPECIFICATIONS.
8. ON LONGITUDINAL SLOPE, USE CHECK DAMS (DETAILS SW-20, SW-21)
9. USE AND DEPTH OF AGGREGATE DETERMINED BY FACILITY SIZING. IF CALTRANS CLASS 2 PERMEABLE IS NOT AVAILABLE, SUBSTITUTE CLASS 3 PERMEABLE WITH AN OVERLYING 3" DEEP CHOKING LAYER OF EITHER CALTRANS COURSE AGGREGATE 1/2" (NO. 4) OR 3/4" X (NO. 4) OPEN-GRADED AGGREGATE.
10. BIORETENTION SOIL MEDIA (BSM) SPECIFICATION PER BIORETENTION TECHNICAL SPECIFICATIONS.
11. PLANT SELECTION PER BIORETENTION TECHNICAL SPECIFICATIONS.
12. MULCH PER BIORETENTION TECHNICAL SPECIFICATIONS.
13. LOCATE ENERGY DISSIPATION AS SPECIFIED IN INLET DETAILS.
14. AVOID DECORATIVE USE OF COBBLE THAT CAN INTERFERE WITH WITH INFILTRATION.

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS

  <p>DEVELOPED UNDER PROP. 84 GRANT</p>	APPROVED BY:	<p>STREET BIORETENTION PLANTER BOX, NO PARKING, NO UNDERDRAIN</p> <p>USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION</p>	STANDARD PLAN NO.
	VERSION: 08/31/2017		<p>SW-4A</p> <p>SHEET 2 OF 2</p>



LEGEND	
	MULCH/COMPOST LAYER (SEE DESIGN NOTE 12)
	BIORETENTION SOIL MEDIA (BSM)
	AGGREGATE
	NATIVE SOIL
	ASPHALT PAVEMENT
	CONCRETE

CONSTRUCTION NOTES

1. MAINTAIN UNDISTURBED NATIVE SOIL BENCH TO SUPPORT ADJACENT SIDEWALK/ROAD. SEQUENCE WORK TO CONSTRUCT CURBS BEFORE EXCAVATING BIORETENTION AREA FOR AGGREGATE AND BSM.
2. SCARIFY SUBGRADE BEFORE INSTALLING BIORETENTION AREA AGGREGATE AND BSM.
3. FACILITY EXCAVATION TO ALLOW FOR SPECIFIED AGGREGATE, BSM, AND MULCH DEPTHS TO ACHIEVE FINISHED ELEVATIONS ON CIVIL PLANS.
4. PLACE BSM IN 6" LIFTS. COMPACT EACH 6" LIFT OF BSM WITH LANDSCAPE ROLLER OR BY LIGHTLY WETTING. IF WETTING, LET DRY OVERNIGHT BEFORE PLANTING.
5. DO NOT WORK WITHIN BIORETENTION AREA DURING RAIN OR UNDER WET CONDITIONS.
6. KEEP HEAVY MACHINERY OUTSIDE BIORETENTION AREA LIMITS.
7. STORMWATER SHOULD BE DIRECTED AWAY FROM BIORETENTION UNTIL CONSTRUCTION IS COMPLETE AND DRAINAGE AREA VEGETATION IS STABILIZED.

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS

<p>DEVELOPED UNDER PROP. 84 GRANT</p>	APPROVED BY: 	<p>STREET BIORETENTION BULB OUT, NO PARKING, NO UNDERDRAIN, SINGLE SLOPE</p> <p>USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION</p>	STANDARD PLAN NO. <p>SW-5</p>
	VERSION: 08/31/2017		SHEET 1 OF 2

DESIGN NOTES

1. BIORETENTION FACILITY DESIGN SHOULD OPTIMIZE THE FLAT BOTTOM DIMENSIONS (I.E., WIDTH, LENGTH) TO MAXIMIZE THE FUNCTIONAL AREA OF THE FACILITY.
2. CAPTURE AND CONVEY OVERFLOW TO STORM DRAIN SYSTEM (DETAIL SW-22, SW-23). ALTERNATIVELY, CONVEY OVERFLOW TO APPROVED DISCHARGE LOCATION THROUGH OTHER OVERLAND METHODS (IE. CURB CUTS, SIDEWALK UNDERDRAIN, WEIR, ETC.).
3. PROVIDE SPOT ELEVATIONS AT INLETS AND OVERFLOW STRUCTURES ON CIVIL PLANS (FE, OE, GIE, SIE), PER DETAIL SW-18.
4. DUE TO SITE VARIABILITY, TO ENSURE THE LONG-TERM STRUCTURAL STABILITY OF THE BIORETENTION FACILITY AND ANY ADJACENT INFRASTRUCTURE CONSULT WITH A GEOTECHNICAL ENGINEER.
5. A VERTICAL LINER MAY BE USED FOR BIORETENTION FACILITIES TO PREVENT LATERAL FLOW AND TO SEPARATE THE NATIVE SOIL FROM THE BSM AND THE AGGREGATE, HOWEVER A HORIZONTAL LINER SHALL NOT BE USED.
6. DO NOT USE FILTER FABRIC BETWEEN BSM AND AGGREGATE.
7. PROVIDE A CLEAN-OUT/OBSERVATION PORT IN EACH FACILITY, PER BIORETENTION TECHNICAL SPECIFICATIONS.
8. ON LONGITUDINAL SLOPE, USE CHECK DAMS (DETAILS SW-20, SW-21)
9. USE AND DEPTH OF AGGREGATE DETERMINED BY FACILITY SIZING. IF CALTRANS CLASS 2 PERMEABLE IS NOT AVAILABLE, SUBSTITUTE CLASS 3 PERMEABLE WITH AN OVERLYING 3" DEEP CHOKING LAYER OF EITHER CALTRANS COURSE AGGREGATE 1/2" (NO. 4) OR 3/4" X (NO. 4) OPEN-GRADED AGGREGATE.
10. BIORETENTION SOIL MEDIA (BSM) SPECIFICATION PER BIORETENTION TECHNICAL SPECIFICATIONS.
11. PLANT SELECTION PER BIORETENTION TECHNICAL SPECIFICATIONS.
12. MULCH PER BIORETENTION TECHNICAL SPECIFICATIONS.
13. LOCATE ENERGY DISSIPATION AS SPECIFIED IN INLET DETAILS.
14. NATIVE SIDE SLOPE 4:1 (H:V) PREFERRED, 3:1 WITH SHELF. 6" MINIMUM SHELF WITH 2% SLOPE TOWARDS FACILITY ADJACENT TO PEDESTRIAN USE OR CURB UNLESS 4:1 SLOPE PROVIDED.
15. INCLUDE AT LEAST 1" DROP FROM CURB ABOVE MULCH LAYER.
16. AVOID DECORATIVE USE OF COBBLE THAT CAN INTERFERE WITH WITH INFILTRATION.

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS



DEVELOPED UNDER PROP. 84 GRANT

APPROVED BY:

VERSION:
08/31/2017

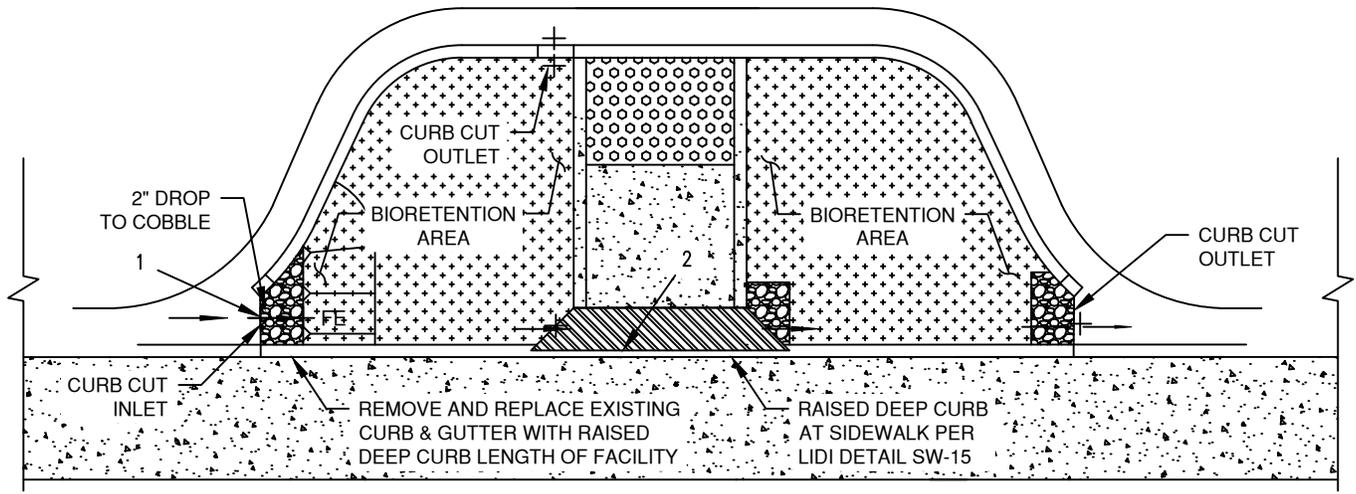
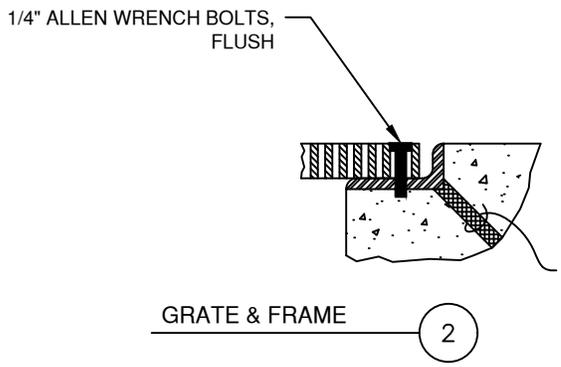
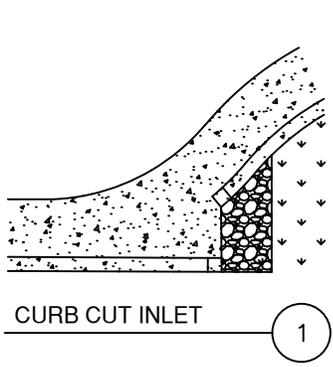
STREET BIORETENTION BULB OUT, NO
PARKING, NO UNDERDRAIN, SINGLE SLOPE

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION

STANDARD PLAN NO.

SW-5

SHEET 2 OF 2



CONSTRUCTION NOTES:

1. INSTALL GRAVEL BAGS AT CURB CUTS TO BLOCK FLOW FROM ENTERING BIORETENTION AREA. CITY TO REMOVE GRAVEL BAGS AT A TIME FOLLOWING CONSTRUCTION COMPLETION.

DESIGN NOTE:

1. THIS STANDARD DETAIL ASSUMES GRADUAL LONGITUDINAL AND CROSS SLOPES OF THE ROADWAY. STEEPER SLOPES IN EITHER DIRECTION WILL IMPACT CONVEYANCE AND ELEVATION DIFFERENCES BETWEEN THE FACILITY AND ADJACENT ROADWAY, CURB, AND SIDEWALK SURFACES. RETROFIT PROJECTS WILL FACE GREATER CONSTRAINTS THAN NEW CONSTRUCTION. SITE SPECIFIC DESIGN IS CRITICAL TO AVOID GRADE CONFLICTS AND MAXIMIZING PONDING AREA. GRADING PLANS THAT PROVIDE SPOT ELEVATIONS ACROSS THE ENTIRE FACILITY AND ALONG ADJACENT SURFACES ARE NECESSARY.

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS




DEVELOPED UNDER PROP. 84 GRANT

APPROVED BY:

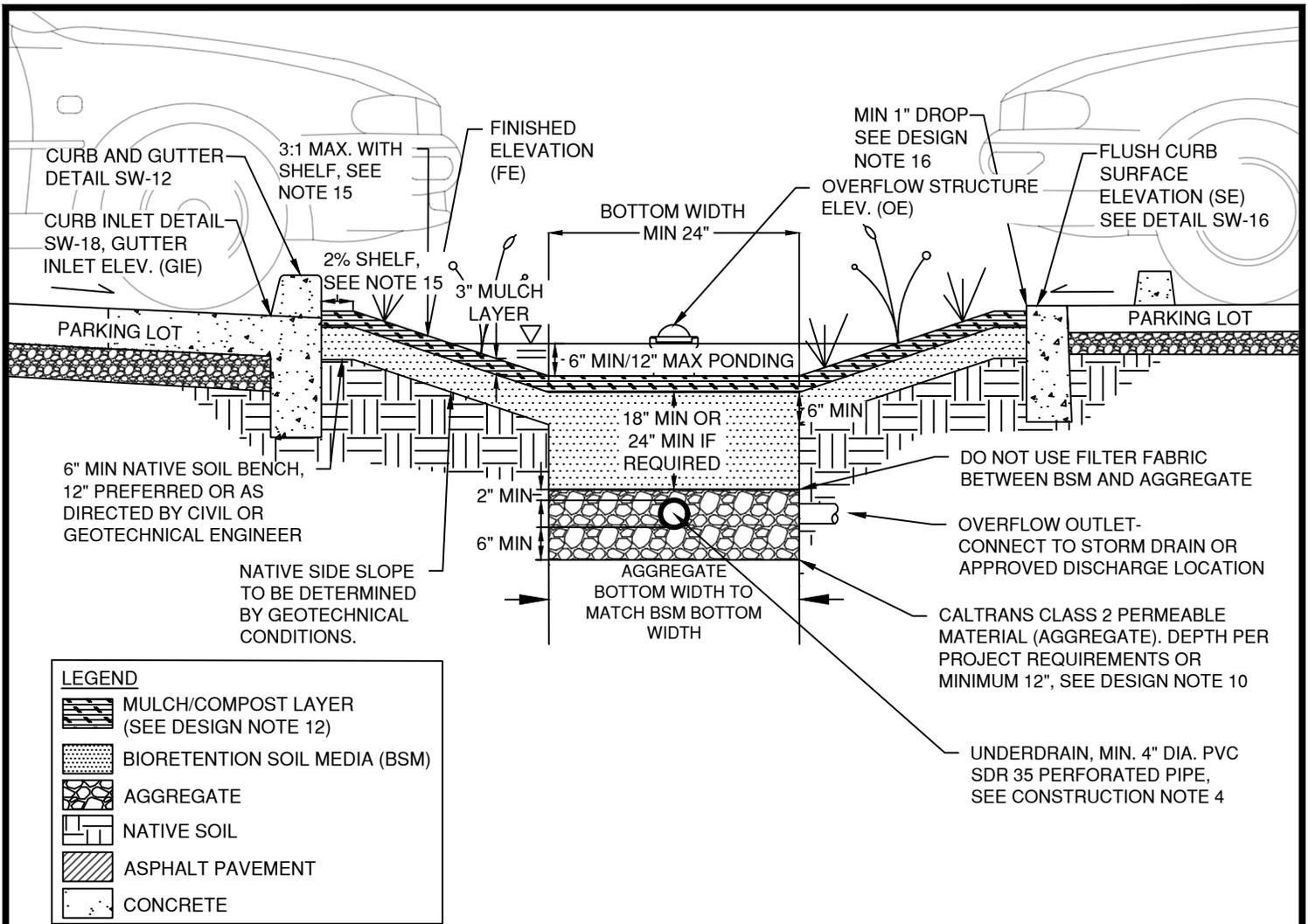
VERSION: 08/31/2017

STREET BIORETENTION BULB OUT, MID BLOCK CROSSING

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION

STANDARD PLAN NO. **SW-5.1**

SHEET 1 OF 1



LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS

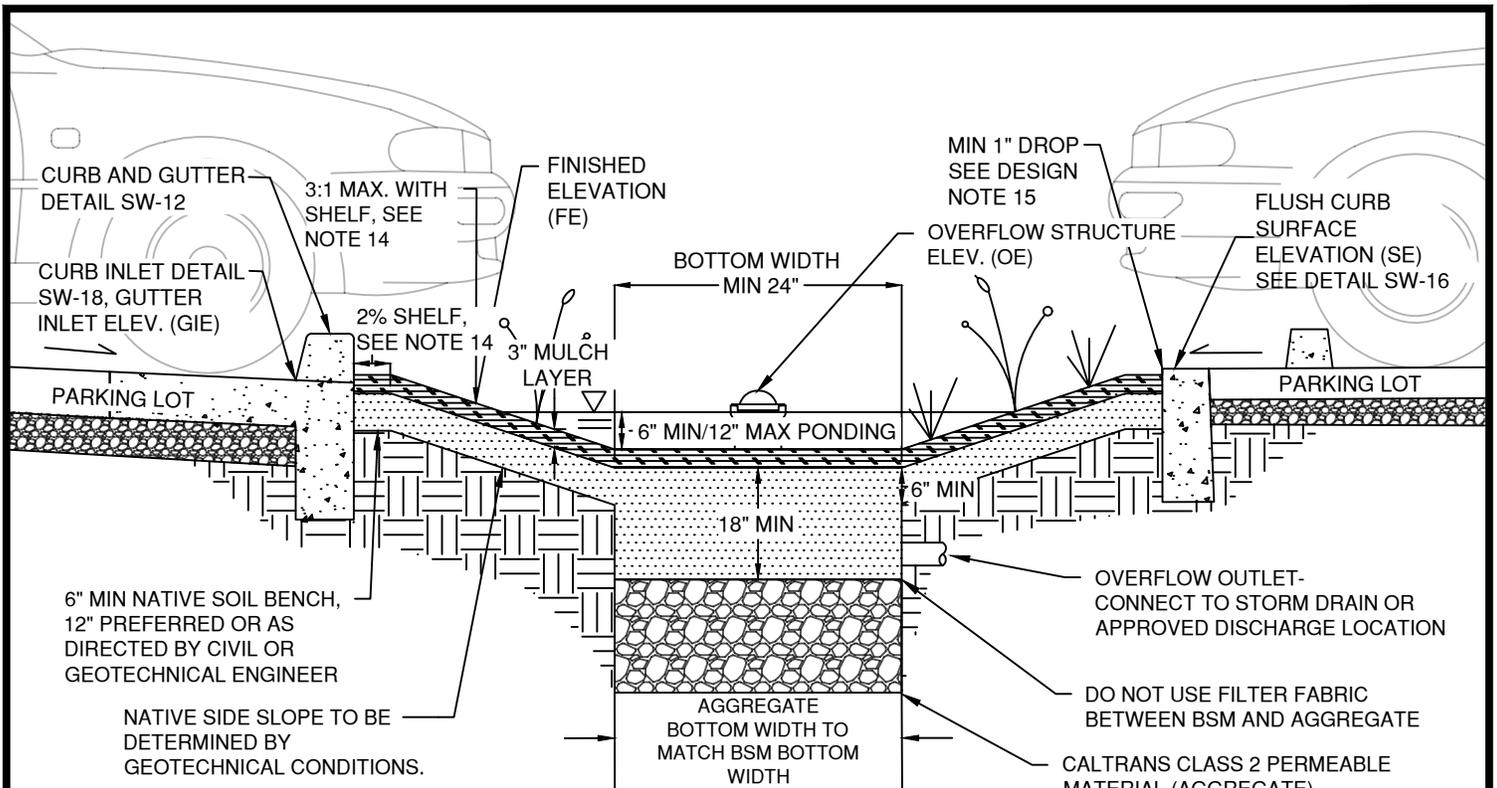
<p>DEVELOPED UNDER PROP. 84 GRANT</p>	APPROVED BY:	<p>PARKING LOT SLOPE-SIDED BIORETENTION, WITH UNDERDRAIN</p> <p>USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION</p>	STANDARD PLAN NO.
	VERSION: 08/31/2017		<p>SW-6</p> <p>SHEET 1 OF 2</p>

DESIGN NOTES

1. BIORETENTION FACILITY DESIGN SHOULD OPTIMIZE THE FLAT BOTTOM DIMENSIONS (I.E., WIDTH, LENGTH) TO MAXIMIZE THE FUNCTIONAL AREA OF THE FACILITY.
2. CAPTURE AND CONVEY OVERFLOW TO STORM DRAIN SYSTEM (DETAIL SW-22, SW-23). ALTERNATIVELY, CONVEY OVERFLOW TO APPROVED DISCHARGE LOCATION THROUGH OTHER OVERLAND METHODS (IE. CURB CUTS, SIDEWALK UNDERDRAIN, WEIR, ETC.).
3. PROVIDE SPOT ELEVATIONS AT INLETS AND OVERFLOW STRUCTURES ON CIVIL PLANS (FE, OE, GIE, SIE), PER DETAIL SW-18.
4. DUE TO SITE VARIABILITY, TO ENSURE THE LONG-TERM STRUCTURAL STABILITY OF THE BIORETENTION FACILITY AND ANY ADJACENT INFRASTRUCTURE CONSULT WITH A GEOTECHNICAL ENGINEER.
5. A VERTICAL LINER MAY BE USED FOR BIORETENTION FACILITIES TO PREVENT LATERAL FLOW AND TO SEPARATE THE NATIVE SOIL FROM THE BSM AND THE AGGREGATE, HOWEVER A HORIZONTAL LINER SHALL NOT BE USED.
6. DO NOT USE FILTER FABRIC BETWEEN BSM AND AGGREGATE.
7. PROVIDE CAPPED, THREADED PVC CLEANOUT FOR UNDERDRAIN, 4" MIN. DIA. WITH SWEEP BEND.
8. PROVIDE A CLEAN-OUT/OBSERVATION PORT IN EACH FACILITY, PER BIORETENTION TECHNICAL SPECIFICATIONS.
9. ON LONGITUDINAL SLOPE, USE CHECK DAMS (DETAILS SW-20, SW-21)
10. DEPTH OF AGGREGATE DETERMINED BY FACILITY SIZING. IF CALTRANS CLASS 2 PERMEABLE IS NOT AVAILABLE, SUBSTITUTE CLASS 3 PERMEABLE WITH AN OVERLYING 3" DEEP CHOKING LAYER OF EITHER CALTRANS COURSE AGGREGATE 1/2" (NO. 4) OR 3/4" X (NO.4) OPEN-GRADED AGGREGATE.
11. BIORETENTION SOIL MEDIA (BSM) SPECIFICATION PER BIORETENTION TECHNICAL SPECIFICATIONS.
12. PLANT SELECTION PER BIORETENTION TECHNICAL SPECIFICATIONS.
13. MULCH PER BIORETENTION TECHNICAL SPECIFICATIONS.
14. LOCATE ENERGY DISSIPATION AS SPECIFIED IN INLET DETAILS.
15. NATIVE SIDE SLOPE 4:1 (H:V) PREFERRED, 3:1 WITH BENCH. 6" MINIMUM SHELF WITH 2% SLOPE TOWARDS FACILITY ADJACENT TO PEDESTRIAN USE OR CURB UNLESS 4:1 SLOPE PROVIDED.
16. INCLUDE AT LEAST 1" DROP FROM CURB ABOVE MULCH LAYER.
17. AVOID DECORATIVE USE OF COBBLE THAT CAN INTERFERE WITH WITH INFILTRATION.

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS

  <p>DEVELOPED UNDER PROP. 84 GRANT</p>	<p>APPROVED BY:</p>	<p>PARKING LOT SLOPE-SIDED BIORETENTION, WITH UNDERDRAIN</p>	<p>STANDARD PLAN NO.</p> <p>SW-6</p>
	<p>VERSION: 08/31/2017</p>		<p>USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION</p>



LEGEND	
	MULCH/COMPOST LAYER (SEE DESIGN NOTE 12)
	BIORETENTION SOIL MEDIA (BSM)
	AGGREGATE
	NATIVE SOIL
	ASPHALT PAVEMENT
	CONCRETE

CONSTRUCTION NOTES

1. MAINTAIN UNDISTURBED NATIVE SOIL BENCH TO SUPPORT ADJACENT SIDEWALK/ROAD. SEQUENCE WORK TO CONSTRUCT CURBS BEFORE EXCAVATING BIORETENTION AREA FOR AGGREGATE AND BSM.
2. SCARIFY SUBGRADE BEFORE INSTALLING BIORETENTION AREA AGGREGATE AND BSM.
3. FACILITY EXCAVATION TO ALLOW FOR SPECIFIED AGGREGATE, BSM, AND MULCH DEPTHS TO ACHIEVE FINISHED ELEVATIONS ON CIVIL PLANS.
4. PLACE BSM IN 6" LIFTS. COMPACT EACH 6" LIFT OF BSM WITH LANDSCAPE ROLLER OR BY LIGHTLY WETTING. IF WETTING, LET DRY OVERNIGHT BEFORE PLANTING.
5. DO NOT WORK WITHIN BIORETENTION AREA DURING RAIN OR UNDER WET CONDITIONS.
6. KEEP HEAVY MACHINERY OUTSIDE BIORETENTION AREA LIMITS.
7. STORMWATER SHOULD BE DIRECTED AWAY FROM BIORETENTION UNTIL CONSTRUCTION IS COMPLETE AND DRAINAGE AREA VEGETATION IS STABILIZED.

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS			
 DEVELOPED UNDER PROP. 84 GRANT	APPROVED BY: VERSION: 08/31/2017	PARKING LOT SLOPE-SIDED BIORETENTION, NO UNDERDRAIN	STANDARD PLAN NO. SW-6A
USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION			SHEET 1 OF 2

DESIGN NOTES

1. BIORETENTION FACILITY DESIGN SHOULD OPTIMIZE THE FLAT BOTTOM DIMENSIONS (I.E., WIDTH, LENGTH) TO MAXIMIZE THE FUNCTIONAL AREA OF THE FACILITY.
2. CAPTURE AND CONVEY OVERFLOW TO STORM DRAIN SYSTEM (DETAIL SW-22, SW-23). ALTERNATIVELY, CONVEY OVERFLOW TO APPROVED DISCHARGE LOCATION THROUGH OTHER OVERLAND METHODS (IE. CURB CUTS, SIDEWALK UNDERDRAIN, WEIR, ETC.).
3. PROVIDE SPOT ELEVATIONS AT INLETS AND OVERFLOW STRUCTURE ON CIVIL PLANS (FE,OE, GIE, SIE), PER DETAIL SW-18.
4. DUE TO SITE VARIABILITY, TO ENSURE THE LONG-TERM STRUCTURAL STABILITY OF THE BIORETENTION FACILITY AND ANY ADJACENT INFRASTRUCTURE CONSULT WITH A GEOTECHNICAL ENGINEER.
5. A VERTICAL LINER MAY BE USED FOR BIORETENTION FACILITIES TO PREVENT LATERAL FLOW AND TO SEPARATE THE NATIVE SOIL FROM THE BSM AND THE AGGREGATE, HOWEVER A HORIZONTAL LINER SHALL NOT BE USED.
6. DO NOT USE FILTER FABRIC BETWEEN BSM AND AGGREGATE.
7. PROVIDE A CLEAN-OUT/OBSERVATION PORT IN EACH FACILITY, PER BIORETENTION TECHNICAL SPECIFICATIONS.
8. ON LONGITUDINAL SLOPE, USE CHECK DAMS (DETAILS SW-20, SW-21)
9. USE AND DEPTH OF AGGREGATE DETERMINED BY FACILITY SIZING. IF CALTRANS CLASS 2 PERMEABLE IS NOT AVAILABLE, SUBSTITUTE CLASS 3 PERMEABLE WITH AN OVERLYING 3" DEEP CHOKING LAYER OF EITHER CALTRANS COURSE AGGREGATE 1/2" (NO. 4) OR 3/4" X (NO. 4) OPEN-GRADED AGGREGATE.
10. BIORETENTION SOIL MEDIA (BSM) SPECIFICATION PER BIORETENTION TECHNICAL SPECIFICATIONS.
11. PLANT SELECTION PER BIORETENTION TECHNICAL SPECIFICATIONS.
12. MULCH PER BIORETENTION TECHNICAL SPECIFICATIONS.
13. LOCATE ENERGY DISSIPATION AS SPECIFIED IN INLET DETAILS.
14. NATIVE SIDE SLOPE 4:1 (H:V) PREFERRED, 3:1 WITH SHELF. 6" MINIMUM SHELF WITH 2% SLOPE TOWARDS FACILITY ADJACENT TO PEDESTRIAN USE OR CURB UNLESS 4:1 SLOPE PROVIDED.
15. INCLUDE AT LEAST 1" DROP FROM CURB ABOVE MULCH LAYER.
16. AVOID DECORATIVE USE OF COBBLE THAT CAN INTERFERE WITH WITH INFILTRATION.

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS



DEVELOPED UNDER PROP. 84 GRANT

APPROVED BY:

VERSION:
08/31/2017

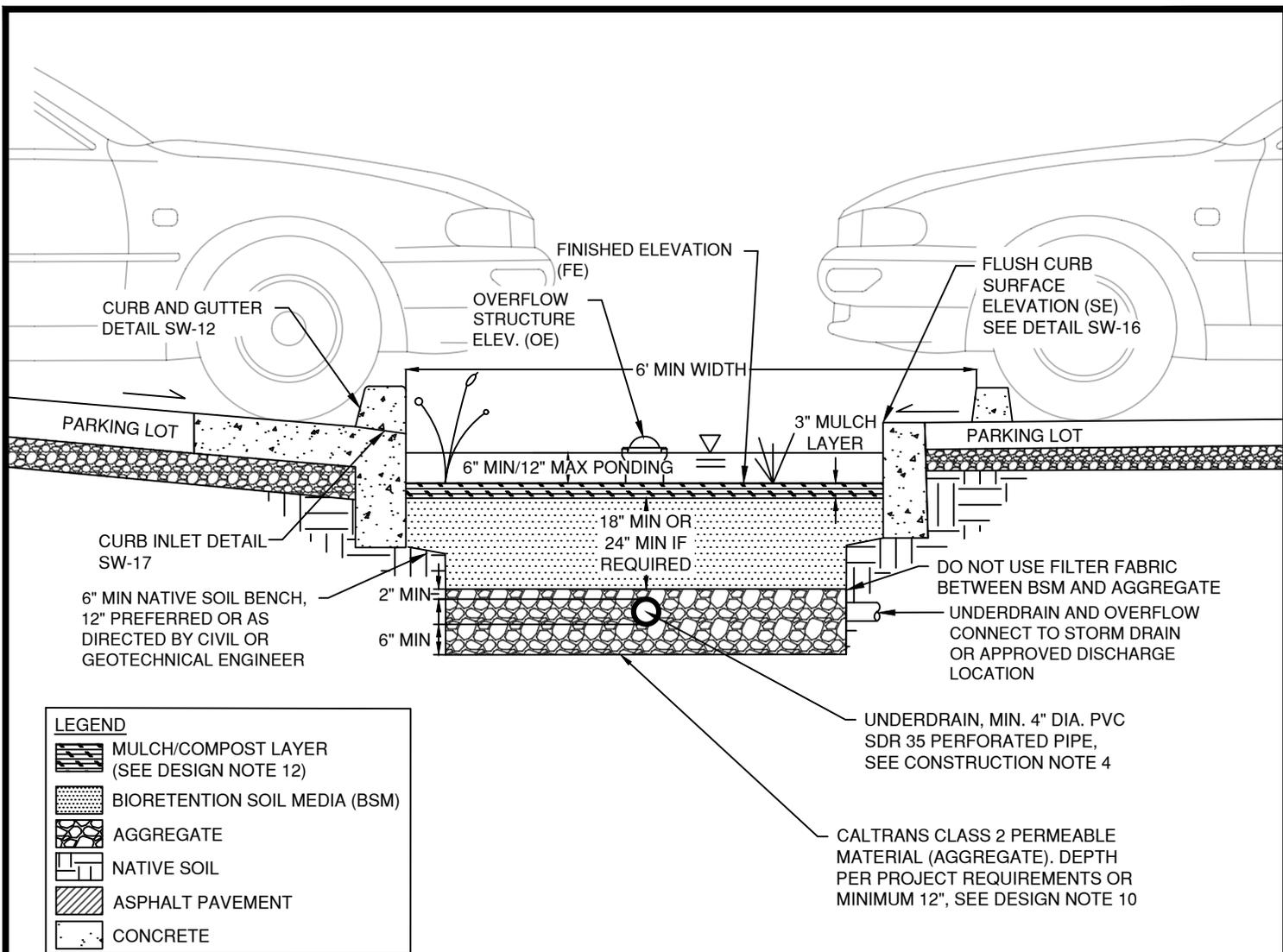
PARKING LOT SLOPE-SIDED
BIORETENTION, NO UNDERDRAIN

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION

STANDARD PLAN NO.

SW-6A

SHEET 2 OF 2



LEGEND	
	MULCH/COMPOST LAYER (SEE DESIGN NOTE 12)
	BIORETENTION SOIL MEDIA (BSM)
	AGGREGATE
	NATIVE SOIL
	ASPHALT PAVEMENT
	CONCRETE

CONSTRUCTION NOTES

1. MAINTAIN UNDISTURBED NATIVE SOIL BENCH TO SUPPORT ADJACENT SIDEWALK/ROAD. SEQUENCE WORK TO CONSTRUCT CURBS BEFORE EXCAVATING BIORETENTION AREA FOR AGGREGATE AND BSM.
2. SCARIFY SUBGRADE BEFORE INSTALLING BIORETENTION AREA AGGREGATE AND BSM.
3. FACILITY EXCAVATION TO ALLOW FOR SPECIFIED AGGREGATE, BSM, AND MULCH DEPTHS TO ACHIEVE FINISHED ELEVATIONS ON CIVIL PLANS.
4. INSTALL UNDERDRAIN WITH HOLES FACING DOWN. TOP OF UNDERDRAIN 6" BELOW TOP OF AGGREGATE LAYER. UNDERDRAIN SLOPE MAY BE FLAT.
5. COMPACT EACH 6" LIFT OF BSM WITH LANDSCAPE ROLLER OR BY LIGHTLY WETTING. IF WETTING, LET DRY OVERNIGHT BEFORE PLANTING.
6. DO NOT WORK WITHIN BIORETENTION AREA DURING RAIN OR UNDER WET CONDITIONS.
7. KEEP HEAVY MACHINERY OUTSIDE BIORETENTION AREA LIMITS.
8. STORMWATER SHOULD BE DIRECTED AWAY FROM BIORETENTION UNTIL CONSTRUCTION IS COMPLETE AND DRAINAGE AREA VEGETATION IS STABILIZED.

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS

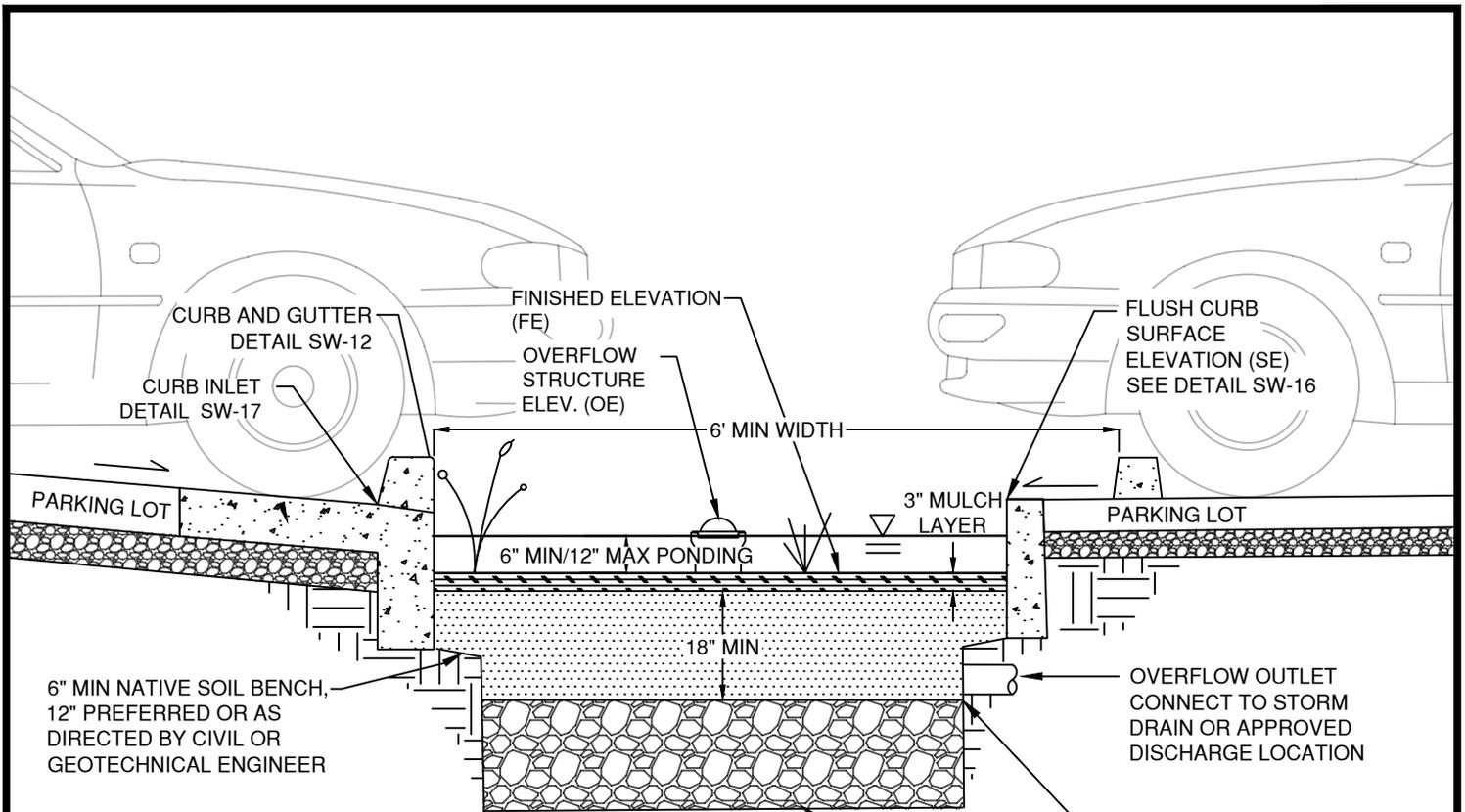
<p>DEVELOPED UNDER PROP. 84 GRANT</p>	APPROVED BY:	<p>PARKING LOT BIORETENTION PLANTER BOX, WITH UNDERDRAIN</p>	STANDARD PLAN NO.
	VERSION:		USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION

DESIGN NOTES

1. BIORETENTION FACILITY DESIGN SHOULD OPTIMIZE THE FLAT BOTTOM DIMENSIONS (I.E., WIDTH, LENGTH) TO MAXIMIZE THE FUNCTIONAL AREA OF THE FACILITY.
2. CAPTURE AND CONVEY OVERFLOW TO STORM DRAIN SYSTEM (DETAIL SW-22, SW-23). ALTERNATIVELY, CONVEY OVERFLOW TO APPROVED DISCHARGE LOCATION THROUGH OTHER OVERLAND METHODS (IE. CURB CUTS, SIDEWALK UNDERDRAIN, WEIR, ETC.).
3. PROVIDE SPOT ELEVATIONS AT INLETS AND OVERFLOW STRUCTURES ON CIVIL PLANS (FE, OE, GIE, SIE), PER DETAIL SW-18.
4. DUE TO SITE VARIABILITY, TO ENSURE THE LONG-TERM STRUCTURAL STABILITY OF THE BIORETENTION FACILITY AND ANY ADJACENT INFRASTRUCTURE CONSULT WITH A GEOTECHNICAL ENGINEER.
5. A VERTICAL LINER MAY BE USED FOR BIORETENTION FACILITIES TO PREVENT LATERAL FLOW AND TO SEPARATE THE NATIVE SOIL FROM THE BSM AND THE AGGREGATE, HOWEVER A HORIZONTAL LINER SHALL NOT BE USED.
6. DO NOT USE FILTER FABRIC BETWEEN BSM AND AGGREGATE.
7. PROVIDE CAPPED, THREADED PVC CLEANOUT FOR UNDERDRAIN, 4" MIN. DIA. WITH SWEEP BEND.
8. PROVIDE A CLEAN-OUT/OBSERVATION PORT IN EACH FACILITY, PER BIORETENTION TECHNICAL SPECIFICATIONS.
9. ON LONGITUDINAL SLOPE, USE CHECK DAMS (DETAILS SW-20, SW-21)
10. USE AND DEPTH OF AGGREGATE DETERMINED BY FACILITY SIZING. IF CALTRANS CLASS 2 PERMEABLE IS NOT AVAILABLE, SUBSTITUTE CLASS 3 PERMEABLE WITH AN OVERLYING 3" DEEP CHOKING LAYER OF EITHER CALTRANS COURSE AGGREGATE 1/2" (NO. 4) OR 3/4" X (NO. 4) OPEN-GRADED AGGREGATE.
11. BIORETENTION SOIL MEDIA (BSM) SPECIFICATION PER BIORETENTION TECHNICAL SPECIFICATIONS.
12. PLANT SELECTION PER BIORETENTION TECHNICAL SPECIFICATIONS.
13. MULCH PER BIORETENTION TECHNICAL SPECIFICATIONS.
14. LOCATE ENERGY DISSIPATION AS SPECIFIED IN INLET DETAILS.
15. AVOID DECORATIVE USE OF COBBLE THAT CAN INTERFERE WITH WITH INFILTRATION.

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS

 DEVELOPED UNDER PROP. 84 GRANT		APPROVED BY:	PARKING LOT BIORETENTION PLANTER BOX, WITH UNDERDRAIN	STANDARD PLAN NO.
		VERSION: 08/31/2017		USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION



LEGEND

-  MULCH/COMPOST LAYER (SEE DESIGN NOTE 12)
-  BIORETENTION SOIL MEDIA (BSM)
-  AGGREGATE
-  NATIVE SOIL
-  ASPHALT PAVEMENT
-  CONCRETE

CONSTRUCTION NOTES

1. MAINTAIN UNDISTURBED NATIVE SOIL BENCH TO SUPPORT ADJACENT SIDEWALK/ROAD. SEQUENCE WORK TO CONSTRUCT CURBS BEFORE EXCAVATING BIORETENTION AREA FOR AGGREGATE AND SOIL.
2. SCARIFY SUBGRADE BEFORE INSTALLING BIORETENTION AREA AGGREGATE AND BSM.
3. FACILITY EXCAVATION TO ALLOW FOR SPECIFIED AGGREGATE, BSM, AND MULCH DEPTHS TO ACHIEVE FINISHED ELEVATIONS ON CIVIL PLANS.
4. COMPACT EACH 6" LIFT OF BSM WITH LANDSCAPE ROLLER OR BY LIGHTLY WETTING. IF WETTING, LET DRY OVERNIGHT BEFORE PLANTING.
5. DO NOT WORK WITHIN BIORETENTION AREA DURING RAIN OR UNDER WET CONDITIONS.
6. KEEP HEAVY MACHINERY OUTSIDE BIORETENTION AREA LIMITS.
7. STORMWATER SHOULD BE DIRECTED AWAY FROM BIORETENTION UNTIL CONSTRUCTION IS COMPLETE AND DRAINAGE AREA VEGETATION IS STABILIZED.

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS



DEVELOPED UNDER PROP. 84 GRANT

APPROVED BY:

VERSION:
08/31/2017

**PARKING LOT BIORETENTION PLANTER
BOX, NO UNDERDRAIN**

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION

STANDARD PLAN NO.

SW-7A

SHEET 1 OF 2

DESIGN NOTES

1. BIORETENTION FACILITY DESIGN SHOULD OPTIMIZE THE FLAT BOTTOM DIMENSIONS (I.E., WIDTH, LENGTH) TO MAXIMIZE THE FUNCTIONAL AREA OF THE FACILITY.
2. CAPTURE AND CONVEY OVERFLOW TO STORM DRAIN SYSTEM (DETAIL SW-22, SW-23). ALTERNATIVELY, CONVEY OVERFLOW TO APPROVED DISCHARGE LOCATION THROUGH OTHER OVERLAND METHODS (IE. CURB CUTS, SIDEWALK UNDERDRAIN, WEIR, ETC.).
3. PROVIDE SPOT ELEVATIONS AT INLETS AND OVERFLOW STRUCTURES ON CIVIL PLANS (FE, OE, GIE, SIE), PER DETAIL SW-18.
4. DUE TO SITE VARIABILITY, TO ENSURE THE LONG-TERM STRUCTURAL STABILITY OF THE BIORETENTION FACILITY AND ANY ADJACENT INFRASTRUCTURE CONSULT WITH A GEOTECHNICAL ENGINEER.
5. A VERTICAL LINER MAY BE USED FOR BIORETENTION FACILITIES TO PREVENT LATERAL FLOW AND TO SEPARATE THE NATIVE SOIL FROM THE BSM AND THE AGGREGATE, HOWEVER A HORIZONTAL LINER SHALL NOT BE USED.
6. DO NOT USE FILTER FABRIC BETWEEN BSM AND AGGREGATE.
7. PROVIDE A CLEAN-OUT/OBSERVATION PORT IN EACH FACILITY, PER BIORETENTION TECHNICAL SPECIFICATIONS.
8. ON LONGITUDINAL SLOPE, USE CHECK DAMS (DETAILS SW-20, SW-21)
9. USE AND DEPTH OF AGGREGATE DETERMINED BY FACILITY SIZING. IF CALTRANS CLASS 2 PERMEABLE IS NOT AVAILABLE, SUBSTITUTE CLASS 3 PERMEABLE WITH AN OVERLYING 3" DEEP CHOKING LAYER OF EITHER CALTRANS COURSE AGGREGATE 1/2" (NO. 4) OR 3/4" X (NO. 4) OPEN-GRADED AGGREGATE.
10. BIORETENTION SOIL MEDIA (BSM) SPECIFICATION PER BIORETENTION TECHNICAL SPECIFICATIONS.
11. PLANT SELECTION PER BIORETENTION TECHNICAL SPECIFICATIONS.
12. MULCH PER BIORETENTION TECHNICAL SPECIFICATIONS.
13. LOCATE ENERGY DISSIPATION AS SPECIFIED IN INLET DETAILS.
14. AVOID DECORATIVE USE OF COBBLE THAT CAN INTERFERE WITH WITH INFILTRATION.

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS



DEVELOPED UNDER PROP. 84 GRANT

APPROVED BY:

VERSION:
08/31/2017

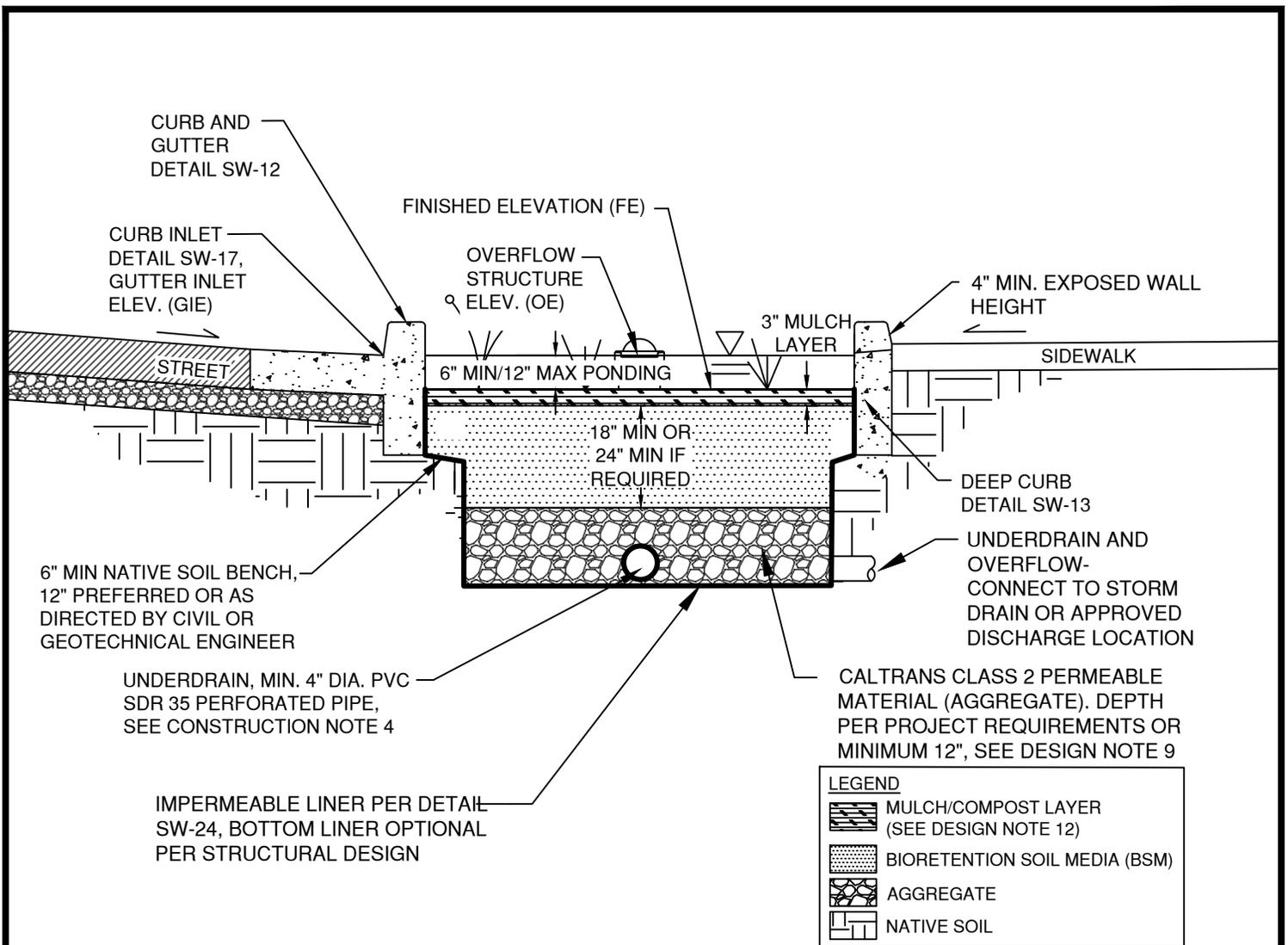
PARKING LOT BIORETENTION PLANTER
BOX, NO UNDERDRAIN

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION

STANDARD PLAN NO.

SW-7A

SHEET 2 OF 2



CONSTRUCTION NOTES

1. MAINTAIN UNDISTURBED NATIVE SOIL BENCH TO SUPPORT ADJACENT SIDEWALK/ROAD. SEQUENCE WORK TO CONSTRUCT CURBS BEFORE EXCAVATING BIOFILTRATION AREA FOR AGGREGATE AND BSM.
2. SCARIFY SUBGRADE BEFORE INSTALLING BIORETENTION AREA AGGREGATE AND BSM.
3. FACILITY EXCAVATION TO ALLOW FOR SPECIFIED AGGREGATE, BSM, AND MULCH DEPTHS TO ACHIEVE FINISHED ELEVATIONS ON CIVIL PLANS.
4. COMPACT EACH 6" LIFT OF BSM WITH LANDSCAPE ROLLER OR BY LIGHTLY WETTING. IF WETTING, LET DRY OVERNIGHT BEFORE PLANTING.
5. DO NOT WORK WITHIN BIOFILTRATION AREA DURING RAIN OR UNDER WET CONDITIONS.
6. KEEP HEAVY MACHINERY OUTSIDE BIOFILTRATION AREA LIMITS.
7. STORMWATER SHOULD BE DIRECTED AWAY FROM BIOFILTRATION UNTIL CONSTRUCTION IS COMPLETE AND DRAINAGE AREA VEGETATION IS STABILIZED.

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS



DEVELOPED UNDER PROP. 84 GRANT

APPROVED BY:

VERSION:

08/31/2017

**BIOFILTRATION PLANTER BOX,
NO PARKING**

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION

STANDARD PLAN NO.

SW-9

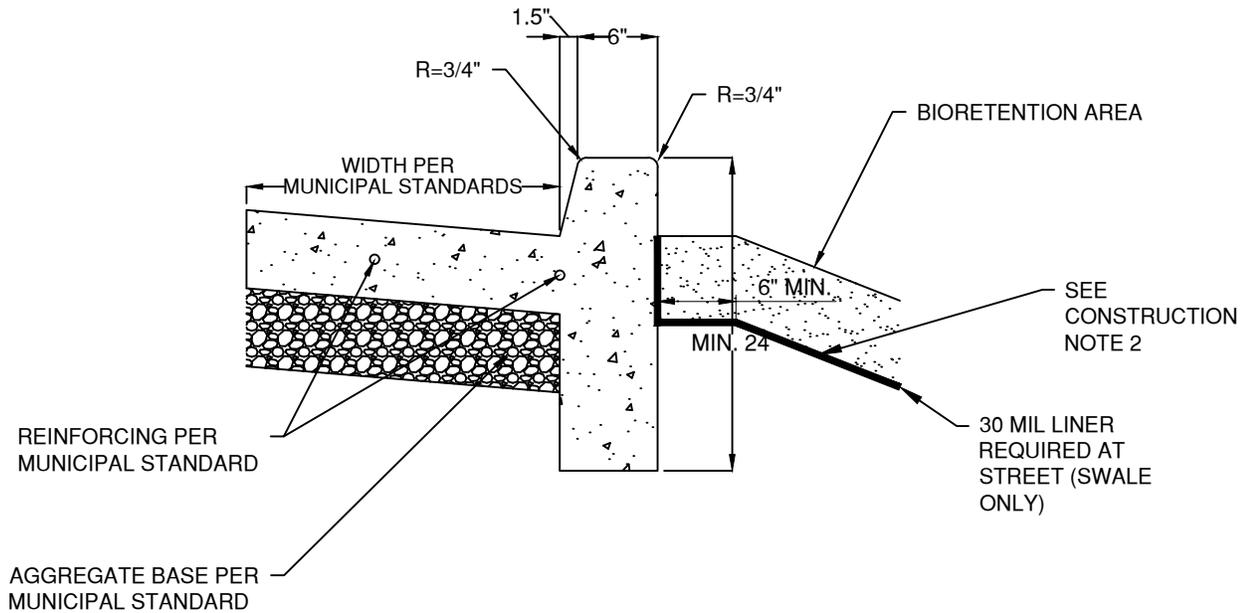
SHEET 1 OF 2

DESIGN NOTES

1. BIOFILTRATION FACILITY DESIGN SHOULD OPTIMIZE THE FLAT BOTTOM DIMENSIONS (I.E., WIDTH, LENGTH) TO MAXIMIZE THE FUNCTIONAL AREA OF THE FACILITY.
2. CAPTURE AND CONVEY OVERFLOW TO STORM DRAIN SYSTEM (DETAIL SW-22, SW-23). ALTERNATIVELY, CONVEY OVERFLOW TO APPROVED DISCHARGE LOCATION THROUGH OTHER OVERLAND METHODS (IE. CURB CUTS, SIDEWALK UNDERDRAIN, WEIR, ETC.).
3. PROVIDE SPOT ELEVATIONS AT INLETS AND OVERFLOW STRUCTURES ON CIVIL PLANS (FE,OE, GIE, SIE), PER DETAIL SW-18.
4. DUE TO SITE VARIABILITY, TO ENSURE THE LONG-TERM STRUCTURAL STABILITY OF THE BIOFILTRATION FACILITY AND ANY ADJACENT INFRASTRUCTURE CONSULT WITH A GEOTECHNICAL ENGINEER.
5. DO NOT USE FILTER FABRIC BETWEEN BSM AND AGGREGATE.
6. PROVIDE CAPPED, THREADED PVC CLEANOUT FOR UNDERDRAIN, 4" MIN. DIA. WITH SWEEP BEND.
7. PROVIDE A CLEAN-OUT/OBSERVATION PORT IN EACH FACILITY, PER BIORETENTION TECHNICAL SPECIFICATIONS.
8. ON LONGITUDINAL SLOPE, USE CHECK DAMS (DETAILS SW-20, SW-21)
9. USE AND DEPTH OF AGGREGATE DETERMINED BY FACILITY SIZING. IF CALTRANS CLASS 2 PERMEABLE IS NOT AVAILABLE, SUBSTITUTE CLASS 3 PERMEABLE WITH AN OVERLYING 3" DEEP CHOKING LAYER OF EITHER CALTRANS COURSE AGGREGATE 1/2" (NO. 4) OR 3/4" X (NO. 4) OPEN-GRADED AGGREGATE.
10. BIORETENTION SOIL MEDIA (BSM) SPECIFICATION PER BIORETENTION TECHNICAL SPECIFICATIONS.
11. PLANT SELECTION PER BIORETENTION TECHNICAL SPECIFICATIONS.
12. MULCH PER BIORETENTION TECHNICAL SPECIFICATIONS.
13. LOCATE ENERGY DISSIPATION AS SPECIFIED IN INLET DETAILS.
14. AVOID DECORATIVE USE OF COBBLE THAT CAN INTERFERE WITH WITH INFILTRATION.

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS

 DEVELOPED UNDER PROP. 84 GRANT		APPROVED BY:	BIOFILTRATION PLANTER BOX, NO PARKING	STANDARD PLAN NO.
		VERSION: 08/31/2017		USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION



DESIGN NOTES

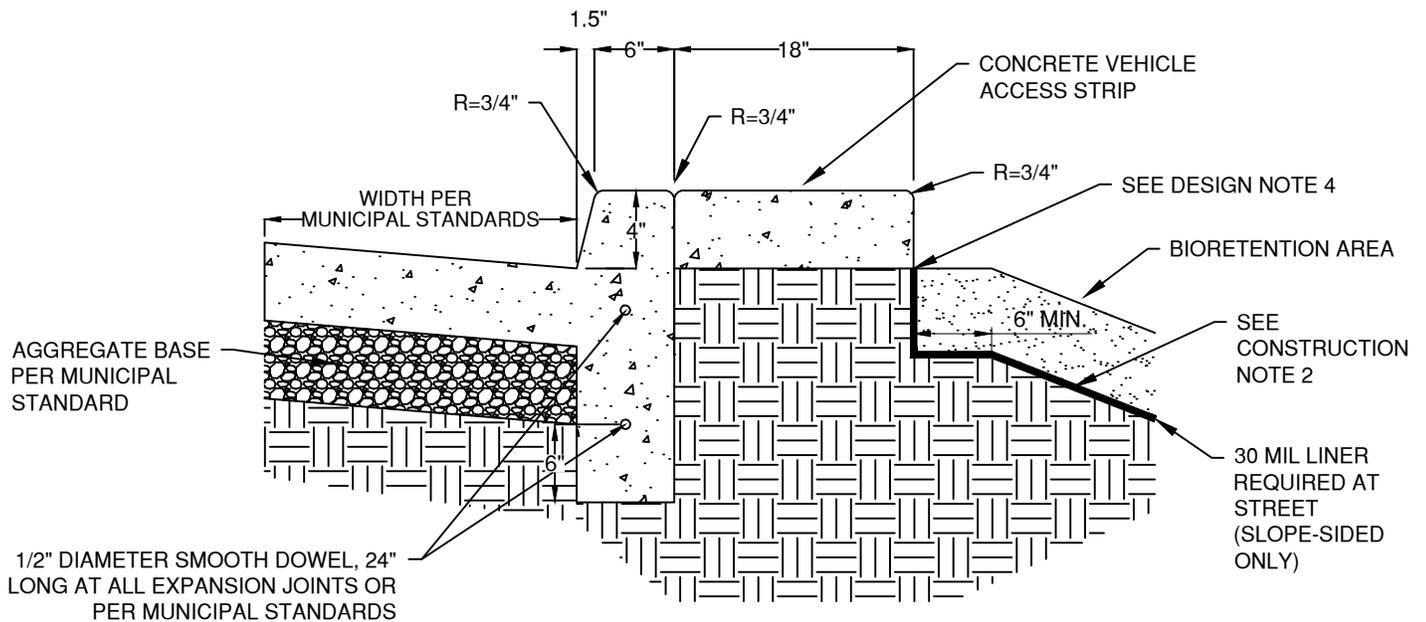
1. SPECIAL DESIGN CONSIDERATION OR STRUCTURAL REVIEW MAY BE REQUIRED FOR LONGER PLANTER WALL SPANS. STEEL REINFORCEMENT OR ADDITIONAL CONCRETE CHECK DAMS MAY BE NEEDED FOR STABILITY.
2. EDGE CONDITION WILL VARY FOR NEW AND RETROFIT PROJECTS. CURB, GUTTER, AND WALL DETAILS MAY BE MODIFIED BY CIVIL AND GEOTECHNICAL ENGINEERS SUBJECT TO APPROVAL BY CITY ENGINEER.
3. CONCRETE AND EXPANSION JOINTS SHALL MEET THE REQUIREMENTS OF THE MUNICIPALITY.
4. STEEL REINFORCEMENT OR ADDITIONAL CONCRETE CHECK DAMS MAY BE NEEDED FOR STABILITY.

CONSTRUCTION NOTES

1. FINISH ALL EXPOSED CONCRETE SURFACES.
2. LAYBACK SLOPE AS FLAT AS POSSIBLE UNTIL TOP WIDTH PRODUCES 1:1 SLOPE & 24" BOTTOM WIDTH. AS PLANTER GETS WIDER MAINTAIN 1:1 SLOPE AND INCREASE BOTTOM WIDTH WIDER THAN 24". ALTERNATIVE TRENCH WALL CONFIGURATIONS MAY BE PROPOSED BY THE PROJECT GEOTECHNICAL ENGINEER (I.E. VERTICAL SHORING, REINFORCED TRENCH SIDEWALL) THAT DO NOT REQUIRE SIDEWALK SUPPORT FROM THE LIGHTLY COMPACTED BSM.

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS

 	APPROVED BY:	CURB AND GUTTER	STANDARD PLAN NO.
	VERSION: 08/31/2017		SW-12
DEVELOPED UNDER PROP. 84 GRANT	USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION		SHEET 1 OF 1



DESIGN NOTES

1. SPECIAL CONCRETE AND EXPANSION JOINTS SHALL MEET THE REQUIREMENTS OF THE MUNICIPALITY.
2. PROVIDE OPENINGS IN CURB (12" WIDE) TO ALLOW FOR SURFACE DRAINAGE TO BIORETENTION AREAS IF DEDICATED INLET NOT USED. SPACING TO BE DETERMINED BY PROJECT ENGINEER BASED ON DESIGN STORM TO MINIMIZE PONDING AGAINST CURB FOR MEDIAN ISLAND APPLICATION.
3. STEEL REINFORCEMENT OR ADDITIONAL CONCRETE CHECK DAMS MAY BE NEEDED FOR STABILITY.
4. SEE REFERENCE DETAIL SW-24 FOR ATTACHMENT OF IMPERVIOUS LINER.

CONSTRUCTION NOTES

1. FINISH ALL EXPOSED CONCRETE SURFACES.
2. LAYBACK SLOPE AS FLAT AS POSSIBLE UNTIL TOP WIDTH PRODUCES 1:1 SLOPE & 24" BOTTOM WIDTH. AS PLANTER GETS WIDER MAINTAIN 1:1 SLOPE AND INCREASE BOTTOM WIDTH WIDER THAN 24". ALTERNATIVE TRENCH WALL CONFIGURATIONS MAY BE PROPOSED BY THE PROJECT GEOTECHNICAL ENGINEER (I.E. VERTICAL SHORING, REINFORCED TRENCH SIDEWALL) THAT DO NOT REQUIRE SIDEWALK SUPPORT FROM THE LIGHTLY COMPACTED BSM.

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS



APPROVED BY:

VERSION:

08/31/2017

CURB AND GUTTER

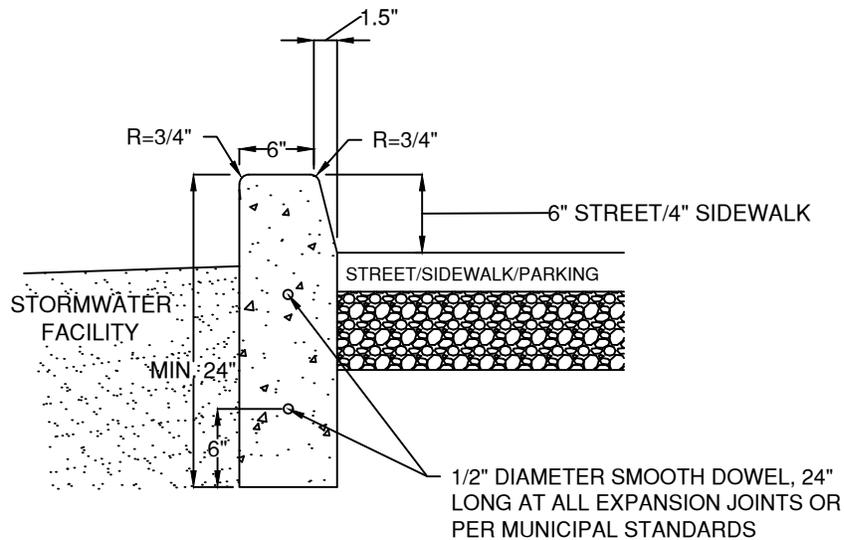
STANDARD PLAN NO.

SW-12A

DEVELOPED UNDER PROP. 84 GRANT

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION

SHEET 1 OF 1



DESIGN NOTES

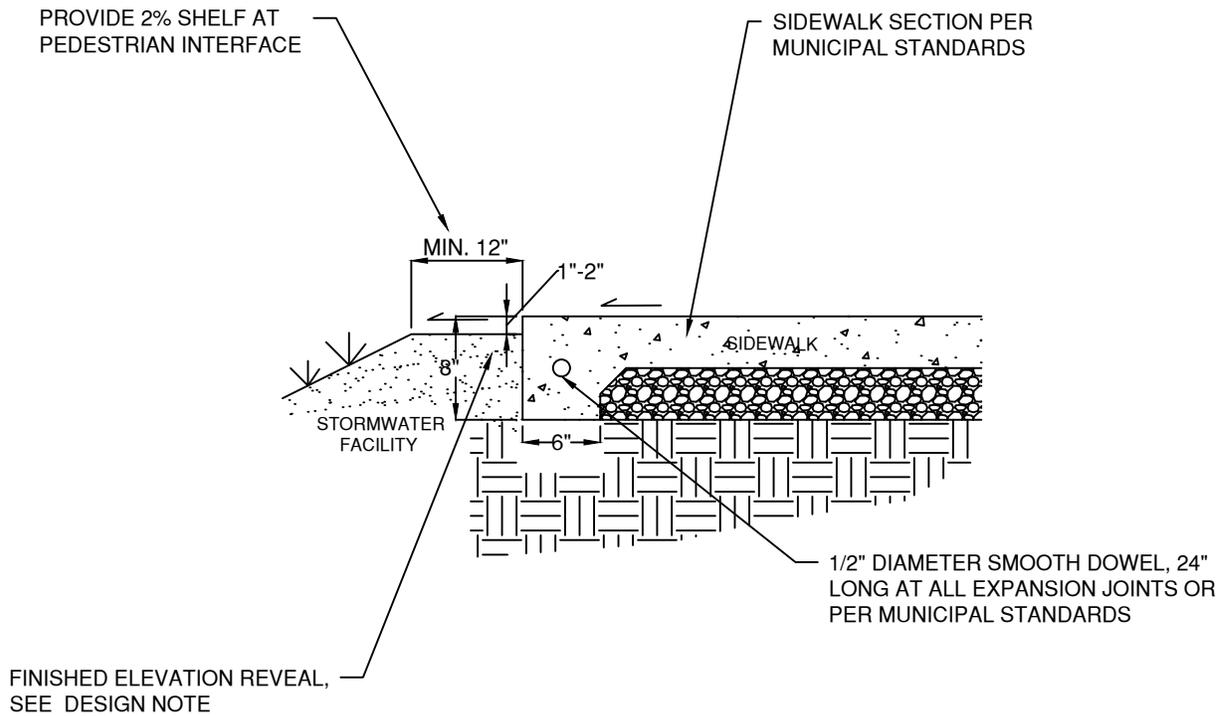
1. SPECIAL DESIGN CONSIDERATION OR STRUCTURAL REVIEW MAY BE REQUIRED FOR LONGER SWALE EDGE SPANS. STEEL REINFORCEMENT OR ADDITIONAL CONCRETE CHECK DAMS MAY BE NEEDED FOR STABILITY.
2. WHEN SIDEWALK DRAINS TO PLANTER, PROVIDE 4" - 6" WIDE NOTCH OPENINGS, 1" BELOW SIDEWALK, SLOPED TO FACILITY, PER BIORETENTION PLANTER DETAILS. SPACE OPENINGS TO CONVEY FLOWS. PROVIDE MINIMUM 2" COVER BETWEEN DRAINAGE NOTCH OPENING AND DOWELS.
3. CONCRETE AND EXPANSION JOINTS SHALL MEET THE REQUIREMENTS OF THE MUNICIPALITY.
4. STEEL REINFORCEMENT OR ADDITIONAL CONCRETE CHECK DAMS MAY BE NEEDED FOR STABILITY.

CONSTRUCTION NOTES

1. FINISH ALL EXPOSED CONCRETE SURFACES.
2. LAYBACK SLOPE AS FLAT AS POSSIBLE UNTIL TOP WIDTH PRODUCES 1:1 SLOPE & 24" BOTTOM WIDTH. AS PLANTER GETS WIDER MAINTAIN 1:1 SLOPE AND INCREASE BOTTOM WIDTH WIDER THAN 24". ALTERNATIVE TRENCH WALL CONFIGURATIONS MAY BE PROPOSED BY THE PROJECT GEOTECHNICAL ENGINEER (I.E. VERTICAL SHORING, REINFORCED TRENCH SIDEWALL) THAT DO NOT REQUIRE SIDEWALK SUPPORT FROM THE LIGHTLY COMPACTED BSM.

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS

 	APPROVED BY:	DEEP CURB	STANDARD PLAN NO.
	VERSION:		SW-13
DEVELOPED UNDER PROP. 84 GRANT	08/31/2017	USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION	SHEET 1 OF 1



DESIGN NOTES

1. SPECIAL DESIGN CONSIDERATION OR STRUCTURAL REVIEW MAY BE REQUIRED FOR LONGER FACILITY EDGE SPANS. STEEL REINFORCEMENT OR ADDITIONAL CONCRETE CHECK DAMS MAY BE NEEDED FOR STABILITY.
2. FINISHED ELEVATION REVEAL - WHERE SIDEWALK CONVEYS SHEET FLOW TO FACILITY, A 1"-2" REVEAL SHOULD BE MAINTAINED BETWEEN SIDEWALK AND FACILITY FINISHED GRADE TO AVOID MULCH OR PLANT BUILDUP FROM BLOCKING FLOWS.
3. CONCRETE AND EXPANSION JOINTS SHALL MEET THE REQUIREMENTS OF THE MUNICIPALITY.

CONSTRUCTION NOTES

1. FINISH ALL EXPOSED CONCRETE SURFACES.

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS



DEVELOPED UNDER PROP. 84 GRANT

APPROVED BY:

VERSION:

08/31/2017

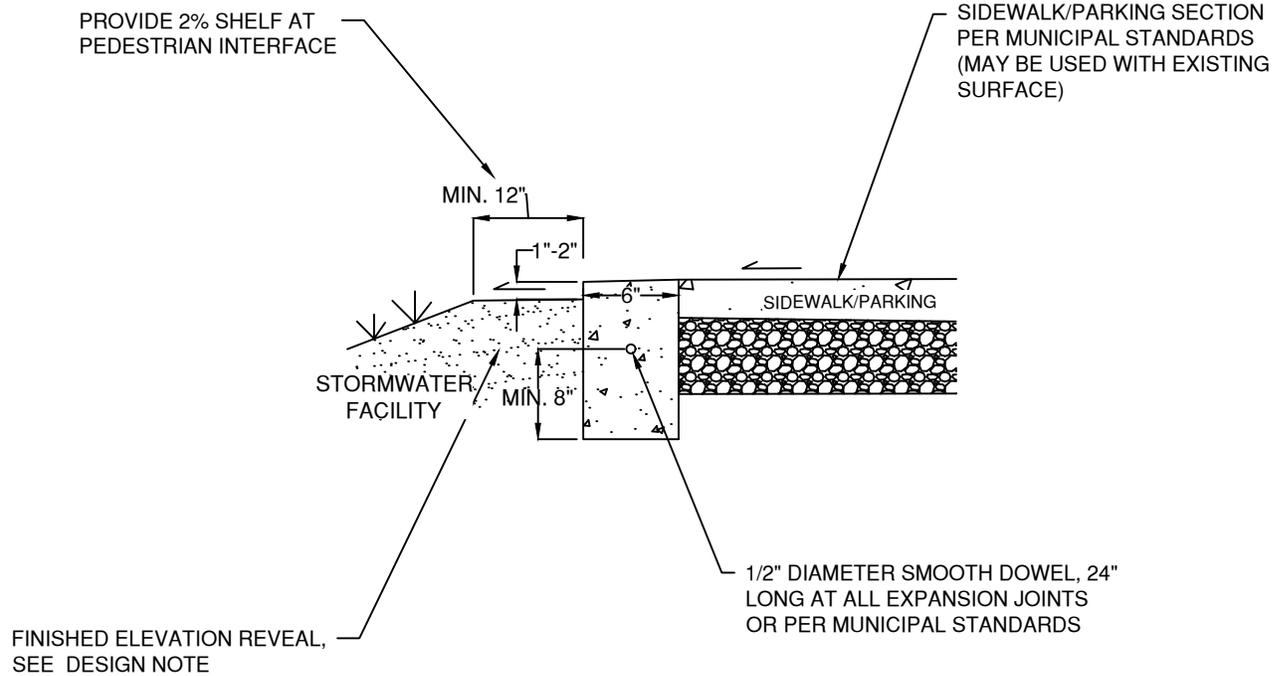
THICKENED EDGE SIDEWALK

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION

STANDARD PLAN NO.

SW-14

SHEET 1 OF 1



DESIGN NOTES

1. SPECIAL DESIGN CONSIDERATION OR STRUCTURAL REVIEW MAY BE REQUIRED FOR LONGER FACILITY EDGE SPANS. STEEL REINFORCEMENT OR ADDITIONAL CONCRETE CHECK DAMS MAY BE NEEDED FOR STABILITY.
2. EDGE CONDITION WILL VARY FOR PROJECTS. CURB DETAILS MAY BE MODIFIED BY CIVIL AND GEOTECHNICAL ENGINEERS SUBJECT TO APPROVAL BY CITY ENGINEER.
3. CONCRETE AND EXPANSION JOINTS SHALL MEET THE REQUIREMENTS OF THE MUNICIPALITY.
4. FINISHED ELEVATION REVEAL AT SIDEWALK - WHERE SIDEWALK CONVEYS SHEET FLOW TO FACILITY, A 1"-2" REVEAL SHOULD BE MAINTAINED BETWEEN SIDEWALK AND FACILITY FINISHED GRADE TO AVOID MULCH OR PLANT BUILDUP FROM BLOCKING FLOWS AND REDUCE DROP AT PEDESTRIAN INTERFACE.

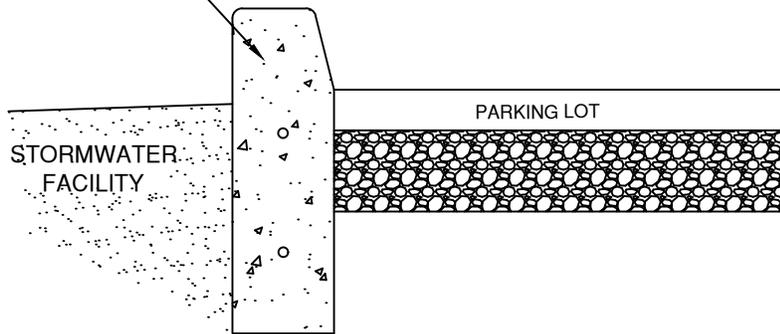
CONSTRUCTION NOTES

1. FINISH ALL EXPOSED CONCRETE SURFACES.

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS

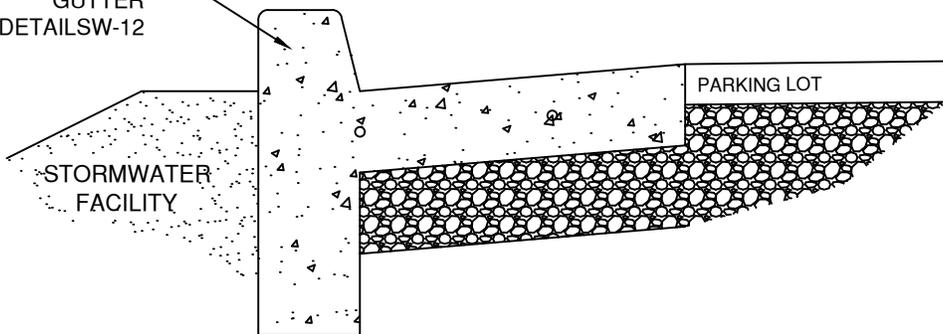
  <p>DEVELOPED UNDER PROP. 84 GRANT</p>	<p>APPROVED BY:</p>	<p>FLUSH CURB AT SIDEWALK</p>	<p>STANDARD PLAN NO.</p> <p>SW-15</p>
	<p>VERSION:</p> <p>08/31/2017</p>		<p>USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION</p>

DEEP CURB
DETAIL SW-13



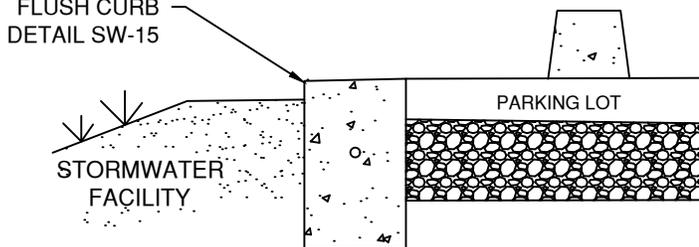
DEEP CURB

CURB AND
GUTTER
DETAILSW-12



CURB AND GUTTER

FLUSH CURB
DETAIL SW-15



FLUSH EDGE/WHEEL STOPS

DESIGN NOTES

1. WHEEL STOPS MAY BE USED ON NON-FLUSH DESIGNS TO KEEP CARS FROM OVERHANGING BIoretention FACILITY.
2. VEHICLE OVERHANG CAN BE USED TO REDUCE IMPERVIOUS PAVEMENT AREA.
3. WHERE VEHICLE OVERHANG IS UTILIZED SELECT LOW GROWING PLANTS THAT WILL TOLERATE SHADING.

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS



DEVELOPED UNDER PROP. 84 GRANT

APPROVED BY:

VERSION:

08/31/2017

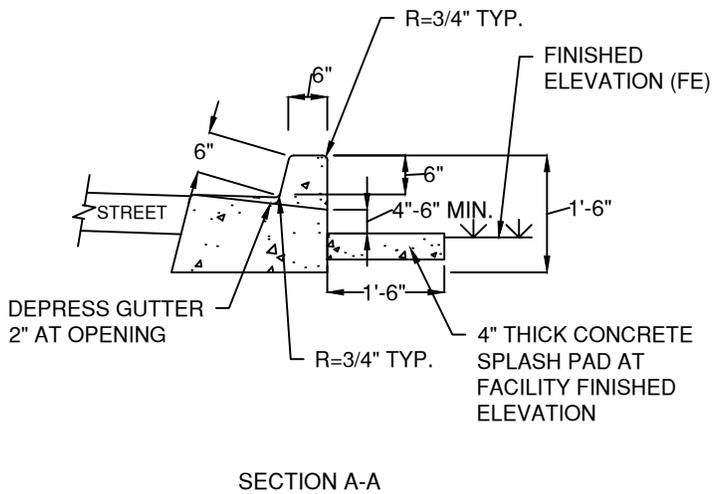
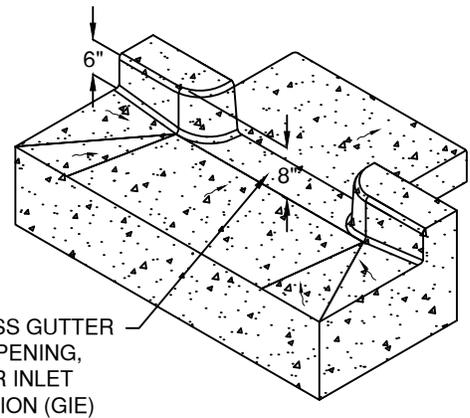
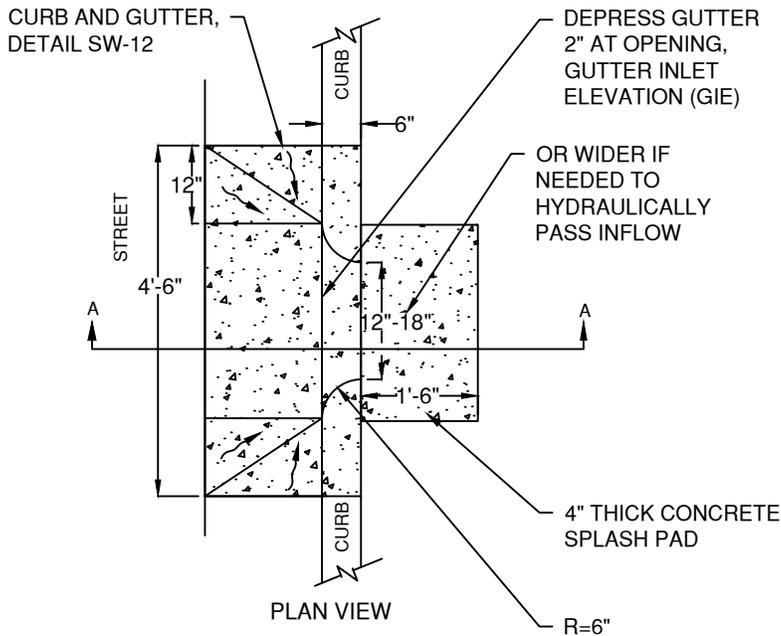
PARKING LOT EDGE OPTIONS

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION

STANDARD PLAN NO.

SW-16

SHEET 1 OF 1



BIORETENTION DESIGN NOTES

1. FOR USE WITH STORMWATER FACILITIES WITH FLAT BOTTOMS.
2. PROVIDE SPOT ELEVATIONS ON PLANS (FE, OE, GIE, IE). SEE DETAIL SW-2, SW-2A, SW-4 OR SW-4A.
3. CURB AND WALL DETAILS MAY BE MODIFIED BY CIVIL AND GEOTECHNICAL ENGINEERS SUBJECT TO APPROVAL BY CITY ENGINEER.
4. CURB HEIGHT MAY BE REDUCED TO 4-INCHES WHERE ADJACENT TO A SIDEWALK. SEE DETAILS SW-12 & SW-13.

CONSTRUCTION NOTES

1. AFTER CONSTRUCTION PLACE SAND BAGS AT GUTTER OPENINGS TO KEEP STORM FLOWS FROM ENTERING FACILITY UNTIL VEGETATION IS ESTABLISHED.

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS



DEVELOPED UNDER PROP. 84 GRANT

APPROVED BY:

VERSION:

08/31/2017

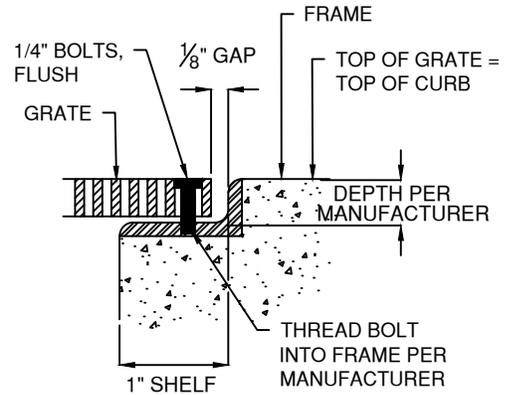
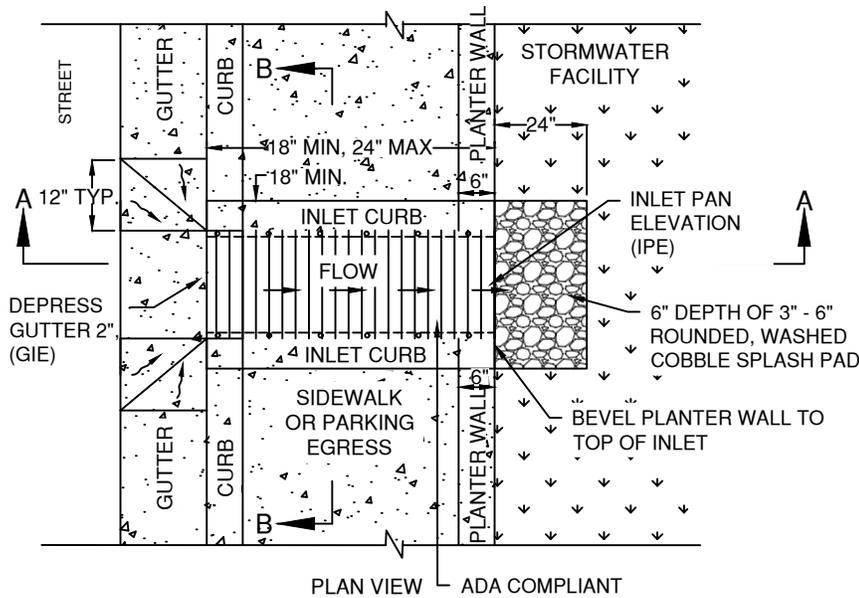
CURB CUT INLET FOR PLANTERS

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION

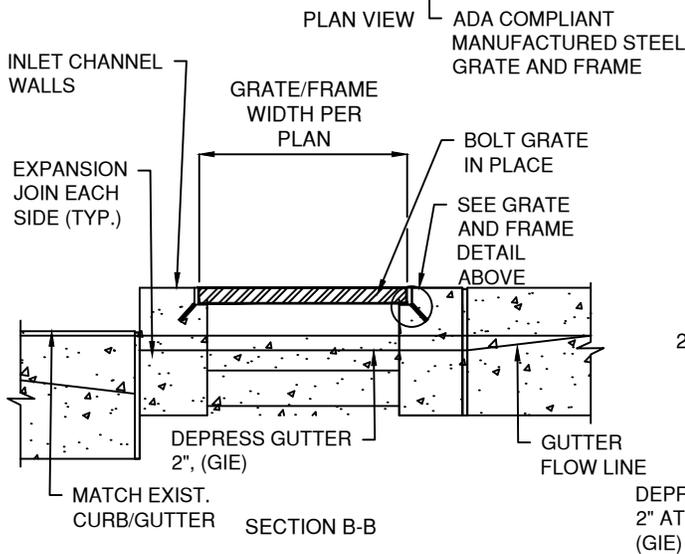
STANDARD PLAN NO.

SW-17

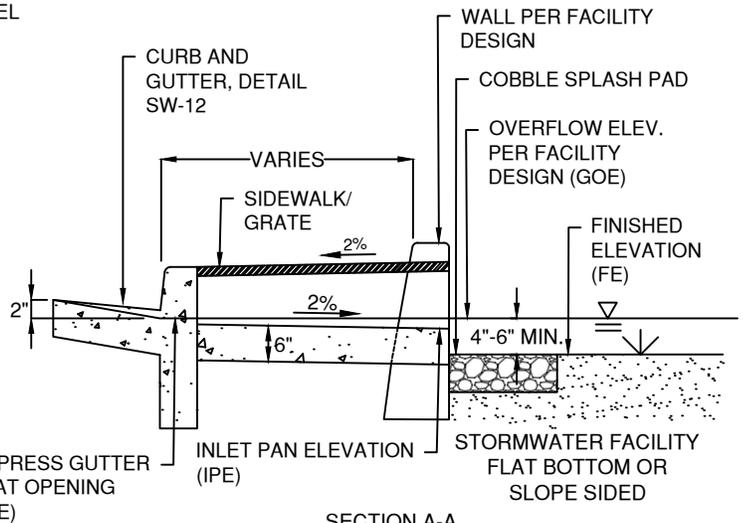
SHEET 1 OF 1



GRATE AND FRAME



SECTION B-B



SECTION A-A

BIORETENTION DESIGN NOTES

1. FOR USE WITH STORMWATER FACILITIES WITH SLOPED SIDES OR FLAT BOTTOMS.
2. PROVIDE SPOT ELEVATIONS ON PLANS (FE, OE, GIE, IPE). SEE DETAIL SW-2, SW-2A, SW-4 OR SW-4A.
3. REFER TO MUNICIPAL STANDARD DRAWINGS AND MATCH GUTTER PAN OF ADJACENT CURB AND GUTTER.
4. IF SLOPED SIDES, WHERE INLET FLOW VELOCITY IS HIGH, EXTEND COBBLE INTO FACILITY, BUT AVOID EXCESSIVE USE.
5. BASE MATERIAL FOR CURB, GUTTER, AND SIDEWALK PER MUNICIPAL STANDARDS.
6. GRATE AND FRAME SHALL SUPPORT H-20 LOADING (ALHAMBRA FOUNDRY A-1540/A-1551 OR EQUIVALENT).
7. SOLID COVER AND FRAME (ALHAMBRA FOUNDRY A-1430/A-1433 OR EQUIVALENT) MAY BE USED IN PLACE OF GRATE AND FRAME.

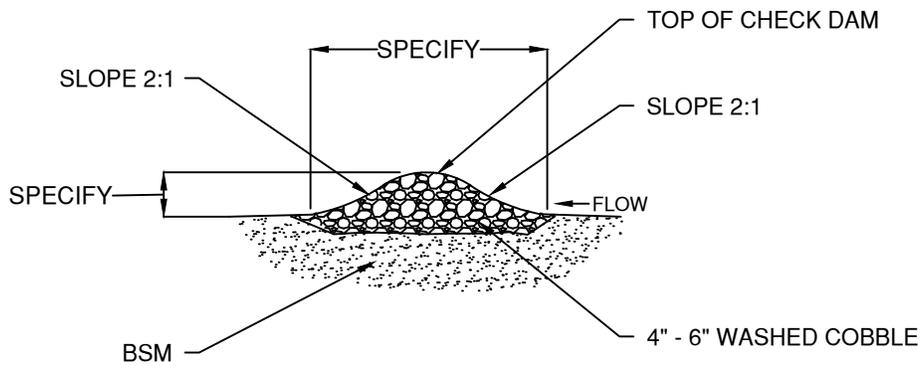
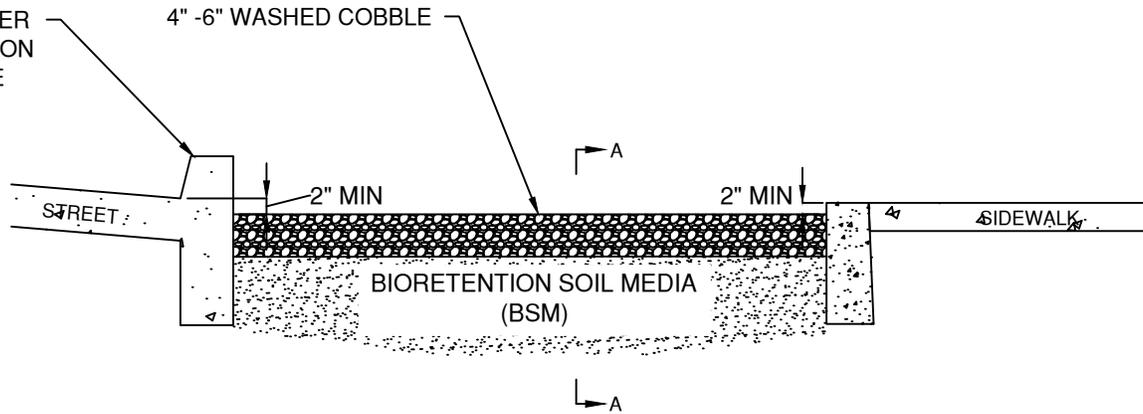
CONSTRUCTION NOTES

1. AFTER CONSTRUCTION PLACE SAND BAGS AT GUTTER OPENINGS TO KEEP STORM FLOWS FROM ENTERING FACILITY UNTIL VEGETATION IS ESTABLISHED.

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS

 	APPROVED BY:	INLET WITH GRATE	STANDARD PLAN NO.
	VERSION:		SW-19
DEVELOPED UNDER PROP. 84 GRANT	08/31/2017	USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION	SHEET 1 OF 1

CURB AND GUTTER
PER BIORETENTION
WITH SIDESLOPE
DETAIL



SECTION A-A

BIORETENTION DESIGN NOTES

1. FOR USE WITH STORMWATER FACILITIES WITH SLOPED SIDES.
2. BEST SUITED FOR FACILITIES WITH $\leq 2\%$ LONGITUDINAL SLOPE.
3. PROVIDE ELEVATIONS AND STATIONING AND/OR DIMENSIONING FOR CHECK DAMS.
4. SPACE CHECK DAMS TO MAXIMIZE PONDING ACROSS ENTIRE CELL.
5. ENSURE THAT CHECK DAM ELEVATIONS DO NOT CAUSE STORMWATER TO OVERFLOW TO SIDEWALK.

CONSTRUCTION NOTES

1. DO NOT WORK DURING RAIN OR UNDER WET CONDITIONS.
2. KEEP ALL HEAVY MACHINERY OUTSIDE BIORETENTION AREA LIMITS.

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS



APPROVED BY:

VERSION:

08/31/2017

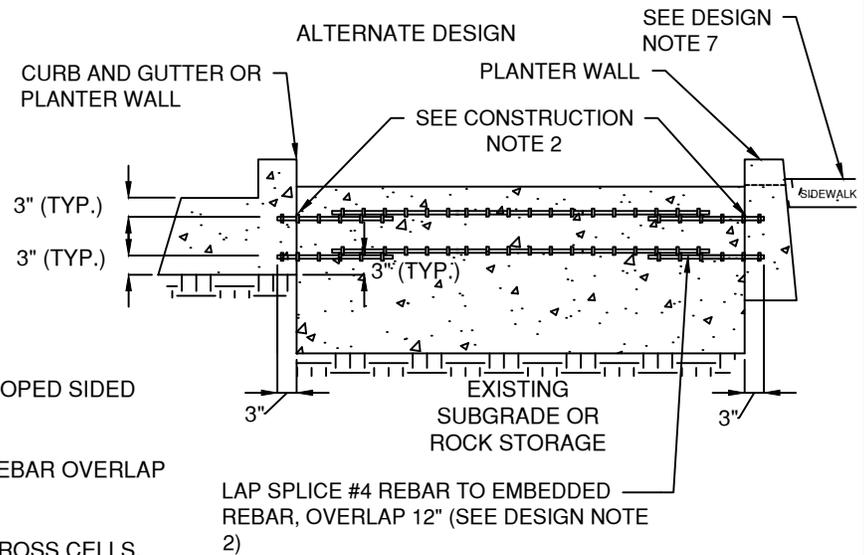
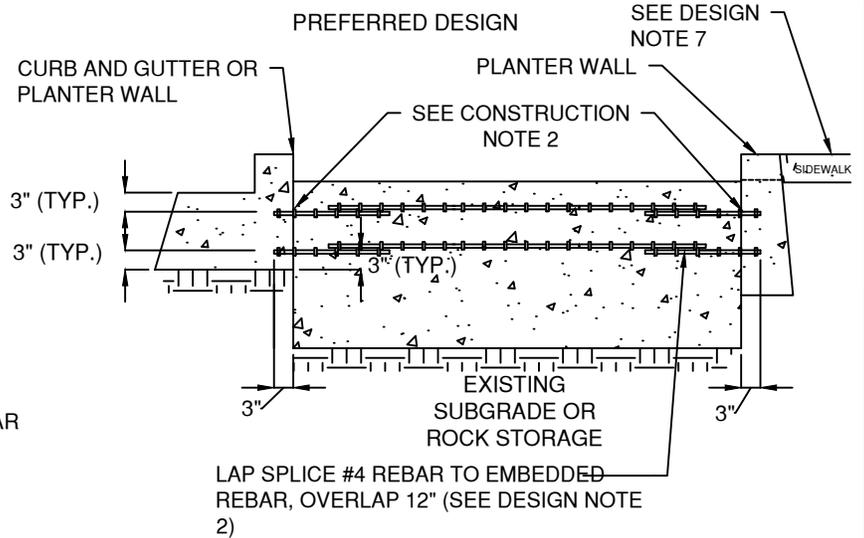
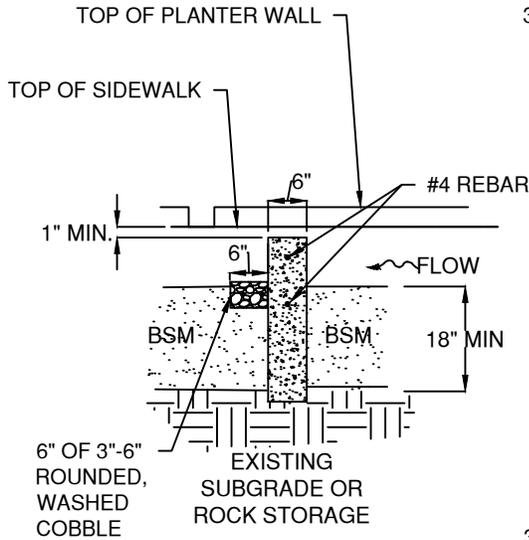
GRAVEL CHECK DAM

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION

STANDARD PLAN NO.

SW-20

SHEET 1 OF 1



BIORETENTION DESIGN NOTES

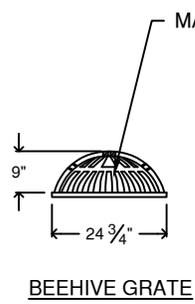
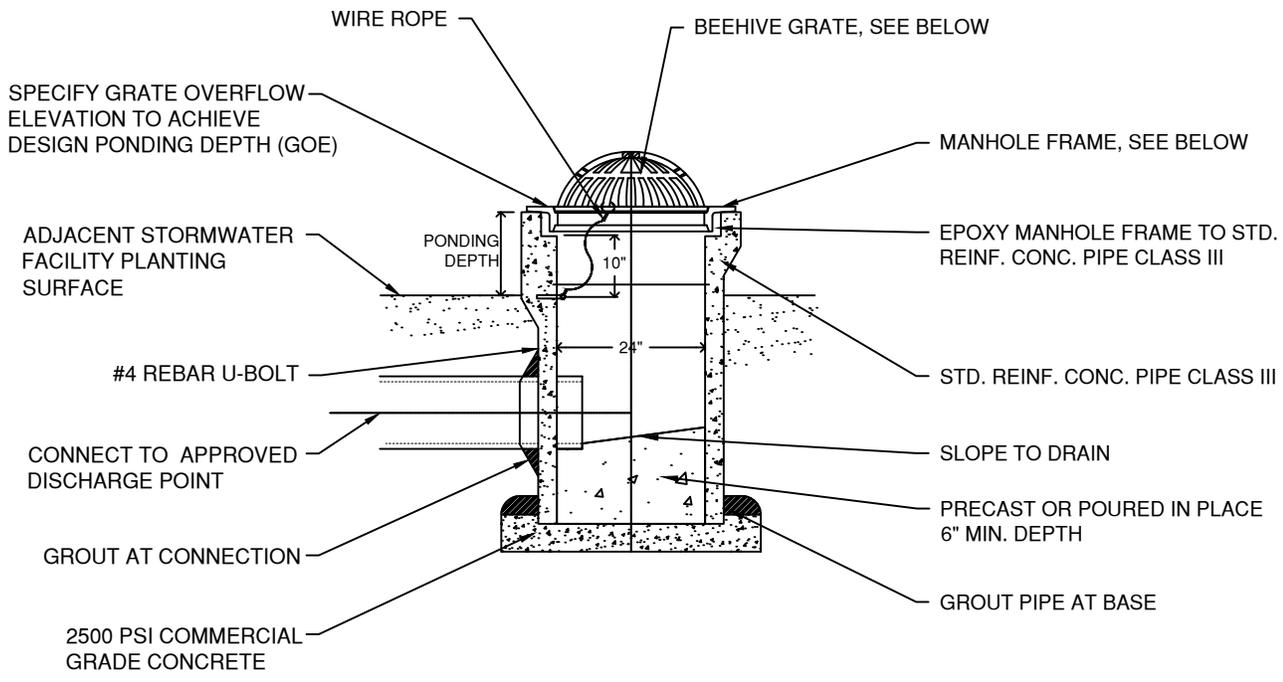
1. FOR USE WITH BIORETENTION PLANTERS OR SLOPED SIDED SWALES/RAIN GARDENS.
2. FOR CHECK DAMS LONGER THAN 12' SPECIFY REBAR OVERLAP LENGTH.
3. SPACE CHECK DAMS TO MAXIMIZE PONDING ACROSS CELLS.
4. PROVIDE ELEVATIONS AND STATIONING AND/OR DIMENSIONING FOR CHECK DAMS.
5. ENSURE THAT CHECK DAM ELEVATIONS DO NOT CAUSE STORMWATER TO OVERFLOW TO SIDEWALK.
6. SHOW PLANTER WALL EMBEDDED IN EXISTING SUBGRADE OR DRAINROCK.
7. PREFERRED DESIGN IS TO CONSTRUCT TOP OF SIDEWALK AT GRADE WITH TOP OF PLANTER WALL TO ALLOW RUNOFF TO SHEETFLOW INTO BIORETENTION PLANTER. IF CURB IS NEEDED, USE ALTERNATE DESIGN AND ENSURE TOP OF CONCRETE CHECK DAM IS A MINIMUM OF 1" BELOW BOTTOM OF CURB NOTCH.

CONSTRUCTION NOTES

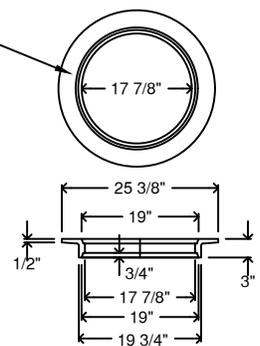
1. EMBED #3 REBAR 3" INTO CURB AND PLANTER WALL.
2. DO NOT WORK DURING RAIN OR UNDER WET CONDITIONS.
3. KEEP ALL HEAVY MACHINERY OUTSIDE BIORETENTION AREA LIMITS.

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS

 	APPROVED BY:	CONCRETE CHECK DAM	STANDARD PLAN NO.
	VERSION:		SW-21
DEVELOPED UNDER PROP. 84 GRANT	08/31/2017	USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION	SHEET 1 OF 1



MANHOLE RING AND BEEHIVE GRATE MH25BH BY OLYMPIC FOUNDRY OR APPROVED EQUAL



24"x4" REVERSIBLE MANHOLE FRAME

DESIGN NOTES

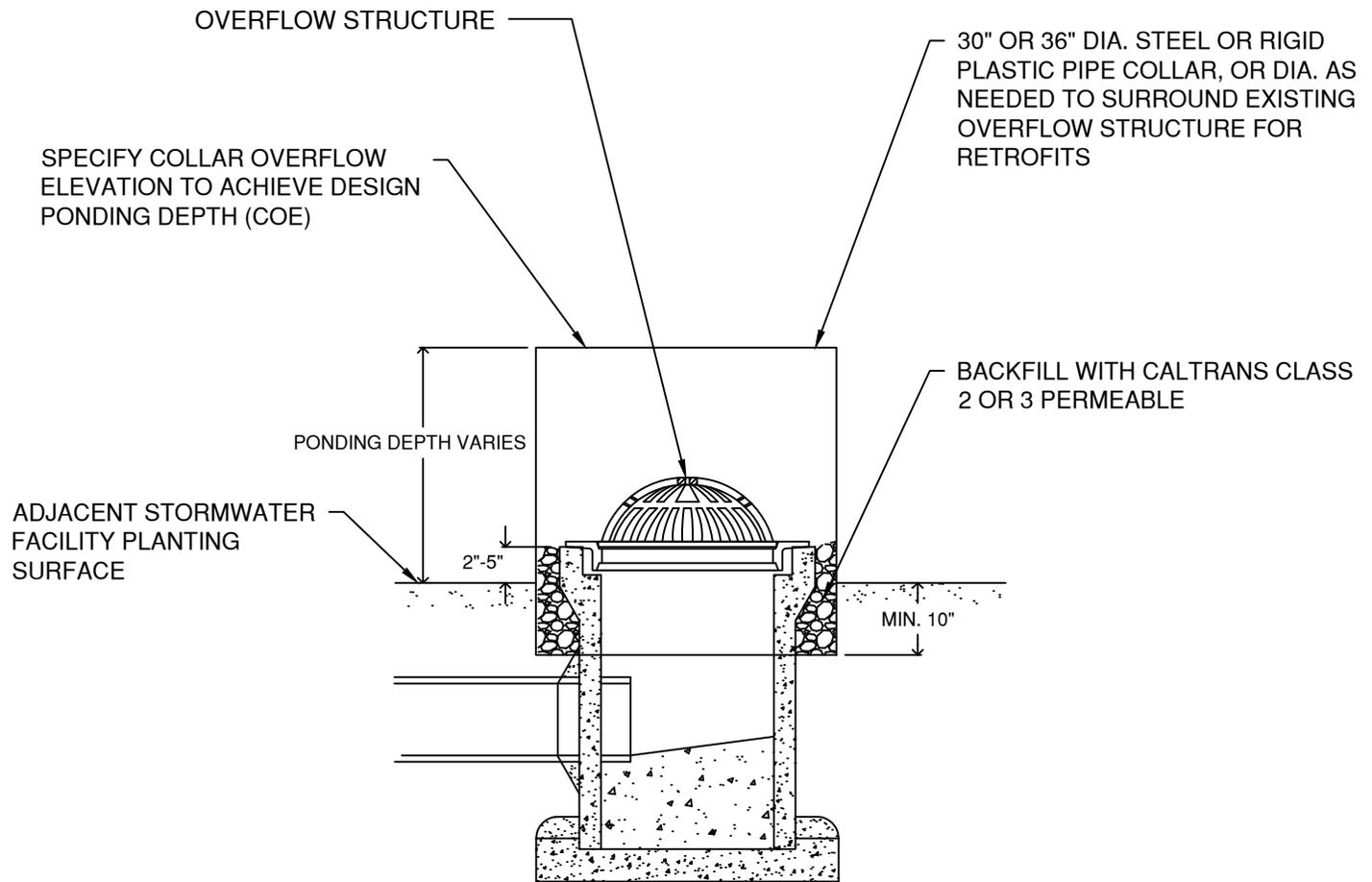
1. PROVIDE GRATE OVERFLOW ELEVATION ON PLANS.
2. TO INCORPORATE FLEXIBILITY INTO DESIGN OVERFLOW ELEVATION OR CORRECT ELEVATION OF AN EXISTING STRUCTURE, INSTALL OVERFLOW COLLAR, PER DETAIL SW-22A.
3. IN PRIVATE SITES NOT IN CITY R/W THE PROJECT CIVIL ENGINEER MAY PROPOSE ALTERNATIVES FOR GRATE INSTALLATIONS USING ALTERNATIVE MANUFACTURER'S PRODUCT/CONFIGURATION.

CONSTRUCTION NOTES

1. DO NOT ADJUST OVERFLOW GRATE ELEVATION, CONSTRUCT AS SHOWN ON PLANS.

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS

  <p>DEVELOPED UNDER PROP. 84 GRANT</p>	APPROVED BY:	OVERFLOW STRUCTURE WITH BEEHIVE GRATE	STANDARD PLAN NO.
	VERSION: 08/31/2017		USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION



DESIGN NOTES

1. MAY BE USED IN CONJUNCTION WITH OVERFLOW STRUCTURES TO ALLOW FOR FIELD ADJUSTMENT OF OVERFLOW ELEVATION, OR AS RETROFIT TO CORRECT EXISTING STRUCTURE THAT DOES NOT ALLOW PONDING TO OCCUR.
2. PROVIDE COLLAR OVERFLOW ELEVATION (COE) ON PLANS.
3. PCC PIPE RISER EXTENSIONS MAY BE UTILIZED IN LIEU OF OVER FLOW STRUCTURE COLLAR.

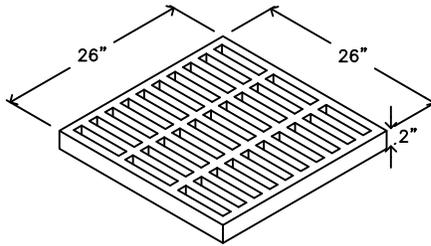
CONSTRUCTION NOTES

1. CENTER COLLAR ON OVERFLOW GRATE.

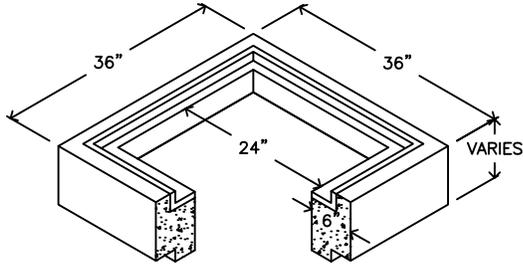
LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS

 DEVELOPED UNDER PROP. 84 GRANT		APPROVED BY: VERSION: 08/31/2017	OVERFLOW STRUCTURE COLLAR USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION	STANDARD PLAN NO. SW-22A SHEET 1 OF 1
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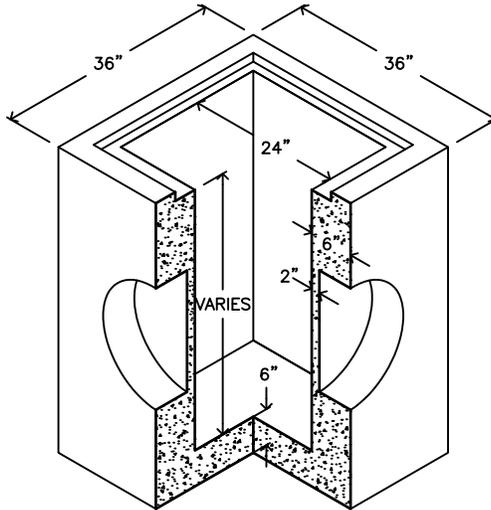
C.I. GRATE



C.I. FRAME
EXTENSION



BOTTOM



DESIGN NOTES

1. PROVIDE GRATE OVERFLOW ELEVATION ON PLANS.
2. PROVIDE EXTENSION OVERFLOW ELEVATION (COE) ON PLANS.
3. ON PRIVATE SITES NOT IN CITY RIGHT-OF-WAY THE PROJECT CIVIL ENGINEER MAY PROPOSE ALTERNATIVES FOR GRATE INSTALLATIONS USING ALTERNATIVE MANUFACTURER'S PRODUCTION/CONFIGURATION.

CONSTRUCTION NOTES

1. DO NOT ADJUST OVERFLOW GRATE ELEVATION, CONSTRUCT AS SHOWN ON PLANS.

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS



DEVELOPED UNDER PROP. 84 GRANT

APPROVED BY:

VERSION:

08/31/2017

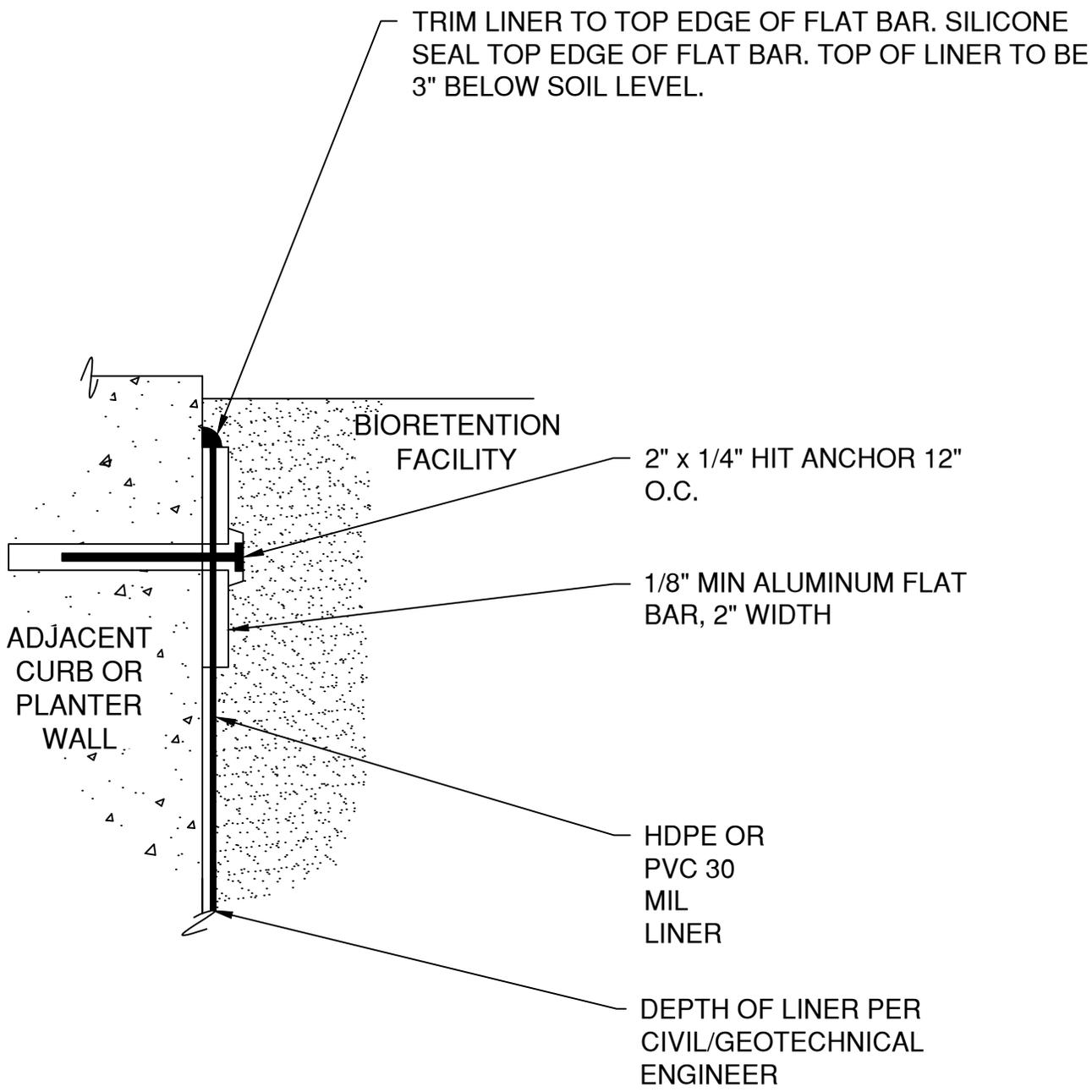
OVERFLOW STRUCTURE WITH
SQUARE GRATE

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION

STANDARD PLAN NO.

SW-23

SHEET 1 OF 1



LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS



DEVELOPED UNDER PROP. 84 GRANT

APPROVED BY:

VERSION:

08/31/2017

IMPERMEABLE LINER CONNECTION

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION

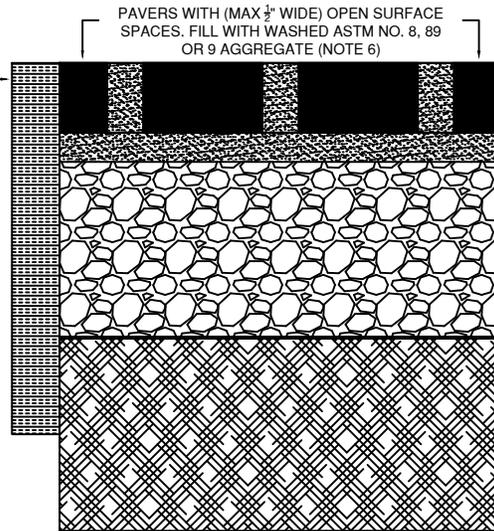
STANDARD PLAN NO.

SW-24

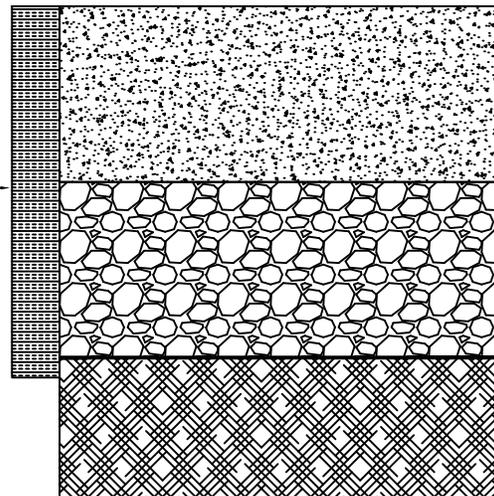
SHEET 1 OF 1

	RESIDENTIAL DRIVEWAY OR PEDESTRIAN ONLY	PRIVATE STREET, PARKING LOT	PUBLIC STREET OR FIRE LANE
PERVIOUS CONCRETE	4"	6"	8"
POROUS ASPHALT	3"	4"	6"
PERMEABLE INTERLOCKING PAVERS	2 3/8"	3 1/8"	3 1/8"
ENGINEERING REQ'D	NO	YES	YES
COMPACTION REQ'D	NO	YES	95%

EDGE RESTRAINT AS SHOWN ON PLANS



EDGE RESTRAINT AS SHOWN ON PLANS



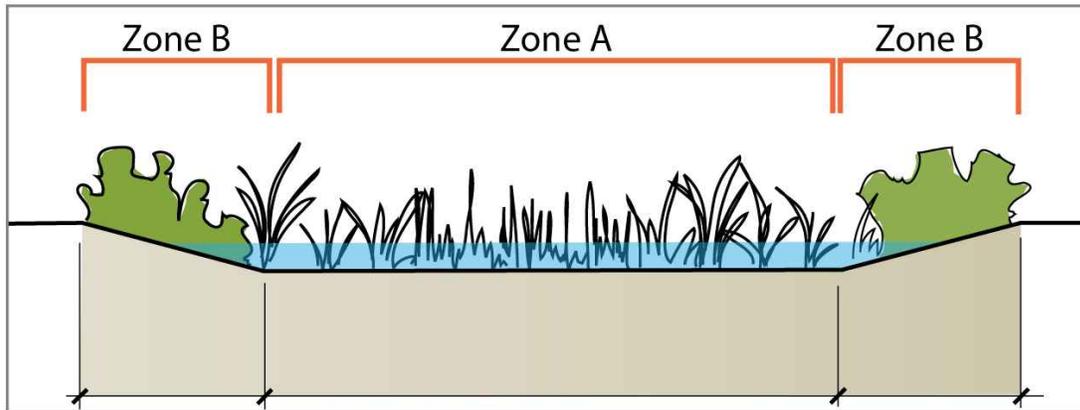
NOTES:

1. UNDERDRAIN TO REMOVE WATER THAT CANNOT BE INFILTRATED WITHIN 72 HOURS.
2. DESIGNS PROVIDED SHALL BE SIGNED & STAMPED BY A GEOTECHNICAL &/OR CIVIL ENGINEER REGISTERED IN THE STATE OF CALIFORNIA.
3. GEOTEXTILE USE AND SELECTION MAY BE DETERMINED BY A GEOTECHNICAL ENGINEER PER AASHTO M-288.
4. UNDERDRAIN AND ORIFICE CONFIGURATION SHALL BE BASED ON ENGINEERED DESIGN.

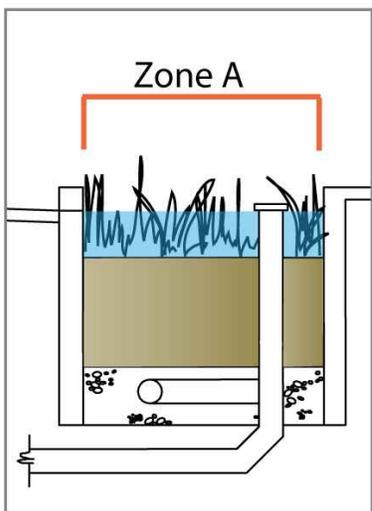
LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS

  <p>DEVELOPED UNDER PROP. 84 GRANT</p>	APPROVED BY: 	<p>PERVIOUS PAVEMENT</p>	STANDARD PLAN NO. <p>SW-25</p>
	VERSION: <p>08/31/2017</p>		USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION

Varying slope and ponding levels: Varying slope and ponding levels: This bioretention planting area has sloped edges. Plants in the bottom area will be inundated during storms (**Zone A**). Those planted on the sideslopes are above the level of ponding, but will experience seasonally wet conditions (**Zone B**).



Uniform surface grade: This stormwater planter has a flat bottom with consistent depth of ponding across the structure. All of the plants selected for this design must be tolerant of periodic inundation (**Zone A**).



LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS



DEVELOPED UNDER PROP. 84 GRANT

APPROVED BY:

VERSION:
08/31/2017

PLANTING INUNDATION ZONES

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION

STANDARD PLAN NO.

SW-26

SHEET 1 OF 4

Trees	San Diego Co. Native - SD	California Native - CA	Non-Native - X	Landscape Position: 1 - Low1, 2 - Mid2, 3 - High3	Mature Size (height x width)	Irrigation Demands: High - H ■ Moderate - M Low - L ■ Rainfall Only - N	Light Requirements Sun - SU ■ Shade - SH Part Shade - PS	Season Evergreen - E, Deciduous - D Semi-Evergreen - SE	Coastal Exposure? Yes - Y	City of Imperial Beach Sunset Zone: 24
<i>Acer negundo</i> <i>californicum</i> ^{4,5}	SD			1	60'x60'	M-H	SU, PS	D		A2-3; 1-10, 12-24
<i>Cercis occidentalis</i> ⁴	SD			1	10-18' x 10-18'	M	SU, PS	D		2-24
<i>Ilex vomitoria</i>	X			1	15-20' x 10-15'	H	SU, PS	E		4-9, 11-24
<i>Juglans californica</i>	SD			1	15-30' x 15-30'	N-L	SU	D		18-24
<i>Liquidambar styraciflua</i> ⁵	X			1	60' x 20-25'	M-H	SU	D		3-9, 14-24
<i>Magnolia grandiflora</i> ⁵	X			1	80' x 60'	H	SU, PS	E	Y	4-12, 14-24, H1-2
<i>Metasequoia glyptostroboides</i> ⁵	X			1	90' x 20'	H	SU	D		A3, 3-10, 14-24
<i>Myrica californica</i>	CA			1	10-30 x 10-30'	M	SU	E	Y	4-9, 14-24
<i>Platanus acerifolia</i>	X			1	40-80' x 30-40'	M-H	SU	D		2-24
<i>Platanus racemosa</i> ^{4,5}	SD			1	30-80' x 20-50'	M-H	SU	D	Y	4-24
<i>Quercus agrifolia</i> ^{4,5}	SD			1	20-70' x 20-70'	N-L	SU	E	Y	7-9, 14-24
<i>Salix goodingii</i> ^{4,5}	SD			1	20-40'x20-30'	H	SU	D		-
<i>Sambucus mexicana</i> ^{4,5}	SD			1	10-30' x 8-20'	M-H	SU, PS	SE		2-24, H1
<i>Taxodium spp.</i> ⁵	X			1	50-70' x 15-30'	L-H	SU	D		2-10, 12-24
<i>Umbellularia californica</i> ⁵	CA			1	20-25' x 20-25'	L-H	SU, PS, SH	E	Y	4-9, 14-24
<i>Washingtonia filifera</i> ^{4,5}	SD			1	60' x 20'	L-M	SU	E		8,9,10,11-24,H1-2

DEPARTMENT OF PUBLIC WORKS
IMPERIAL BEACH

TITLE: ZONE A LID RECOMMENDED PLANT LIST

STANDARD PLAN

DESIGNED BY:

APPROVED:

DATE:

DRAWN BY:

CHECKED BY:

CITY ENGINEER: _____

SW-26

SHEET 2 OF 6

Perennials		San Diego Co. Native - SD	California Native - CA	Non-Native - X	Landscape Position: 1 - Low1, 2 - Mid2, 3 - High3	Mature Size (height x width)	Irrigation Demands: High - H ■ Moderate - M Low - L ■ Rainfall Only - N	Light Requirements Sun - SU ■ Shade - SH Part Shade - PS	Season Evergreen - E, Deciduous - D Semi-Evergreen - SE	Coastal Exposure? Yes - Y	City of Imperial Beach Sunset Zone: 24
<i>Achillea millefolium</i> 4	Common Yarrow	SD	SD		1	3' x 2'	L-M	SU	SE	Y	A1-A3, 1-24
<i>Anemopsis californica</i> 4	Yerba Mansa	SD	SD		1	1'x2-4'	H	SU, PS, SH	D		-
<i>Aquilegia formosa</i>	Western Columbine	SD	SD		2	1-3' x 1.5'	H	SU, PS	SE		A1-3, 1-11, 14-24
<i>Artemisia palmeri</i> 4	San Diego Sagewort	SD	SD		2	2-3'x3'	H	SU, PS	SE	Y	-
<i>Asarum caudatum</i>	Wild Ginger	CA	CA		2	1' x 3'	H	SH	E		4-6, 14-24
<i>Epilobium californica</i> 4	California Fuscia	CA	CA		1	1-2'x3-5'	L-M	SU	SE		2-11, 14-24
<i>Fragaria chiloensis</i> 4	Beach Strawberry	CA	CA		1	4-8" x spreading	H	SU, PS	E	Y	4-24
<i>Iris douglasiana</i>	Pacific Coast Iris	CA	CA		1	2' x 2'	M	SU, PS	E	Y	4-9, 14-24
<i>Iris missouriensis</i>	Western Blue Flag Iris	SD	SD		1	2' x 2'	M-H	SU, PS	D		1-10, 14-24
<i>Iva hayesiana</i> 4	San Diego Marsh Elder	SD	SD		2	1' x 5'	N	SU, PS	SE	Y	17, 23-24
<i>Jaumea carnosa</i>	Jaumea	SD	SD		1	<1' x spreading	H	SU	E		-
<i>Limonium californicum</i>	California Sea Lavender	SD	SD		1	1-1.5' x < 3' spreading	M-H	SU, PS	SE	Y	-
<i>Lobelia dunnii</i>	Dunn's Lobelia	SD	SD		2	1-1.5' x 1.5-3'	M-H	SU, PS	E	Y	-
<i>Mimulus cardinalis</i>	Scarlet Monkey Flower	SD	SD		1	2.5' x 2.5'	M-H	SU, PS, SH	D		2-24
<i>Polystichum munitum</i>	Western Sword Fern	CA	CA		2	2-4' x 2-4'	H	SH	E	Y	A3, 2-9, 14-24
<i>Potentilla glandulosa</i>	Sticky Cinquefoil	SD	SD		1	2' x 3'	M-H	SU, PS, SH	E	Y	-
<i>Ribes viburnifolium</i>	Evergreen Currant	SD	SD		3	3-6' x 12'	N-M	SU, PS	E	Y	5,7-9,14-17, 19-24
<i>Salicornia pacifica (or virginica)</i> 4	Pickleweed	SD	SD		1	1-2' x spreading	H	SU	SE	Y	-
<i>Salvia uliginosa</i>	Bog Sage	X	X		2	4-6' x 3-4'	M-H	SU	E		6-9, 14-24
<i>Satureja douglasii</i>	Yerba Buena	CA	CA		2	<1' x 3'	H	PS	E		4-9, 14-24
<i>Satureja mimuloides</i>	Monkeyflower Savory	CA	CA		1	1-3' x 1-3'	M-H	SU, PS	D		-

DEPARTMENT OF PUBLIC WORKS
IMPERIAL BEACH

TITLE: ZONE A LID RECOMMENDED PLANT LIST

STANDARD PLAN

DESIGNED BY:

APPROVED:

DATE:

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CHECKED BY:

CITY ENGINEER: _____

SW-26

SHEET 3 OF 6

Perennials	San Diego Co. Native - SD	California Native - CA	Non-Native - X	Landscape Position:	Mature Size (height x width)	Irrigation Demands:	Light Requirements	Season	Coastal Exposure?	City of Imperial Beach Sunset Zone: 24
<i>Sisyrinchium bellum</i> 4	SD			2	6-18" x 6-18"	M-H	SU, PS	Evergreen - E, Deciduous - D	Y	2-9, 14-24
<i>Trifolium wormskioldii</i>	SD			1	2' x spreading	H	SU	D		-
<i>Sailcornia pacifica</i> (or <i>virginica</i>) 4	SD			1	1-2' x spreading	H	SU	SE	Y	-
<i>Salvia uliginosa</i>	X			2	4-6' x 3-4'	M-H	SU	E		6-9, 14-24
<i>Satureja douglasii</i>	CA			2	<1' x 3'	H	PS	E		4-9, 14-24
<i>Satureja mimuloides</i>	CA			1	1-3' x 1-3'	M-H	SU, PS	D		-
<i>Sisyrinchium bellum</i> 4	SD			2	6-18" x 6-18"	M-H	SU, PS	E	Y	2-9, 14-24
<i>Trifolium wormskioldii</i>	SD			1	2' x spreading	H	SU	D		-

DEPARTMENT OF PUBLIC WORKS
IMPERIAL BEACH

TITLE: ZONE A LID RECOMMENDED PLANT LIST

STANDARD PLAN

DESIGNED BY:

APPROVED:

DATE:

DRAWN BY:

CHECKED BY:

CITY ENGINEER: _____

SW-26

SHEET 4 OF 6

Grasses & Grass-Like Plants	San Diego Co. Native - SD California Native - CA Non-Native - X	Landscape Position: 1 - Low1, 2 - Mid2, 3 - High3	Mature Size (height x width)	Irrigation Demands: High - H ■ Moderate - M Low - L ■ Rainfall Only - N	Light Requirements Sun - SU ■ Shade - SH Part Shade - PS	Season Evergreen - E, Deciduous - D Semi-Evergreen - SE	Coastal Exposure? Yes - Y	City of Imperial Beach Sunset Zone: 24
<i>Buchloe dactyloides</i> 'UC Verde'	X	1	6-8" x spreading	L-H	SU	D		-
<i>Carex praegracilis</i>	SD	1	1'-2" x spreading	M-H	SU, PS	E	Y	-
<i>Carex pansa</i>	CA	1	6-8" x spreading	M-H	SU, PS	SE	Y	7-9, 11-24
<i>Carex spissa</i> ⁴	SD	1	5' x 5'	H	SU, PS	SE	Y	7-9, 14-17, 19, 24
<i>Carex subfusca</i>	SD	1	6-8" x spreading	M	SU, PS, SH	SE		7-9, 11-24
<i>Chondropetalum fectorum</i>	X	1	3-4' x 3-4'	M-H	SU, PS	E	Y	8-9, 14-24
<i>Distichlis spicata</i> ⁴	SD	1	1' x 3'	M-H	SU, PS	D	Y	-
<i>Eleocharis macrostachya</i> ⁴	SD	1	1-3' x 2'	H	SU, PS	E	Y	-
<i>Equisetum hyemale</i> ssp. affine	SD	1	4' x spreading	H	SU, PS	E		1-24
<i>Festuca californica</i>	CA	1	2-3' x 1-2'	M-H	SU, PS	E	Y	4-9, 14-24
<i>Festuca rubra</i> 'Molate'	CA	1	1-2' x spreading	H	SU, PS	E		A2-3, 1-10, 14-24
<i>Juncus effusus</i>	SD	1	2.5' x 2.5'	M-H	SU, PS	E		1-24, H1
<i>Juncus mexicanus</i> ⁴	SD	1	2' x 2'	M-H	SU, PS	E		-
<i>Juncus patens</i> ⁴	CA	1	2' x 2'	L-H	SU, PS	E		4-9, 14-24
<i>Leymus triticoides</i>	CA	1	1.5'-4.5'	L-M	SU, PS	E	Y	-
<i>Muhlenbergia rigens</i> ⁴	SD	1	2-4' x 3-4'	L	SU	E		4-24
<i>Nassella pulchra</i>	CA	2	3' x 2'	N-L	SU	D		5-9, 11, 14-24
<i>Schoenoplectus californicus</i> ⁴	SD	1	10' x spreading	H	SU, PS, SH	E		-
<i>Sporobolus airoides</i>	CA	1	3' x 3'	L-M	SU	D		1-24
<i>Zephyranthes candida</i> Rain Lily	X	1	12" x 12"	H	SU, PS	E		4-9, 12-24, H1, H2

DEPARTMENT OF PUBLIC WORKS
IMPERIAL BEACH

TITLE: ZONE A LID RECOMMENDED PLANT LIST

STANDARD PLAN

DESIGNED BY:

APPROVED:

DATE:

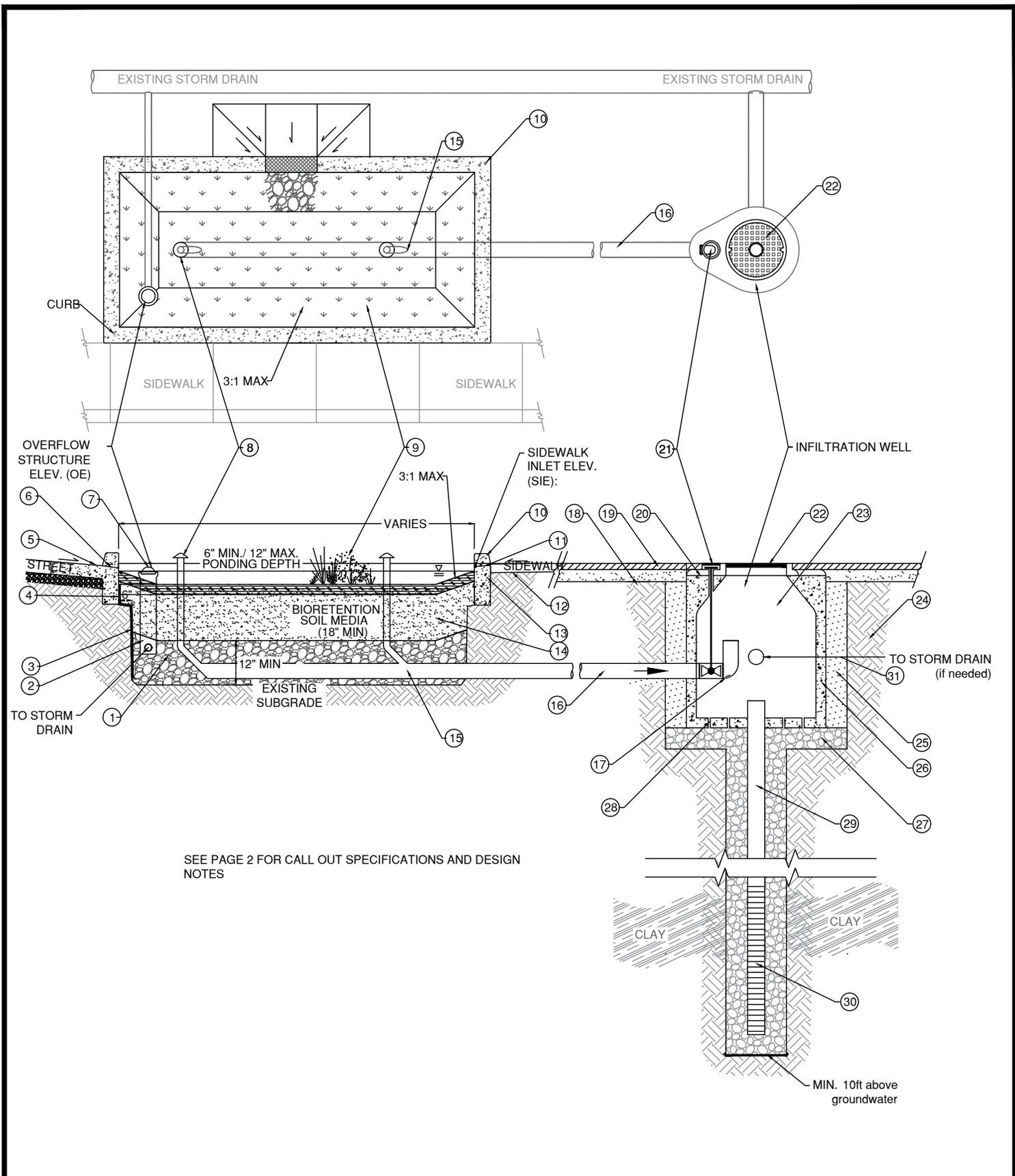
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SW-26

SHEET 5 OF 6



SEE PAGE 2 FOR CALL OUT SPECIFICATIONS AND DESIGN NOTES

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS

  <p>DEVELOPED UNDER PROP. 84 GRANT</p>	APPROVED BY:	DRYWELL STORMWATER BMP	STANDARD PLAN NO. SW-27
	VERSION: 08/31/2017		USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION

SPECIFICATIONS

1. 12" DEEP OPEN GRADED WASHED STONE (TYPICALLY 3/4" TO 1-1/2" (ASTM #4 STONE) OR 1" TO 2" (ASTM #3 STONE).
2. BRIDGING LAYER(S) PER LIDI BIORETENTION TECHNICAL SPECIFICATIONS (BTS). DO NOT USE FILTER FABRIC BETWEEN BSM AND AGGREGATE. DO NOT USE FILTER FABRIC BETWEEN BIOFILTER SOIL MATERIAL (BSM) AND AGGREGATE.
3. 30 ML LINER MAY BE REQUIRED TO AVOID LATERAL INFILTRATION BELOW STREET; SUBJECT TO GEOTECHNICAL RECOMMENDATIONS.
4. MAINTAIN 6" MINIMUM BENCH OF NATIVE SOIL FOR SUPPORT OF ADJACENT SIDEWALK/ROAD (TYPICAL).
5. CURB AND GUTTER DETAIL SW-12.
6. CURB INLET DETAIL SW-17, GUTTER INLET ELEV (GIE). LOCATE ENERGY DISSIPATION COBBLE PADS AS SPECIFIED IN INLET DETAILS.
7. OVERFLOW STRUCTURE REQUIRED FOR IN-LINE SYSTEMS WITHOUT OVERFLOW BYPASS, DETAIL SW-22, SW-22A, and SW-23.
8. MAINTENANCE PIPES - 4" MIN. DIA. VERTICAL PVC PIPES CONNECTED TO UNDERDRAIN. PLACED AT START AND 3 FEET BEFORE END OF UNDERDRAIN. REQUIRES DIRECTIONAL SWEEP BEND. THREADED AND CAPPED
9. VEGETATION - PLANT SELECTION AND MULCH (OPTIONAL) PER BIORETENTION TECHNICAL SPECIFICATIONS.
10. 4" MIN. EXPOSED WALL HEIGHT
11. SIDEWALK DRAINAGE NOTCH 1" LOWER THAN SIDEWALK, SLOPED TO FACILITY
12. SEE PLANS FOR SIDEWALK RESTORATION
13. DEEP CURB DETAIL SW-13
14. BIORETENTION SOIL MEDIA (BSM). SPECIFICATION PER BIORETENTION TECHNICAL SPECIFICATIONS (BTS). SPECIFICATION SHOULD AVOID COMPOST OR OTHER MATERIAL KNOWN TO LEACH NUTRIENTS.
15. UNDERDRAIN, MIN. 4" DIA. PVC SDR 35 PERFORATED PIPE OR LARGER AS NEEDED TO CONVEY PEAK TREATED FLOWRATE WITH MINIMAL HEAD LOSS, SEE CONSTRUCTION NOTES.
16. 8" INLET PIPE OR OTHER.
17. LOW FLOW ORIFICE. (SEE DESIGN NOTE 11).
18. STABILIZED BACKFILL - TWO-SACK SLURRY MIX.
19. SIDEWALK PER MUNICIPAL STANDARDS.
20. COMPACTED BASE MATERIAL.
21. ACCESS HATCH WITH SHUT OF VALVE SWITCH. CONNECTED TO SHUT OF VALVE IN INLET PIPE.
22. MAINTENANCE HOLE COS TYPE 204-204 MH A OR B. 3/4" I.D. MIN OBSERVATION PORT.
23. MANHOLE CONE - MODIFIED FLAT BOTTOM.
24. EXISTING SOILS. (SEE CONSTRUCTION NOTE 4, 8).
25. COMPACTED BACKFILL
26. PRE-CAST OR INSITU CAST CONTROL VAULT (SEE DESIGN NOTE 8)
27. ROCK - WASHED, SIZED BETWEEN 3/8" AND 1-1/2"
28. PERFORATED BASE OF CONTROL VAULT
29. DRILLED SHAFT WITH 6" WELDED STEEL OR THREADED PVC CASING (SEE DESIGN NOTE 13 & CONSTRUCTION NOTE 7,8)
30. 6 - 8" O.D. WELDED WIRE STAINLESS STEEL WELL SCREEN OR THREADED PVC SLOTTED SCREEN. SCREEN LENGTH + LENGTH + SLOT WIDTH TO BE DETERMINED IN ACCORDANCE WITH LOCAL CONSTRAINTS .I.E. DISTANCE BETWEEN CLAY LAYER AND MIN. 10FT ABOVE SEASONAL HIGH GROUNDWATER LEVEL
31. PVC STORMDRAIN CONNECTOR PIPE. SAME DIAMETER AS INFLOW PIPE TO CONTROL VAULT.

DESIGN NOTES

1. ADDITIONAL DESIGN GUIDANCE FOR BIOFILTRATION SYSTEM PROVIDED IN LIDI BIORETENTION TECHNICAL SPECIFICATIONS (BTS) DOCUMENT.
2. BOTTOM WIDTH - PROVIDE 2 FT MINIMUM FLAT BREGENALL
3. BOTTOM WITH A MAX 3:1 SLOPE FOR SURFACE FINISHING WITHIN BIOFILTRATION SYSTEM
4. IF CALTRANS CLASS 2 PERMEABLE IS NOT AVAILABLE, SUBSTITUTE CLASS 3 PERMEABLE WITH AN OVERLYING 3" DEEP LAYER OF 3/4" (NO. 4) OPEN-GRADED AGGREGATE.
5. PROVIDE SPOT ELEVATIONS AT INLETS ON CIVIL PLANS (FE, OE, GIE, SIE). SEE DETAIL SW-17.
6. EDGE CONDITION WILL VARY FOR NEW AND RETROFIT PROJECTS. CURB, WALL, AND SIDEWALK DETAILS MAY BE MODIFIED FOR PROJECT BY CIVIL AND GEOTECHNICAL ENGINEERS.
7. PROVIDE MONITORING WELL IN EACH FACILITY, PER BIORETENTION TECHNICAL SPECIFICATIONS.
8. LONGITUDINAL SLOPE 6% WITH CHECK DAMS.
9. IF CHECK DAMS ARE NEEDED, SEE CONCRETE CHECK DAM DETAIL SW-18.
10. VARIATIONS IN DRY WELL DESIGN SHOULD BE MADE TO ACCOMMODATE STORAGE VOLUME DESIGN AND TO SUIT LOCAL CONDITIONS AND CONSTRAINTS.
11. IN AREAS WITHOUT A STORMDRAIN, THE SYSTEM SHOULD ONLY BE CONSTRUCTED WHERE THE MAINTENANCE HOLE SURFACE INVERT IS ABOVE THE BIOFILTER OVERFLOW ELEVATION.
12. ALTERNATIVE VAULT LOCATIONS POSSIBLE INCLUDING WITHIN THE BIOFILTER FOOTPRINT.
13. VALVE CAN BE MOVED TO THE BIOFILTER IF DESIRED. REQUIRES STRUCTURAL SUPPORT.
14. ALTERNATIVE PRODUCTS SUCH AS VENDOR-SUPPLIED DRY WELL PRODUCTS MAY BE USED AS A SUBSTITUTE PROVIDED THAT THE ALTERNATIVE PRODUCT IS EQUAL.
15. THIS DESIGN IS LIKELY TO QUALIFY AS A CLASS V WELL SUBJECT TO REGISTRATION WITH THE USEPA.

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS

  <p>DEVELOPED UNDER PROP. 84 GRANT</p>	<p>APPROVED BY:</p>	<p>DRYWELL STORMWATER BMP</p>	<p>STANDARD PLAN NO.</p>
	<p>VERSION:</p> <p>08/31/2017</p>		<p>SW-27</p>
<p>USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORK CONSTRUCTION</p>		<p>SHEET 2 OF 2</p>	

**Low Impact Development Initiative (LIDI)
Bioretention Technical Specifications**

The following technical information is for use in conjunction with the complete set of bioretention area standard details developed by the LIDI for use in the Central Coast region and throughout California. Central Coast region-specific requirements are noted where applicable.

Facility Design/Dimensions

- Bioretention facilities should be sized to retain and/or treat the water quality design flow and/or volume in accordance with the stormwater permit requirements that apply to the local jurisdiction and appropriate local, countywide, and/or statewide (CASQA) guidance documents. Design parameters specified in stormwater permits will determine the surface area and storage volume required within the facility.
- Bottom width – facilities should have flat bottoms and sufficient width for ease of constructability and maintenance.
 - Provide 2’ wide minimum for facilities with side slopes and planters (facilities with vertical side walls).
- Allowable standing water duration – generally 48 to 72 hours
 Allowable ponding time is typically associated with mosquito vector control or perceived nuisance flooding and varies by location.
- Ponding depth - Min. 6", max. 12". The depth is measured from the surface of the bioretention soil media and not adjusted for application of mulch.
- Planter depth – (from adjacent pedestrian walking surface to facility finished elevation/planting surface) is based on desired ponding plus freeboard, but also relates to planter width. Planters can be deeper if they are wider, and need to be shallower as they narrow. This is a pedestrian perception and safety issue. Some recommended width to depth guidelines are as follows (allowable depths and appropriate edge treatments may be specified by the local jurisdiction and may be determined by ADA requirements):

PLANTER WIDTH	MAX. PLANTER DEPTH
> 5’	16”
4’ – 5’	12”
3’ – 4’	10”
2’ – 3’	8”

- Slope/grades
 - Side slope - 4:1 preferred
 - Max. 3:1 allowed with min. 12" wide shoulder (2% slope toward facility) adjacent to pedestrian use or curb.
 - Longitudinal slope – Facility should be relatively flat (i.e., maximum of 2% longitudinal slope of bottom) so that water ponds and infiltrates evenly across the facility surface.
 - If installed on a slope, facilities should be terraced and separated by check dams and weir overflows to provide flat-bottomed cells with proper storage and infiltration.
 - Installation not recommended on slopes > 8%.
 - Grades on opposite sides within a facility should be similar to optimize ponding across the entire basin/cell.

Hard Infrastructure

- Inlet curb cut design selection should be based on application considerations:
 - Sloped sided or planter facility
 - Curb and gutter adjacent to facility or separated by pedestrian sidewalk
- Curb cut width – 12"-18" minimum, with rounded edges, depress gutter 2" at opening (see SW-14, SW-15, SW-16)
- Sidewalk edge type selection should be based on application considerations:
 - New or retrofit
 - Sloped sided or planter box
- Sidewalk wall - planter box requires 4" min. height wall adjacent to sidewalk for pedestrian safety.
- Sidewalk wall drainage notch – when sidewalk drains to planter, provide 4"-6" wide notch openings in wall, opening 1" below sidewalk, slope to facility. Space openings to convey flows.
 - Provide minimum 2" cover between notch and structural dowels in curbs/walls.
- Energy dissipation – provide aggregate or concrete splash pads at inlets per inlet details.
 - For aggregate: 6" depth, 3" – 6" rounded, washed cobble
 - For sloped sided facilities where inlet flow velocity is high, extend cobble into facility, but avoid excessive or decorative use.
- Where impermeable liner is included between facility and adjacent

infrastructure (street, parking lot), use 30 ML HDPE or PVC material, see Impermeable Liner detail.

- Check dams – provide for facilities installed on slope
 - Per check dam details SW-17 and SW-18
 - Check dams should be placed for every 4-6” of elevation change and so that the top of each dam is at least as high as the toe of the next upstream dam.
- Overflow structure – required for on-line systems without an overflow bypass
 - Per overflow structure details SW-19, SW-20
 - Connect to approved discharge point or another downstream bioretention area.
- Provide observation well in facility if required
 - Upright 6 inch rigid PVC (SDR 40 or equivalent) pipe, perforated for the section extending through the depth of the bioretention soil media (and aggregate layer if included), extending 6 inches above the top of soil elevation, with a threaded cap.
 - Locate to avoid damage from maintenance activities.

Facility Media (soil, aggregate, mulch)

- Aggregate layer – where an aggregate layer is included in the design (underdrain design or optional use based on project requirements, depth based on sizing calculations), specify “CalTrans Class 2 Permeable.”
 - CalTrans Class 2 Permeable does not require an aggregate filter course between the aggregate storage layer and the bioretention soil media above.
 - When CalTrans Class 2 Permeable is not available, substitute CalTrans Class 3 Permeable.
 - Class 3 Permeable requires an overlying 3” deep layer of ¾” (No. 4) open graded aggregate (between Class 3 and bioretention soil media above).
 - Filter fabric - do NOT use fabric between bioretention soil media and aggregate layer
- Bioretention soil media (BSM) - use local jurisdiction approved/recommended BSM (e.g. Bay Area Stormwater Management Agencies Association (BASMAA) Regional Biotreatment Soil Specification (revised January 29, 2016)¹.

1

[http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/stormwater/MRP/provisionC.3/Revised_%20Biotreatment%](http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/stormwater/MRP/provisionC.3/Revised_%20Biotreatment%20Soil%20Specification.pdf)

- Using a performance specification for alternative bioretention soil mix is not recommended (but may be allowed by the local jurisdiction).
- A pre-mixed bioretention soil media is preferable to mixing soil on-site.
- BSM depth – 18” minimum depth; 24” recommended, or as required by the local jurisdiction. 24” depth required in the Central Coast Region for facilities with underdrains.
 - Where trees are specified, increase BSM depth in tree planting locations, per arborist’s or landscape architects direction, or allow trees access to sufficient volume of native soil.
 - Tree planting in bioretention - see BASMAA Literature Review - Bioretention Design for Tree Health (September 15, 2016)²
- Bioretention soil media placement and compaction – place BSM in 6” lifts. Compact each lift with a landscape roller or by lightly wetting. Allow BSM to dry overnight before planting.
- Mulch depth – 2” – 3” (3” recommended and required by State Model Water Efficiency Landscape Ordinance)
 - Do not apply mulch in ponding zone just prior to or during rainy season.
 - When mulch is used, excavation must allow for specified bioretention soil depth to achieve finished elevations as shown on civil plans
- Mulch type - when used in ponding zone, must be aged, stabilized, non-floating mulch, such as a specified composted wood mulch. Gravel mulch may also be used when high flow velocities through the system are expected.

Landscape (planting and irrigation)

- Irrigation - Provide irrigation for plant establishment (2-3 years), and supplemental irrigation during periods of prolonged drought.
 - Provide separate zone for connection to water supply
- Planting - see LIDI plant guidance for bioretention areas technical assistance memo (TAM) or use bioretention plant list in other local or countywide guidance document.
 - Landscape Architects who have not previously designed bioretention systems should use plants from the LIDI TAM or other approved plant list. Landscape Architects with experience designing for bioretention may use additional plant species consistent with the above lists and

²20_Soil.pdf
www.basmaa.org

appropriate for the facility design and local conditions.

- Do not locate plants at inlets. Consider mature growth to determine planting layout and avoid future blockage of inlets by plants.
- Trees located on slopes should be 5' minimum from inlets to avoid erosion of soil at root ball.

Underdrain Design

- Aggregate layer depth – 12" minimum depth.
- Underdrain – use 4" diameter, PVC SDR 35 perforated pipe.
 - Install underdrain with holes facing down.
 - Underdrain discharge elevation should be near top of aggregate layer if facility is allowed to infiltrate into native soil.
 - Underdrain slope may be flat or have a slight slope.
 - Connect underdrain to approved discharge point.
 - Provide capped, threaded PVC cleanout for underdrain, 4" min. dia. with sweep bend.
 - Do NOT wrap underdrain with filter fabric.



SAN FRANCISCO
stormwatermanagementrequirements
and design guidelines

Access Appendix B via: <https://www.sfwater.org/Modules/ShowDocument.aspx?documentID=9101>

**Appendix D. Sizing Requirements for Green Infrastructure
Facilities**

Guidance for Sizing Green Infrastructure Facilities in Street Projects



Prepared by
Dan Cloak Environmental Consulting
EOA, Inc.

Introduction and Regulatory Background

Provision C.3.j. in the reissued Municipal Regional Stormwater Permit¹ (MRP) requires each Permittee to “complete and implement a Green Infrastructure (GI) Plan for the inclusion of low impact development drainage design into storm drain infrastructure on public and private lands, including streets, roads, storm drains, parking lots, building roofs, and other storm drain infrastructure elements.”

Provision C.3.j.i.(g) further mandates that these plans include:

Requirements that projects be designed to meet the treatment and hydromodification sizing requirements in Provisions C.3.c. and C.3.d. For street projects not subject to Provision C.3.b.ii. (i.e., non-Regulated Projects) Permittees may collectively propose a single approach with their Green Infrastructure Plans for how to proceed should project constraints preclude fully meeting the C.3.d. sizing requirements. The single approach can include different options to address specific issues or scenarios. That is, the approach shall identify the specific constraints that would preclude meeting the sizing requirements and the design approach(es) to take in that situation. The approach should also consider whether a broad effort to incorporate hydromodification controls into green infrastructure, even where not otherwise required, could significantly improve creek health and whether such implementation may be appropriate, plus all other information as appropriate (e.g., how to account for load reduction for the PCBs or mercury TMDLs).

This document represents the “single approach” collectively proposed by the Permittees for how to proceed when constraints on GI projects affect facility sizing in street projects. For other types of projects, information on hydraulic sizing is provided in the technical guidance manuals for Provision C.3 developed by each countywide stormwater program.

Hydraulic Sizing Requirements

MRP Provision C.3.d contains criteria for sizing stormwater treatment facilities. Facilities may be sized on the basis of flow, volume, or a combination of flow and volume. With adoption of the 2009 MRP, a third option for sizing stormwater treatment facilities was added to Provision C.3.d. This option states that “treatment systems that use a combination of flow and volume capacity shall be sized to treat at least 80 percent of the total runoff over the life of the project, using local rainfall data.”

This option can also be used to develop sizing factors for facilities with a standard cross-section (i.e., where the volume available to detain runoff is proportional to facility surface area). To calculate sizing factors, inflows, storage, infiltration to groundwater, underdrain discharge, and overflows are tracked for each time-step during a long-term simulation. The continuous simulation is repeated, with variations in the treatment surface area, to determine the minimum area required for the facility to capture and treat 80% of the inflow during the simulation.

¹ Order R2-2015-0049

Such an analysis was conducted for BASMAA by Dubin Environmental Consulting and is described in the attached Technical Report. The analysis shows that bioretention facilities with the current-standard cross-section can capture and treat the Provision C.3.d amount of runoff when sized to 1.5% - 3% of tributary equivalent impervious area, depending on location.

Hydromodification Management

A principal objective of LID is to mimic natural hydrology in the post-development condition. This is accomplished by retaining and infiltrating runoff flows during small to medium events. Flows from larger events are detained and slowed.

MRP Provision C.3.g. includes requirements and criteria for implementing hydromodification management (HM). These HM requirements apply to Regulated Projects that create or replace an acre or more of impervious area, increase the amount of impervious area over the pre-project condition, and flow to creeks that are at risk of erosion. As such, the HM requirements do not apply to street projects that retrofit drainage systems that receive runoff from existing roofs and paving.

However, Provision C.3.j.i.(g) states that the Permittees' approach to sizing GI facilities "...should also consider whether a broad effort to incorporate hydromodification controls into green infrastructure, even where not otherwise required, could significantly improve creek health and whether such implementation may be appropriate..."

Various criteria for HM design have been used in California and throughout the U.S. These criteria have been based on one or more of the following principles:

- Maintaining watershed processes
- Maintaining a site-specific water balance
- Maintaining the value of the curve number used in the NRCS method of computing peak runoff
- Controlling increases in peak flows from a specified storm size
- Controlling increases in the duration of flows at each intensity within a specified range (flow duration control)
- Controlling the likelihood of downstream erosion in streams (erosion potential, or Ep)

Generally, for any HM criterion used, facilities with more storage and a larger infiltrative area will be more effective in meeting the criterion than facilities with less storage and a smaller infiltrative area.

In the statewide municipal stormwater NPDES permit for small MS4s, Provision E.12.f. includes the following HM standard applicable to Bay Area small MS4s: "Post-project runoff shall not exceed estimated pre-project flow rate for the 2-year, 24-hour storm..."

Dubin (2014) conducted modeling to evaluate whether this standard would be met in the San Francisco Phase II counties (Marin, Sonoma, Napa, and Solano) by a bioretention facility meeting the minimum requirements in that permit's Provision

E.12.f. Dubin's analysis found that a facility sized to 4% of tributary equivalent impervious area, and having a 6-inch deep reservoir with 2 inches of freeboard, 18 inches of treatment soil, and a 12-inch-deep "dead storage" gravel layer below the underdrain, would meet this standard, even in the wettest portions of the Bay Area.

Additional Considerations for Bioretention Sizing

In summary, bioretention facilities for street projects sized to 1.5% - 3% of tributary equivalent impervious area (depending on their location in the Bay Area) can meet the criteria in Provision C.3.d., according to the modeling study documented in the attached Technical Memo.

There are many reasons to design and build facilities larger than the Provision C.3.d. minimum. Building larger facilities helps ensure the facilities perform to the minimum hydraulic capacity intended, despite minor flaws in design, construction, and maintenance, providing an engineering safety factor for the project. Further, larger-sized facilities may more effectively address objectives to maximize the removal of pollutants (particularly pollutants in dissolved form), to operate as full trash capture devices, and to manage hydromodification effects.

However, municipalities often face considerable challenges in retrofitting existing streetscapes with GI facilities. Constraints and design challenges typically encountered in the public right-of-way include:

- The presence of existing underground utilities (known and unknown during the design phase);
- The presence of existing above-ground fixtures such as street lights, fire hydrants, utility boxes, etc.;
- The presence of existing mature trees and root systems;
- The elevation of or lack of existing storm drains in the area to which to connect underdrains or overflow structures;
- Challenges of defining and controlling any catchment areas on adjacent private parcels that drain to the roadway surface;
- Low soil permeability and strength, and the need to protect the adjacent roadway structure;
- Competition with other assets & uses for limited right-of-way area; and
- Presence of archeologic/cultural deposits.

Use of the sizing factors in the attached Technical Memo will provide municipalities flexibility in design of bioretention facilities for street projects where constraints are present.

Recommendations for Sizing Approaches for Green Infrastructure Retrofit Facilities in Street Projects

1. Bioretention facilities in street projects should be sized as large as feasible and meet the C.3.d criteria where possible. Constraints in the public right-of-way may affect the size of these facilities and warrant the use of smaller sizing factors.

Bioretention facilities in street projects may use the sizing curves in the attached memorandum to meet the C.3.d criteria. Local municipal staff involved with other assets in the public right of way should be consulted to provide further guidance to design teams as early in the process as possible.

2. Bioretention facilities in street projects smaller than what would be required to meet the Provision C.3.d criteria may be appropriate in some circumstances. As an example, it might be appropriate to construct a bioretention facility where a small proportion of runoff is diverted from a larger runoff stream. Where feasible, such facilities can be designed as “off-line” facilities, where the bypassed runoff is not treated or is treated in a different facility further downstream. In these cases, the proportion of total runoff captured and treated should be estimated using the results of the attached memorandum. In cases where “in-line” bioretention systems cannot meet the C.3.d criteria, the facilities should incorporate erosion control as needed to protect the facility from high flows. See Figures 1 and 2 below for illustration of the in-line and off-line concepts.
3. Pollutant reduction achieved by GI facilities in street projects will be estimated in accordance with the Interim Accounting Methodologyⁱ or the applicable Reasonable Assurance Analysisⁱⁱ.



Figure 1: Off-line system in El Cerrito where low flow is diverted to the sidewalk planter and high flows continue down the gutter.



Figure 2: In-line system in Berkeley/Albany where low and high flows enter the system and overflows exit through a drain within the system.

ⁱ The Interim Accounting Methodology for TMDL Loads Reduced Report (BASMAA 2017) describes the methodology that is being used to demonstrate progress towards achieving the PCB and mercury load reductions required during the term of MRP 2.0. The methodology is based on the conversion of land use from a higher to a lower PCB or mercury loading rate during the redevelopment of a parcel. See:

[www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/stormwater/Municipal/POC/Final%20Interim%20Accounting%20Methodology%20Report%20v.1.1%20\(Revised%20March%202017\).pdf](http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/stormwater/Municipal/POC/Final%20Interim%20Accounting%20Methodology%20Report%20v.1.1%20(Revised%20March%202017).pdf)

ⁱⁱ A Reasonable Assurance Analysis (RAA) is a methodology used to demonstrate that implementation of pollutant control measures (such as GI facilities) over a specified time period will meet required pollutant load reductions associated with a TMDL. The Bay Area Reasonable Assurance Analysis Guidance Document (BASMAA 2017) establishes a regional framework and provides guidance for conducting PCBs and mercury RAAs in the San Francisco Bay Area. See: <http://basmaa.org/Announcements/bay-area-reasonable-assurance-analysis-guidance-document>

Appendix E. Funding Matrix and Potential Opportunities

Green Infrastructure Funding Matrix

June 2019

Summary Matrix Contents

Traditional Mechanisms

- 7.2.1 Parcel Taxes
- 7.2.1 Other Special Taxes
- 7.2.1 Property-Related Fees
- 7.2.1 General Obligation Bonds
- 7.2.1 Senate Bill 231
- 7.2.1 Regulatory Fees
- 7.2.1 Developer Impact Fees
- 7.2.1 Re-Alignment
- 7.2.1 Grants
- 7.2.1 Loans

Special Financing Districts

- 7.2.2 Benefit Assessments
- 7.2.2 Community Facilities District
- 7.2.2 Business Improvement Districts
- 7.2.2 Enhanced Infrastructure Financing Districts (EIFD)

Alternative Compliance

- 7.2.3 Alternative Compliance
- 7.2.3 In-Lieu Fee
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- 7.2.4 Multi-Agency
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- 7.2.4 Public-Private ("P3")
- 7.2.4 Financial Capability Assessment
- 7.2.4 Not-for-Profit & Volunteers

Funding Category		GI Nexus	Requirements	Pros	Cons	Staff	Planning	Capital	O&M
Traditional Mechanisms									
7.2.1	Parcel Taxes	Can fund all or any parts of a GI program as stipulated in the ballot question and authorizing ordinance	Usually a 2/3 majority of voters (general taxes require only 50% majority, but can only go to General Fund)	<ul style="list-style-type: none"> * Flexible and legally stout; * Debt can be issued in most cases; * Most voters are familiar with Parcel Taxes 	<ul style="list-style-type: none"> * Requires voter approval at the 2/3 level; * Must compete with other ballot measures 	X	X	X	X
7.2.1	Other Special Taxes	<ul style="list-style-type: none"> * Business License Tax; * Vehicle License Fees; * Sales Tax; * Utility Users Tax; * Transit Occupancy Tax 	Typically require a 2/3 voter approval	<ul style="list-style-type: none"> * Most are flexible in how they can be used; * 50% threshold can be used if a general tax; 	<ul style="list-style-type: none"> * 2/3 voter approval is difficult to attain; * Ballot measure can be expensive; * If a general tax, then GI must compete with other General Fund needs; * Must compete with other ballot questions 	X	X	X	X
7.2.1	Property-Related Fees	Establishes Storm Drainage as a separate utility service and can fund all or any parts of a GI program	Prop 218 compliance; <ul style="list-style-type: none"> * Rigorous rate study; * Must define services and service area; * Property owners approval for non-Water, -Sewer, and -Garbage 	<ul style="list-style-type: none"> * Flexible and legally stout; * Debt can be issued in most cases 	<ul style="list-style-type: none"> * Ballot measure required if for a Storm Drain service - usually voted on by property owners (Not registered voters); * Ballot measure requires significant public outreach; * Public not familiar with balloted property-related fees 	X	X	X	X
7.2.1	General Obligation Bonds	Can fund Capital GI Projects through debt taken on by municipality	<ul style="list-style-type: none"> * Voter approval at 2/3 level; * Will need Financial Advising Consultant 	<ul style="list-style-type: none"> * Can fund capital projects or programs with debt paid back over time through property taxes; * Typically easier to pass than a parcel tax; * Taxes based on property value, so annual obligation of individual prop owner is vague 	Can only be used for capital costs - Cannot be used for O&M or staff costs		X	X	

Funding Category		GI Nexus	Requirements	Pros	Cons	Staff	Planning	Capital	O&M
7.2.1	Senate Bill 231	Allows for adoption of property-related fees without having to go to ballot	<ul style="list-style-type: none"> * Cost of Service Analysis * Rate Study * Prop 218 Protest Hearing 	Avoids the cost and risk of a ballot measure	<ul style="list-style-type: none"> * Taxpayers groups vow to sue on grounds of constitution / court provisions * Governing boards will still have political pressure to not raise rates 	X	X	X	X
7.2.1	Regulatory Fees	Fees and charges for performing administrative activities related to GI	Cannot exceed the actual cost of performing activities such as permit issuance, inspections, on-site mitigation, etc.	<ul style="list-style-type: none"> * No voter approval is needed; * Usually included in Master Fee Schedule; * Most municipalities already have these in place 	Does not pay for capital improvements or O&M	X			
7.2.1	Developer Impact Fees	Could incorporate fees for mitigating stormwater impacts to help fund GI - Would not relieve developer of NPDES requirements	Must comply with AB 1600 and include a rigorous nexus study	Could partially fund GI	<ul style="list-style-type: none"> * Requires a nexus study, often times by a consultant; * Nexus study must demonstrate connection between development and GI need; * Administration of funds requires resources; * AB 1600 requires 5-year window for programming funds; 		X	X	
7.2.1	Re-Alignment	GI that promotes groundwater recharge, diversion to wastewater treatment, or trash capture can be incorporated into existing property-related fee structures without need for ballot measure	Prop 218 compliance for realignment to Water, Sewer or Garbage - must demonstrate applicability	<ul style="list-style-type: none"> * Existing non-balloted fee mechanisms can help pay for GI services; * Enhances integration of GI into other municipal activities; * Causes other utilities to recognize the value of GI programs 	<ul style="list-style-type: none"> * Limited to activities attributable to other funded revenue centers; * Prop 218 hawks could challenge; * Outside revenue center will need to raise rates to fund GI activity - politically unpopular; * Has not been widely used; * May be unpopular with Water, Sewer and Garbage managers; * Water or sewer may be handled by separate agencies, making realignment impossible 	X	X	X	X

Funding Category		GI Nexus	Requirements	Pros	Cons	Staff	Planning	Capital	O&M
7.2.1	Grants	One-time infusion of funds for qualifying projects from State or other granting authority	<ul style="list-style-type: none"> * Project concept must conform to grant requirements; * Most grants are competitive with limit funding available 	<ul style="list-style-type: none"> * Grants are outside sources of funding that do not need to be repaid; * Readiness is a plus, so can benefit a project or program that is well developed and possibly designed; * Some State Revolving Fund loans can be converted to grants through forgiveness clauses 	<ul style="list-style-type: none"> * Projects must be tailored to grant requirements, possibly causing scope and schedule creep; * Most grants require matching funds from other sources; * Most grants require commitment to post-project O&M, but do not fund those activities; * Little control over timing - can be difficult to coordinate with other funding sources; * Competitive nature lowers chances of obtaining grant; * Applying for grants can be time-consuming and require outside help from a grant writer; * Grant administration requires significant resources 	X	X	X	???
7.2.1	Loans	Debt instruments can help accelerate project deliver while paying off debt over time	<ul style="list-style-type: none"> * Must have dedicated revenue stream to pay off debt; * Must have adequate credit rating to secure reasonable interest rates; * Some Bonds require voter approval 	<ul style="list-style-type: none"> * Can leverage a modest revenue stream by borrowing money up front for rapid project delivery while paying off debt over longer periods of time; * Accelerates project delivery and makes coordination with other funding or projects easier 	<ul style="list-style-type: none"> * Must have dedicated revenue stream to service debt; * Some debt mechanisms require voter approval (GO Bonds, Revenue Bonds, EIFD Bonds) 	???	X	X	
Special Financing Districts									
7.2.2	Benefit Assessments	Can fund the construction and maintenance of GI projects	<ul style="list-style-type: none"> Prop 218 compliance; * Rigorous Engineer's Report; * Must deduct general benefit from special benefit; * Property owners approval is required through a ballot proceeding (weighted voting); * Works best with new development due to voting requirement 	<ul style="list-style-type: none"> * Flexible and legally stout; * Can fund both construction and maintenance; * Can use bonded indebtedness 	<ul style="list-style-type: none"> * General Benefit must be separated and paid for by other sources; * Votes are weighted by assessment amount, favoring large land owners 		X	X	X

Funding Category	GI Nexus	Requirements	Pros	Cons	Staff	Planning	Capital	O&M	
7.2.2	Community Facilities District	Can fund the construction and maintenance of GI projects	Requires vote by majority of landowners or 2/3 majority of registered voters	<ul style="list-style-type: none"> * Usually formed by developer, so only one ballot is cast; * Very flexible - can fund all aspects; * Subsequent annexation is simple; * Tax rate can be tiered to allow for retirement of debt yet continue with O&M; * Annual administration is more streamline than benefit assessments 	<ul style="list-style-type: none"> * Difficult to form in an existing community due to 2/3 majority requirement; * Known as a Mello-Roos tax - which can have a negative connotation 		X	X	X
7.2.2	Business Improvement Districts	Business and property owners tax themselves to build and maintain GI improvements	Formed by a municipality through a notice and protest hearing process.	<ul style="list-style-type: none"> * Flexible and legally stout; * Can fund both construction and maintenance; * Local improvements can generate local support and involvement * GI improvements can also be amenities; * Can enhance sense of ownership and pride in the neighborhood when results are visible 	<ul style="list-style-type: none"> * Cannot use debt financing; * Opposing businesses can disrupt the progress; * Can burden businesses & property owners so they are unwilling to support other funding measures 		X	X	X
7.2.2	Enhanced Infrastructure Financing Districts (EIFD)	Captures property tax increment similar to redevelopment (RDA) for building and maintaining infrastructure like GI	<p><u>With No Debt:</u></p> <ul style="list-style-type: none"> * Establish a Public Finance Authority; * Adopt a Financing Plan; * Resolution(s) from participating agencies <p><u>With Debt:</u></p> <ul style="list-style-type: none"> * All of the above; * Get approval from at least 55% of voters in District 	<ul style="list-style-type: none"> * Can fund many types of projects; * Does not require a vote (unless debt is part of the plan, then a 55% majority is required); * Can include multiple municipalities and special districts, so area can be tailored to needs (e.g. watersheds, high legacy pollutant areas, countywide); * Does not require a blight finding; * Can overlap with former RDA areas; * Works well with master planned community with a single land owner; * Planning costs can be paid for from proceeds (with limitations); * EIFD can go for up to 45 years 	<ul style="list-style-type: none"> * Cannot be used for operations, maintenance and repairs; * Education districts are not permitted to participate, so revenues would be much less than RDA; * If overlapping a former RDA area, then cannot proceed until RDA is issued a finding of completion from the State; * GI is only a small piece of what an EIFD can do - it may take a back seat to other, larger community concerns; * Some agencies (i.e. special districts) may not agree to their portion of tax increment to be diverted thereby reducing revenue potential 	???	X	X	

Funding Category	GI Nexus	Requirements	Pros	Cons	Staff	Planning	Capital	O&M	
Alternative Compliance									
7.2.3	Alternative Compliance	Allows developers who cannot meeting GI requirements on-site to build (or pay for) off-site construction of GI elements	Municipality would need to have alternative projects ready - could bedone case-by-case	<ul style="list-style-type: none"> * Enables higher density development in certain areas (such as TOD and PDA); * Enables GI in public spaces that private developers would not normally participate in; * Funds can be pooled to finance larger or regional projects that can be more effective; * Post-project O&M can be added in the form of a cash payment or other consideration; * Municipality can be flexible in enforcement to allow hybrid compliance; 	<ul style="list-style-type: none"> * Ad hoc negotiation with developers can be challenging * Agency will need to have off-site or regional projects ready to bring to negotiation 	X	X	X	X
7.2.3	In-Lieu Fee	Allows developers who cannot meet GI requirements to pay into fund that would finance off-site or regional projects	Municipality would need to estimate the costs of of mitigation - could bedone case-by-case	<ul style="list-style-type: none"> * Enables higher density development in certain areas (such as TOD and PDA); * Enables GI in public spaces that private developers would not normally participate in; * Funds can be pooled to finance larger or regional projects that can be more effective; * Municipality can be flexible in enforcement to allow hybrid compliance; * Municipality may consider informal fee process, negotiating each individual developer through COA; * Funds can be leveraged for grants or loans 	<ul style="list-style-type: none"> * Case-by-case approach can be difficult; * Developers will try to evade costs; * May need to comply with AB 1600 	X	X	X	X

Funding Category	GI Nexus	Requirements	Pros	Cons	Staff	Planning	Capital	O&M	
7.2.3	Credit Trading Programs	Creates GI Credit program for developers and others to trade GI responsibilities to others who have better capability to meet GI goals	<p>A municipality (or regional entity) must create credit trading program including:</p> <ul style="list-style-type: none"> * Definition of GI Credits; * Relative Value of Credits; * Timing of responsibilities; * Eligibility 	<ul style="list-style-type: none"> * Allows developers who cannot meet NPDES or GI requirements to buy credits created by other entities; * Encourages developers or other entities who have greater GI capacity to over-build GI in order to sell credits in future; * Present value of future O&M costs can be incorporated into credit value; * Allows for flexibility to guide GI to areas with greater pollutant loading need; * May save developers money 	<ul style="list-style-type: none"> * Very few Programs (to use as an example) have been implemented - particularly in California; * Credits may need to stay within same watershed; * Overbuilding GI in some areas may not help other areas; * Overbuilding GI can lead to overlapping GI zones; * Unclear if developers are willing to overbuild on speculation of future sale of credits; * Unclear how value of credits would be established; * Unclear if municipality would be credit broker, or if developers can deal directly with each other; * May be difficult to apply credits to public rights of way; * Costing future O&M is difficult 		X	X	X
Partnerships									
7.2.4	Multi-Agency	Encourages partnerships with non-Stormwater agencies to explore GI co-benefits in their work	<p>Examples may include:</p> <ul style="list-style-type: none"> * Spreading basins for groundwater agencies; * GI project sites on school grounds; * GI on housing authority sites 	<ul style="list-style-type: none"> * Can generate credits for Credit Trading Program; * Expands GI potential and awareness; * Flexible; * Can leverage limited GI funding to greater benefit 	<ul style="list-style-type: none"> * Not cookie-cutter; requires customization; * May be difficult to find partners 	X	X	X	???
7.2.4	Transportation	Encourages partnerships with transportation agencies to explore GI co-benefits in their work and take advantage of Complete Streets or Green Streets programs	<p>Examples may include:</p> <ul style="list-style-type: none"> * Permeable pavements; * Roadside rain gardens; * Cisterns 	<ul style="list-style-type: none"> * Most municipalities are also transportation agencies, so internal project coordination more likely; * Can generate credits for Credit Trading Program; * Expands GI potential and awareness; * Can leverage limited GI funding to greater benefit; * Recent increase in Gas Tax may make more room for GI elements 	<ul style="list-style-type: none"> * Not cookie-cutter; requires customization; * May be difficult to find partners; * Road condition woes prevail, making it difficult to shift funding to GI and other amenity-type elements; * Transportation grants may preclude using funds for GI 	X	X	X	???

Funding Category	GI Nexus	Requirements	Pros	Cons	Staff	Planning	Capital	O&M	
7.2.4	Caltrans Mitigation	Caltrans looks for opportunities for off-site mitigation of stormwater impacts of their highways	Local municipalities may enter in a cooperative agreement with Caltrans to build GI as a way for them to mitigate stormwater impacts of their highways	<ul style="list-style-type: none"> * Caltrans may furnish funding for local or regional projects that help them meet their obligations; * Locals can propose solutions that benefit both Caltrans and the local agencies 	<ul style="list-style-type: none"> * Caltrans cooperative agreements can be cumbersome and bureaucratic; * Projects that work for Caltrans may be difficult to develop 		X	X	???
7.2.4	Public-Private ("P3")	Private enterprises can provide overall solutions to GI programs through better access to resources and capital	P3 is primarily a deliver system for projects where debt provides near-term funding and project acceleration	<ul style="list-style-type: none"> * Bypasses some of the bureaucracy; * Can make existing funding sources work more efficiently; * Draws on private sector expertise and financing; * Debt may be tax-exempt; * Debt accelerates project delivery; * Can include design, build, finance, operate; * Debt is private - may not affect public agency's debt capacity 	<ul style="list-style-type: none"> * Does not provide additional funding; * Dedicated revenue stream is needed - cash flow is an important element 		X	X	X
7.2.4	Financial Capability Assessment	Can allow an agency to delay compliance with certain NPDES permit requirements	Follow EPA guidelines for application	Allows a qualifying agency to defer compliance with certain Permit compliance requirements	<ul style="list-style-type: none"> * Not a source funding - only can grant time extensions to Permit compliance; * Communities must meet several criteria such as poverty rates, income distributions, bond ratings, etc. 				
7.2.4	Not-for-Profit & Volunteers	Volunteer groups can be a resource for GI operations and maintenance (O&M) as well as program planning	<ul style="list-style-type: none"> * To be effective, volunteers need organization and oversight; * Can be used to supplement paid contractors, or perform entire projects 	<ul style="list-style-type: none"> * "Free" labor; * Some volunteers provide needed expertise; * Increases awareness of GI program; * Some non-profit organizations have ready-made volunteer groups that are trained and organized; * Can build public support for dedicated revenue mechanism such as a fee; * Education program for community 	<ul style="list-style-type: none"> * Requires significant staff resources to recruit, organize, train and plan & supervise the work; * Can be unreliable - hard to build schedule and cost forecasts around volunteer work force; * Can create conflict with prevailing wage requirements; * Difficult to incorporate into project construction work 		X	???	X



City of San Francisco

Contra Costa County Green Infrastructure Plan: Final Update

For the Transportation, Water, & Infrastructure Committee

By John Steere, Watershed Program, CCC PWD

July 18, 2019



City of Seattle

Background/History

- ▶ TWIC reviewed the Contra Costa County Green Infrastructure (GI) Work Plan in October 2016 and received update in July 2018
- ▶ The GI Plan Framework was approved by the Board of Supervisors in June, 2017.

Contra Costa County Green Infrastructure Workplan

Approved on: June 13, 2017

Approved by: Contra Costa County Board of Supervisors

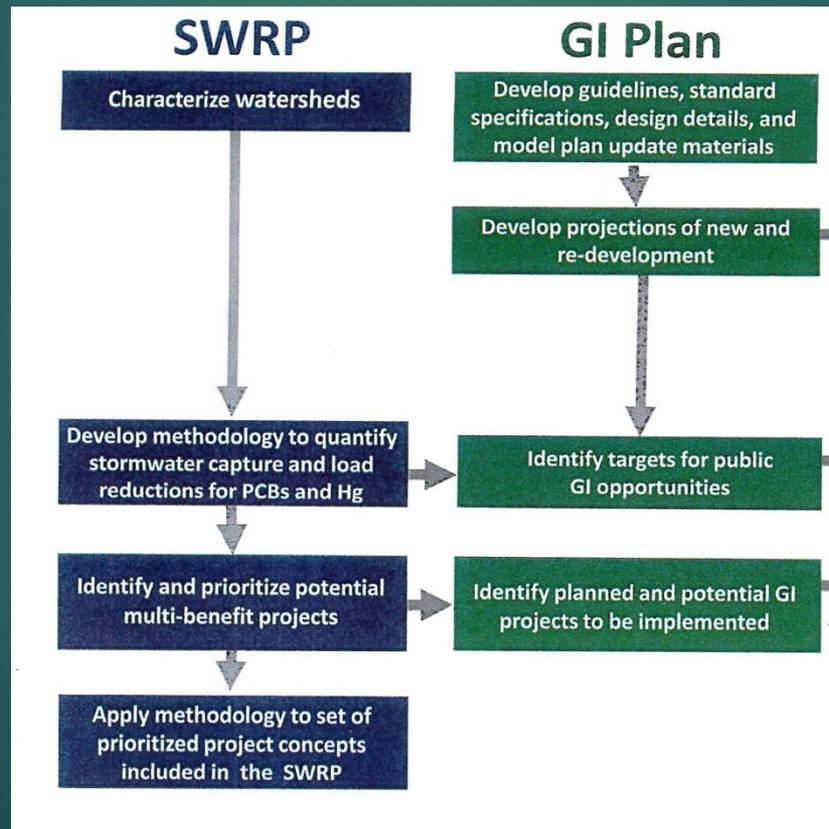
Submitted by:

John Steere/Contra Costa County

Green Infrastructure Plan Technical Advisory Group

GI Plan: Basis in Stormwater Resources Plan

GI plan based on County Stormwater Resources Plan (SWRP), completed in September 2018:



Green Infrastructure: Why so important?

- Green infrastructure is broadly defined as an approach to water management that strives to deliver environmental, social, and economic benefits
- GI measures can take many forms, yet primarily use retention and/or infiltration to achieve water quality flow control benefits.
- GI is an efficient and resilient method to reduce pollutant loads from development runoff.



What is the GI Plan...

- *The Municipal Regional Permit (MRP) requires municipalities to develop long-term plans (30-40 years) to incorporate low impact development measures to treat polluted stormwater.*
- *Provides blueprint for how County will transform drainage system to treat stormwater through *bioretention basins and bioswales*.*
- *Intended to be a “living” document, and become a tracking and implementation tool.*
- *Creates multipurpose project benefits, including: pollutant filtration; reduce localized flooding; and environmental and community enhancements.*



Examples of bioretention



...and permeable pavement

Green Infrastructure Benefits

- Long-term solution to reduce pollution and meet water quality goals
- Sustainable, low-maintenance stormwater treatment option
- Supports protection and restoration of urban creeks and the Bay/Delta

Other potential benefits:

- Neighborhood greening
- Recreation space
- Traffic calming
- Habitat creation
- Heat island mitigation
- Water supply augmentation



Cities across the US are Incorporating GI



Daly City



Fremont



San Francisco



Portland



Seattle



Philadelphia (previous pavement)

Final Draft GI Plan

Green Infrastructure Plan



Unincorporated Contra Costa County



Prepared by Geosyntec Consultants and SCI Consulting Group

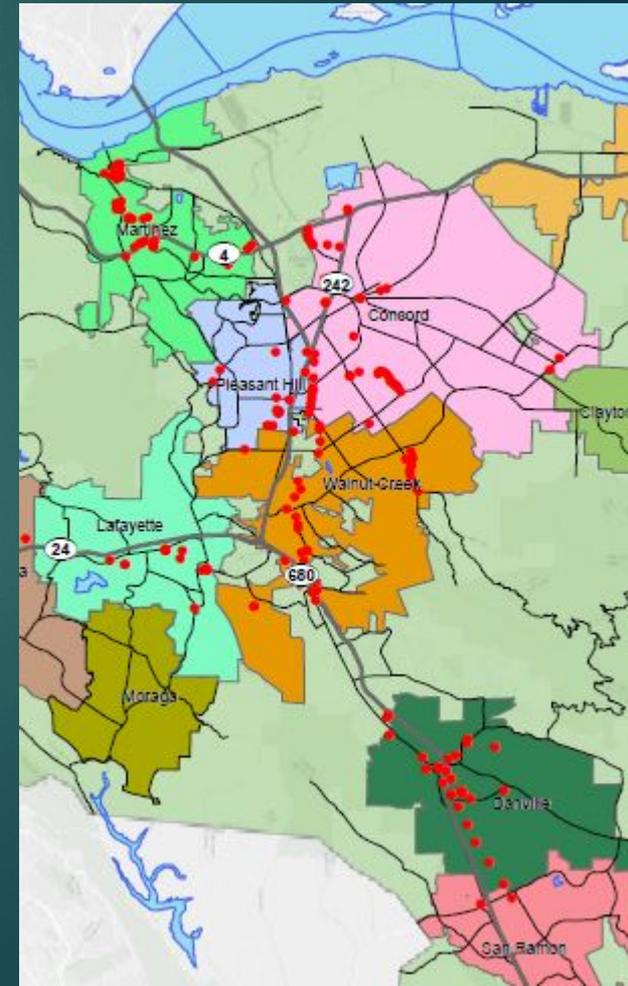
FINAL DRAFT FOR REVIEW – JUNE 2019

GI Plan: Prioritizing Projects

Projects in **SWRP** have been prioritized in **GI Plan** for those that best fulfill:

- 1) Treatment of unincorporated County lands and road right of way contaminated with PCBs, Mercury, and other regulated pollutants
- 2) County-owned properties in County and cities' jurisdictions with "Old Industrial" land use designation
- 3) County-owned properties in County and cities' jurisdictions with "Old Urban" land use use
- 4) County roads in unincorporated areas adjacent to land with "Old Urban" land use designation
- 5) **Emphasis on multi-benefit projects**

*Portion of County-Owned
Parcels within Cities*



Final Draft GI Plan Sections

Eight sections:

1. Introduction and Overview
2. Green Infrastructure Targets
3. Public Project Identification, Prioritization, and Mapping
4. Early Implementation Projects
5. Tracking and Mapping Public and Private Projects Over Time
6. Design Guidelines and Specifications
7. Funding Options
8. Adaptive Management



Determination of Potential Priority GI Locations

- ▶ Storm Water Resource Plan (SWRP) identified approximately 3,800 potential public project locations
- ▶ Initial screening reduced number to 856 locations
- ▶ Screening excluded: new urban/open space; old urban ROW not prioritized in SWRP; low priority locations from SWRP
- ▶ Additional screening using priority categories (e.g. PCBs, old industrial and old urban land uses), resulted in 206 locations
- ▶ *From TAG feedback and further prioritization, 109 locations moved forward to desktop screening*

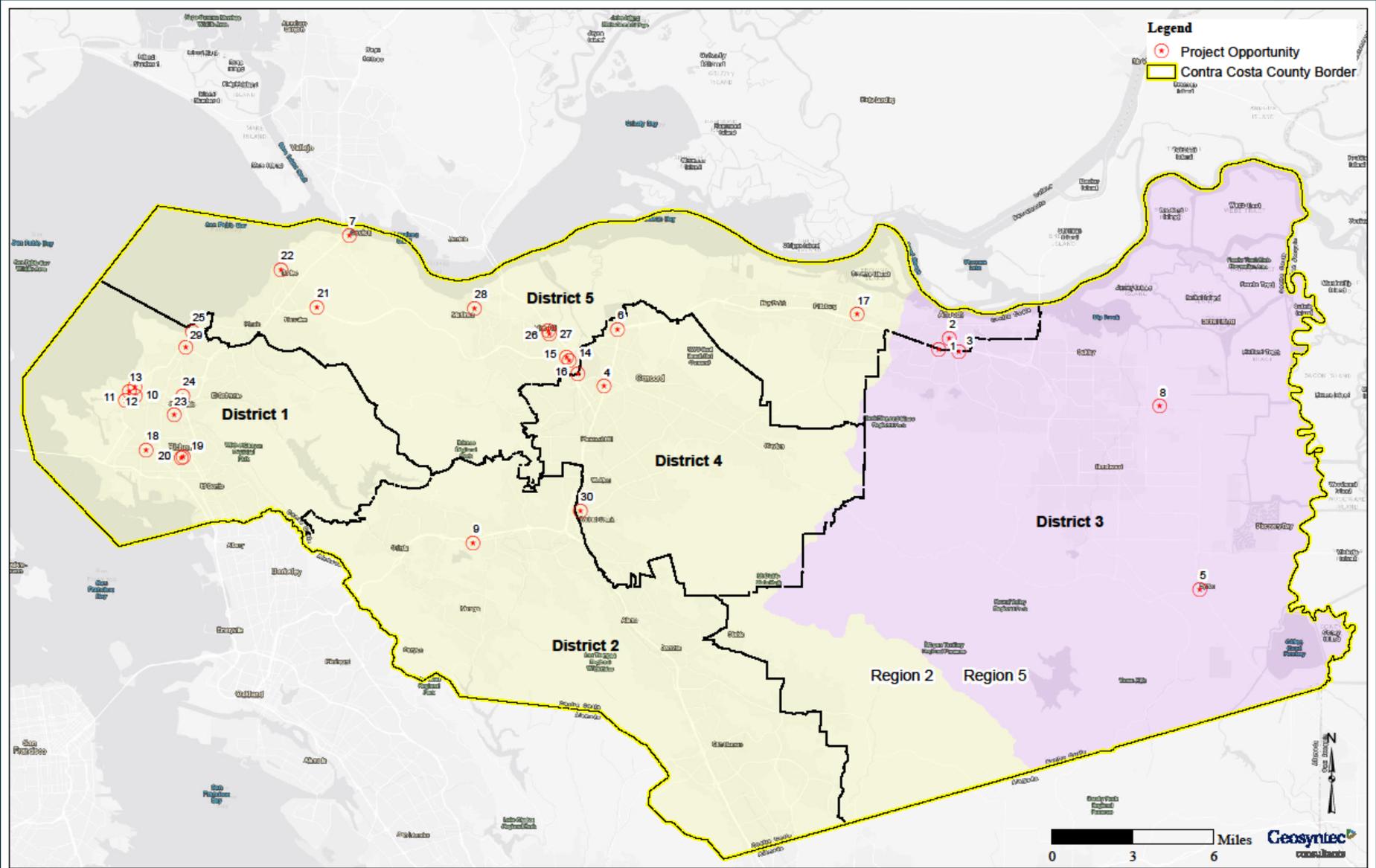
Revised Potential Project Location List

Based on further prioritization from TAG comments, feedback from County staff, desktop feasibility assessments, and selected site visits, *potential project locations reduced to 30 (for 2020-2040).*

Goal: Implement 1 GI project per year (on average) on a County parcel/ROW



Potential Priority GI Projects Locations



Potential Project Location Distribution

- ▶ Locations by BOS District:

- ▶ *District 1*: 11
- ▶ *District 2*: 1
- ▶ *District 3*: 4
- ▶ *District 4*: 4
- ▶ *District 5*: 10



- ▶ Locations by Regional Water Quality Control Board (Regions):

- ▶ Region 2: 26
- ▶ Region 5: 4

Nine GI Funding Strategies

(From Chapter 7 of the County GI Plan)



1. Stormwater Fee
2. Green Benefits District
3. Enhanced Infrastructure Financing District
4. Not-for-Profit Partnerships
5. Community Development Corporation
6. Volunteers
7. Developer Fees, In-Lieu Fees, and Credit Trading Program
8. Mitigation Fees Fund
9. Other Opportunistic Strategies (e.g. agency partnerships)

Next Steps

1. Geosyntec responds to comments and furnishes Final GI Plan by July 19th
2. BOS approval August 6, 2019
3. Submit to Clean Water Program (CWP) by August 30th
4. CWP submits GI Plan to Water Board by September 30th
(as part of Annual Report)





Contra Costa County Board of Supervisors

Subcommittee Report

TRANSPORTATION, WATER & INFRASTRUCTURE COMMITTEE

8.

Meeting Date: 07/18/2019

Subject: ACCEPT report on Authorization of Grant by State Coastal Conservancy for the North Richmond Watershed Connections Project.

Submitted For: Brian M. Balbas, Public Works Director/Chief Engineer

Department: Public Works

Referral No.: 5

Referral Name: Review projects, plans, and legislative matters that may affect the health of the San Francisco Bay, including flood control, water governance, water storage, water quality, supply and reliability.

Presenter: John Steere, Public Works
Department

Contact: John Steere
(925)313-2281

Referral History:

TWIC previously received a report from the County Public Works Department (PWD)—Watershed Program to accept submittal of a Prop 1 grant application for the North Richmond Watershed Connections Project (“Project”) to the State Coastal Conservancy (SCC) on March 13, 2017.

Referral Update:

The PWD—Watershed Program, in partnership with two community-based nonprofits, the Watershed Project and Urban Tilth, submitted a Prop 1 Urban Greening grant proposal in February 2017 to the SCC for the Project. In June 2017, the SCC notified the PWD—Watershed Program that it would award the County a grant of \$884,000 for the Project. The Project will implement a suite of multiple-benefit urban greening projects in the unincorporated community of North Richmond to improve water quality and enhance the health of San Pablo and Wildcat Creeks and their watersheds, while expanding the urban forest, reducing heat islands, and improving this disadvantaged community’s awareness of and safe access to their local natural resources with a 1.75-mile long “Walkable Watersheds” urban trail. See Attachment 1 for a graphic of this urban greening/green infrastructure demonstration project.

The Watershed Connections is comprised of three subprojects and is a collaboration of Contra Costa County Transportation Engineering, the PWD—Watershed Program, and two local nonprofits, including Urban Tilth and the Watershed Project. These subprojects, as shown in Attachment 1 (map/graphic), are:

1. Fred Jackson Way Raingardens — adjacent to the North Richmond Urban Farm (led by Urban Tilth).

2. Fred Jackson Way First Mile/Last Mile Urban Greening, a Green/Complete Streets project (led by PWD—Transportation Engineering).

3. Clean and Green Adopt-a-Tree and “Walkable Watersheds” (led by the Watershed Project), whose features include:

- Increasing the urban canopy by planting 30 street trees in the public right-of-way and 25 trees on private property where no tree opportunity site exists;
- Improve watershed awareness, access and walkability with wayfinding, artwork and interpretive elements along the North Richmond Watershed Connections route, including “jewel boxes” on utility boxes.

The Project grant will be going before the SCC’s Board of Directors on August 22, 2019, for its approval. (See Attachment 2 for the Project Budget by Task/subproject, along with matching funds.) It has been delayed for approval in order to allow for conducting and concluding the environmental review/CEQA requirements for its three subprojects, which have just been completed. In the interim, the Project was awarded the 2018 “Leadership in Sustainability” Award by Sustainable Contra Costa.

Recommendation(s)/Next Step(s):

ACCEPT report from the PWD and REFER the North Richmond Watershed Connections to the Board of Supervisors for their resolution to accept a grant for \$884,000 from the SCC.

Fiscal Impact (if any):

The approval of this grant from the SCC would obligate limited County Watershed Program/PWD staff time to administer it. (This is shown as a \$48,400 and match funding in the Project budget for North Richmond Watershed Connections.)

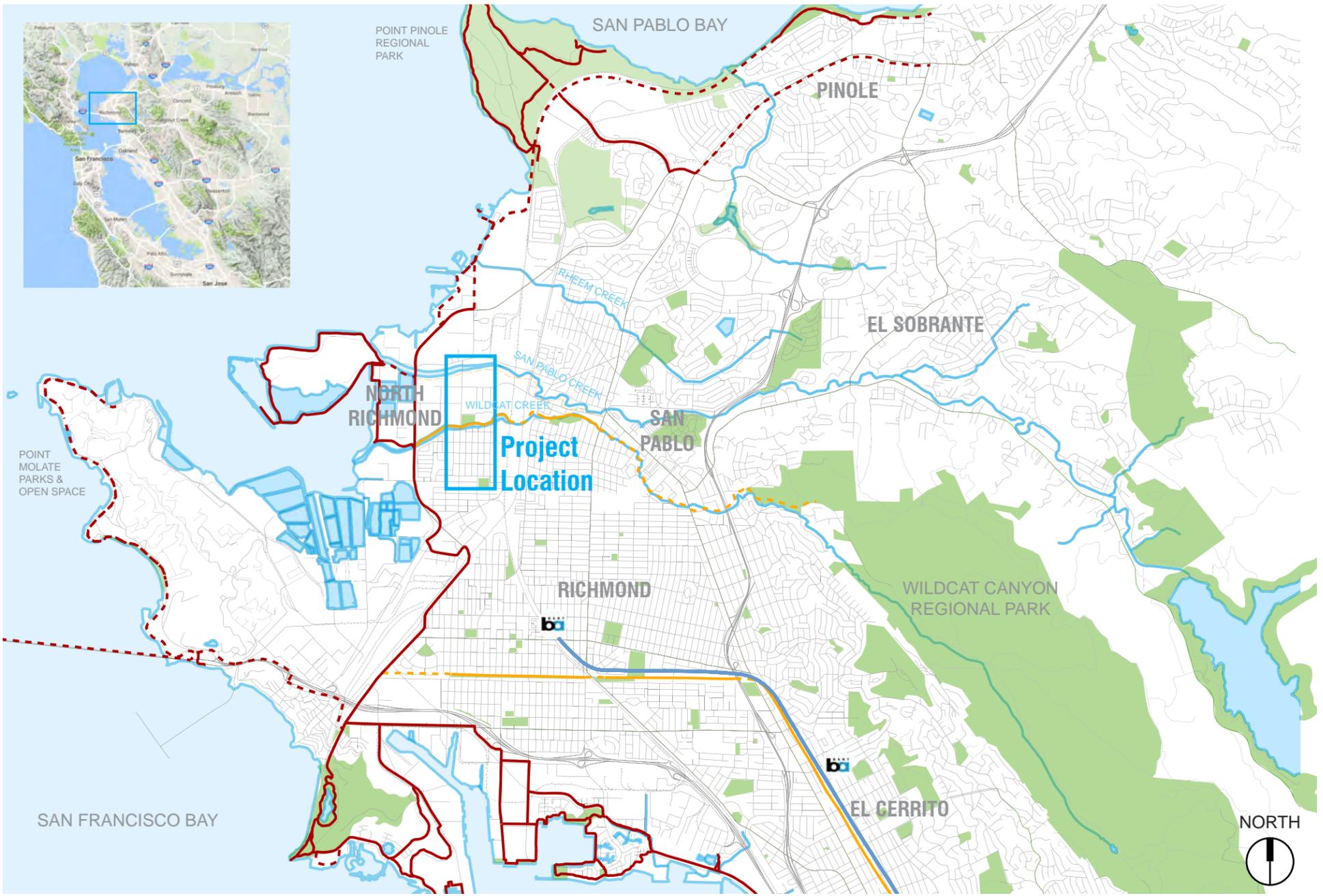
Attachments

Attachment 1 - Project Graphics

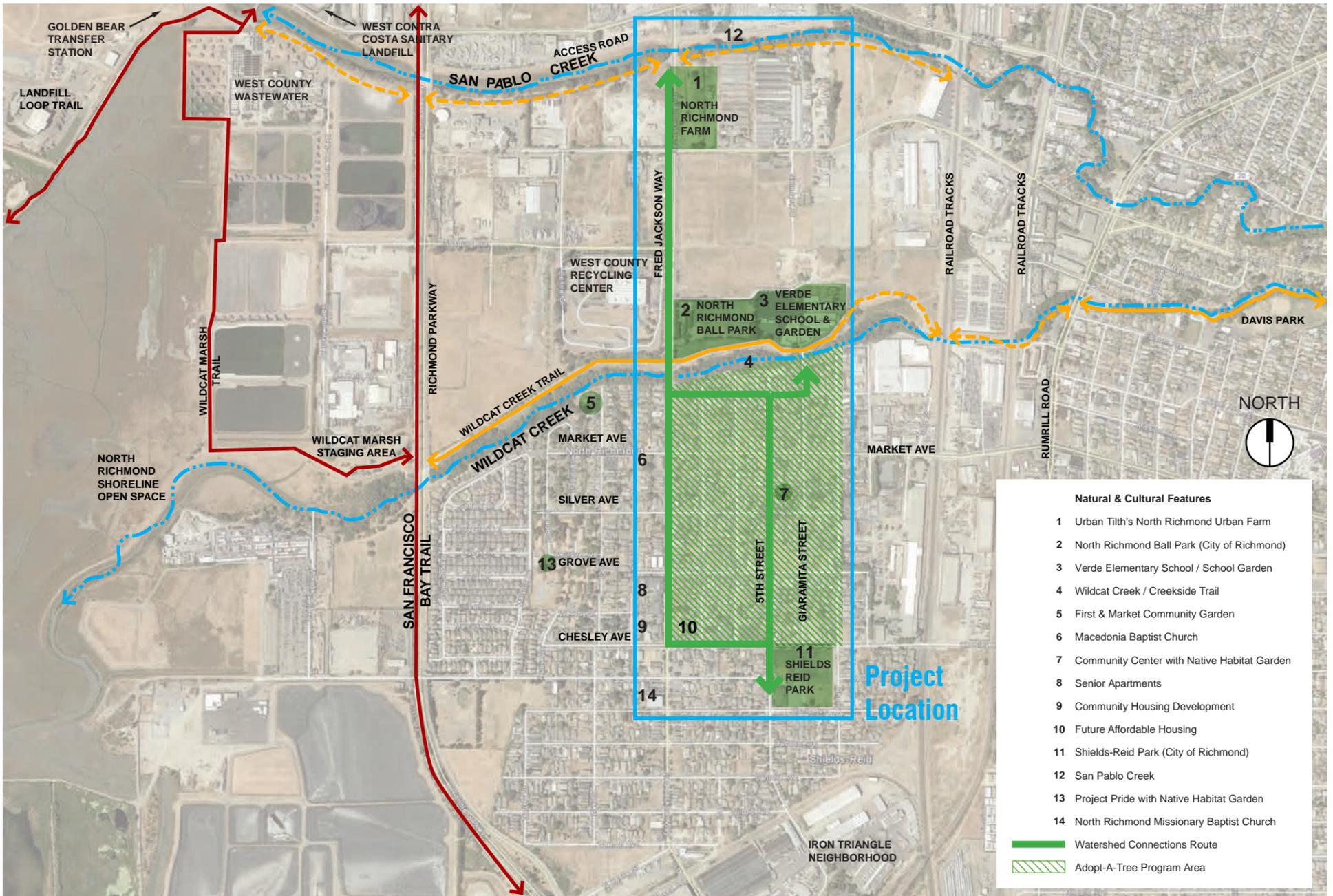
Attachment 2 - Project Budget

NRWC Power Point.

ATTACHMENT 1: PROJECT MAPS AND GRAPHICS



Regional Map: North Richmond and Vicinity



Neighborhood Scale Map

NORTH RICHMOND WATERSHED CONNECTIONS A MULTI-BENEFIT URBAN GREENING DEMONSTRATION PROJECT

Trail Legend	
	Bay Trail - Complete
	Bay Trail - Incomplete
	Connector Trail - Complete
	Connector Trail - Incomplete



Fred Jackson Way Rain Gardens

Project Lead: Urban Tilth

- Urban Greening: 6 Trees, 3,475 s.f. planting area with native species
- Stormwater Management: 3,475 s.f. rain garden treats 3,110,400 gallons of stormwater annually



Fred Jackson Way
Complete Streets integrate urban greening, sustainable features, stormwater management and active transportation

Rain Garden
Stormwater management becomes a neighborhood amenity, featuring native plants and pollinators as well as street trees to lower urban temperatures

Pedestrian Sidewalk

Interpretive Signage
This sign describes the bioswale design and how a healthy watershed benefits the farm

Urban Tilth's North Richmond Urban Farm
In Summer of 2012 Urban Tilth began work with County Supervisor John Gioia's office on developing the North Richmond Farm at the corner of Fred Jackson Way and Brookside Dr.

Limit of Work
SCC Prop 1 Grant Request



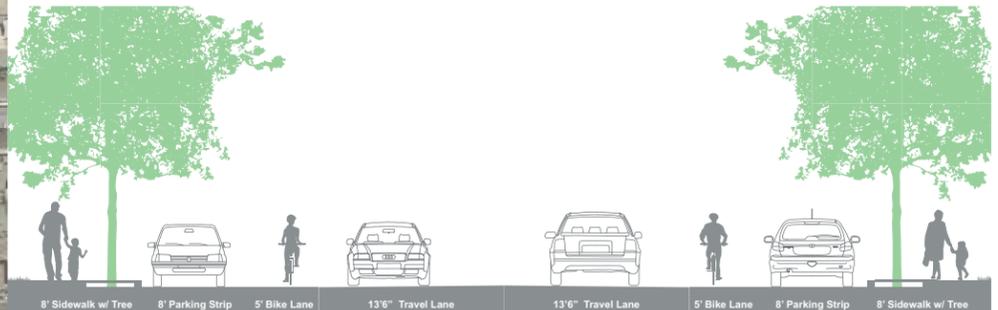
Fred Jackson Way First Mile/Last Mile Urban Greening

Project Lead: Contra Costa County Public Works Department

- Urban Greening: 37 Trees (shown conceptually, see design plan for layout)
- This is a Contra Costa County Department of Public Works Project. The ATP-funded project includes ADA accessible sidewalks with street trees along 0.3-mile roadway from Grove Avenue to Wildcat Creek Trail. It extends an additional 0.3 miles northerly to Brookside Drive to construct sidewalk and Class II bike lanes for a total of 0.6 miles of continuous pedestrian and bicycle access.



Fred Jackson Way (Wildcat Creek Trail to Brookside)



Fred Jackson Way (Grove Street to Wildcat Creek Trail)

Clean & Green Adopt-a-Tree Program & Walkable Watersheds

Project Lead: The Watershed Project

- Urban Greening: Adopt-a-Tree Program / 50 Trees (refer to design plan for opportunity sites)
- Walkable Watersheds: 4 interpretive features, 15 wayfinding markers, painted pavements, art
- Water Quality / Litter Reduction: 3 "jewel boxes" (litter/recycling receptacles with mosaic art)



Complete Streets
Integrate urban greening, sustainable features, stormwater management and active transportation

Pavement Marking
playful stormwater art highlights the connection between clean streets and water quality

Adopt-a-Tree Program
a sustainable program to plant street trees in collaboration with home owners and maintain them

Wayfinding & Distance Markers
improves walkability; encourages exercise; identifies safe routes; calls out multi-benefit green infrastructure features

Interpretive Signage
references natural and cultural features; promotes watershed awareness

Trail Signage
encourages active transportation and mode choice; improves bicycle safety



NORTH RICHMOND WATERSHED CONNECTIONS A MULTI-BENEFIT URBAN GREENING DEMONSTRATION PROJECT



Attachment 2: North Richmond Watershed Connections — Revised Project Budget

(Being presented by SCC staff report to the SCC Board of Directors for their 8/22/19 meeting)

Task #	Task	Completion Date	REQUEST	MATCHING FUNDS		Total Cost
			State Coastal Conservancy	Applicant's Funding (includes in-kind)	Other Funds	
1	<i>Fred Jackson Way Rain Gardens</i>	12/01/2020	\$422,000	\$0	\$22,000	\$443,000
2	<i>First Mile/Last Mile Tree Installations</i>	10/1/2021	\$234,000	\$0	\$224,000	\$458,000
3	<i>Adopt-a-Tree Program</i>	12/01/2020	\$70,000	\$0	\$0	\$70,000
4	<i>TWP Clean and Green Adopt-a-Block Cleanups</i>	12/01/2020	\$0	\$100,000	\$0	\$100,000
5	<i>Wayfinding, interpretive elements, and mosaic trash cans</i>	12/01/2020	\$80,000	\$0	\$0	\$80,000
6	<i>Project Administration, Evaluation and Reporting</i>	12/01/2021	\$78,400	\$50,000	\$0	\$78,400 (128,400)
TOTAL			\$884,000	\$150,000	\$224,000	\$1,301,600 (1,258,400)

North Richmond Watershed Connections

A Collaborative Urban Greening and GI Project and Grant by the State Coastal Conservancy

*A presentation To the Transportation, Water, & Infrastructure Committee
by John Steere, Contra Costa County Watershed Program
July 18, 2019*



North Richmond Watershed Connections

A State Coastal Conservancy (Prop 1) funded grant

Multi-benefit, urban greening project and partnership of:

- Contra Costa County (CCC) – Watershed Program
- CCC Transportation Engineering Division
- The Watershed Project (TWP)
- Urban Tilth





Regional Map: North Richmond and Vicinity

North Richmond Watershed Connections: a partnership project of the Contra Costa County Watershed Program and Transportation Engineering, the Watershed Project, and Urban Tilth

N. Richmond Watershed Connections Project (Watershed Connections) Summary

Knits together multi-benefit green infrastructure, urban greening and place-making features in a disadvantaged community

Benefits include:

- Improved water quality/health of San Pablo and Wildcat Creeks
- Expanded urban forest
- Reduced heat islands
- Enhanced pride of place/sense of place
- Increased community awareness and access to local natural resources with a 1.75-mile long “Walkable Watersheds” urban trail



North Richmond Watershed Connections: a partnership project of the Contra Costa County Watershed Program and Transportation Engineering, the Watershed Project, and Urban Tilth

Watershed Connections comprised of 3 subprojects

- **Fred Jackson Way Rain Gardens** adjacent to the North Richmond Urban Farm (*Lead: Urban Tilth*)
- **First Mile/Last Mile Tree Installations**, a green/sustainable streets project (*Lead: Contra Costa County Public Works Dept.–Transportation Engineering*)
- **Clean and Green Adopt-a-Tree, Adopt-a-Block Cleanups and Watershed Connections Route** (*Lead: The Watershed Project and County Watershed Program*)

1. Fred Jackson Way Rain Gardens

2. First Mile/Last Mile Tree Installations

3. Clean and Green Adopt-a-Tree, Adopt-a-Block Cleanups and

LEGEND

- 1 Watershed Connections Reader
- 2 Urban Tilt / North Richmond Farm Subproject
- 3 Contra Costa County First Mile/Last Mile Subproject
- 4 The Watershed Project Area - a Tree Subproject
- 5 Connecting Natural & Cultural Features
- 6 Urban Tilt - North Richmond Urban Farm
- 7 North Richmond Ball Park (City of Richmond)
- 8 Verde Elementary School / School Garden
- 9 Wildcat Creek / Openable Trail
- 10 First & Market Community System
- 11 Macedonia Baptist Church
- 12 Community Center with Native Habitat Garden
- 13 Senior Apartments
- 14 Community Housing Development
- 15 Parks (Habitat Garden)
- 16 Shields-Reid Park (City of Richmond)
- 17 San Pablo Creek
- 18 Project Plaza with Native Habitat Garden
- 19 North Richmond Ministry Center Church
- 20 Transit Stops (Bike)
- 21 Safe Routes to Schools (Walking School Bus)
- 22 Concrete Trail - Complete
- 23 Concrete Trail - Incomplete
- 24 Unincorporated North Richmond Boundary

Fred Jackson Way Rain Gardens

Project Lead: Urban Tilt

- Urban Greening: 8 Trees, 3,475 s.f. planting area with native species
- Stormwater Management: 3,475 s.f. rain garden treats 3,110,400 gallons of stormwater annually

Fred Jackson Way First Mile/Last Mile Urban Greening

Project Lead: Contra Costa County Public Works Department

Urban Greening: 37 Trees (shown conceptually, see design plan for layout)

This is Contra Costa County's Department of Public Works' Project. This 4.64-mile project includes 406 accessible sidewalks with urban trees along 0.5-mile stretches from Grove Avenue to Wildcat Creek Trail. It includes an additional 1.3 miles, mostly to Shields-Reid Park (see final network and class of bike lanes for a total of 5.9 miles of sidewalks, bike lanes and bicycle routes).

Please say that again

Clean & Green Adopt-a-Tree Program & Walkable Watersheds

Project Lead: The Watershed Project

- Urban Greening: Adopt-a-Tree Program / 50 Trees (refer to design plan for opportunity sites)
- Walkable Watersheds: 4 interpretive features, 15 wayfinding markers, painted pavements, art
- Water Quality / Litter Reduction: 3 "jewel boxes" (recycling receptacles with mosaic art)

NORTH RICHMOND WATERSHED CONNECTIONS
MULTI-BENEFIT URBAN GREENING DEMONSTRATION PROJECT

URBAN TILT
CONTRA COSTA COUNTY
PUBLIC WORKS DEPARTMENT
the watershed project

North Richmond Watershed Connections: a partnership project of the Contra Costa County Watershed Program and Transportation Engineering, the Watershed Project, and Urban Tilt

Need for the Project

- **North Richmond** faces many environmental, economic, and social challenges.
- Built on historic wetland, plagued by poor infrastructure, frequently inundated by floods until 1980s.
- Many streets have no sidewalks some lined with drainage ditches, strewn with trash.
- Stormwater flows untreated into San Pablo and Wildcat creeks
- Proximity to West Contra Costa Sanitary Landfill has increased illegal dumping.
- Few street trees as result of haphazard 1940s era residential development patterns, red-lining



Foundations of Project

Builds on existing community based cleaning and greening initiatives *in North Richmond (NR)*

- 1) Three community gardens and two native habitat gardens
- 2) The NR “Green Team” afterschool watershed curriculum and Creek (Neighborhood House of NR)
- 3) TWP’s “Bye Bye Basura” trash abatement curriculum at Verde School
- 4) The “NR community-based outreach and cleaning program” TWP’s “Adopt-a-Block” funded by the County Watershed Program



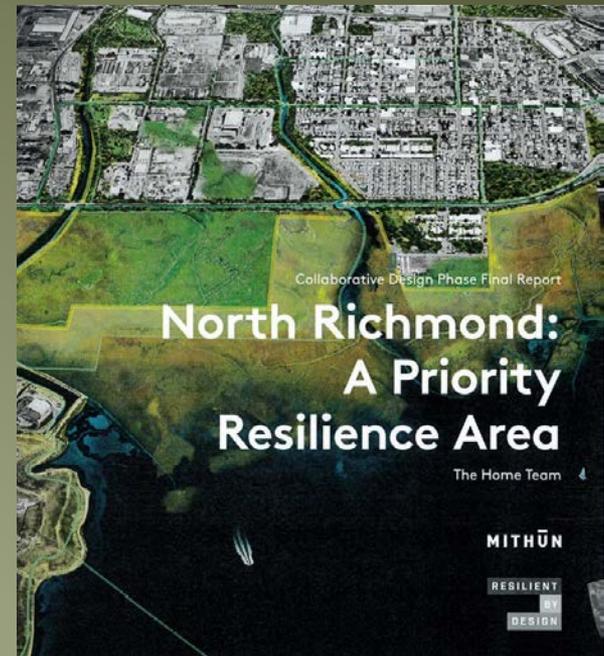
North Richmond Watershed Connections: a partnership project of the Contra Costa County Watershed Program and Transportation Engineering, the Watershed Project, and Urban Tilth

Planning and Outreach Foundations of Project

Components identified in the NR Urban Greening and Resiliency Plan Framework Map identified by 36 community, NGO, and agency stakeholders in April 2016

Complements and builds on public involvement through other planning initiatives

- *Resilient by Design;*
- *North Richmond Shoreline Visioning Plan*



North Richmond Watershed Connections: a partnership project of the Contra Costa County Watershed Program and Transportation Engineering, the Watershed Project, and Urban Tilth

1. Fred Jackson Way Rain Gardens

2. First Mile/Last Mile Tree Installations

3. Clean and Green Adopt-a-Tree, Adopt-a-Block Cleanups and

Fred Jackson Way Rain Gardens

Project Lead: Urban Tilth

- Urban Greening: 6 Trees, 3,475 s.f. planting area with native species
- Stormwater Management: 3,475 s.f. rain-garden treets 3,110,400 gallons of stormwater annually

Fred Jackson Way First Mile/Last Mile Urban Greening

Project Lead: Contra Costa County Public Works Department

Urban Greening: 37 Trees (shown conceptually, see design plan for layout)

This is a Contra Costa County Department of Public Works Project. The CPW project includes 436 accessible wheelchair with street lighting & tactile paving from Grove Avenue to Wilcox Creek Trail. It includes an additional 12 trees, walkway to Brookside Drive to connect sidewalk and cross it into street for a total of 55 trees of various species and tree sizes.

Please say that again

Clean & Green Adopt-a-Tree Program & Walkable Watersheds

Project Lead: The Watershed Project

- Urban Greening: Adopt-a-Tree Program / 50 Trees (refer to design plan for opportunity sites)
- Walkable Watersheds: 4 interpretive features, 15 wayfinding markers, painted pavements, art
- Water Quality / Litter Reduction: 3 "jewel boxes" (litter recycling receptacles with mosaic art)

NORTH RICHMOND WATERSHED CONNECTIONS
MULTI-BENEFIT URBAN GREENING DEMONSTRATION PROJECT

URBAN TILTH
CONTRA COSTA COUNTY
PUBLIC WORKS
DEPARTMENT

the watershed project

North Richmond Watershed Connections: a partnership project of the Contra Costa County Watershed Program and Transportation Engineering, the Watershed Project, and Urban Tilth



— FRED JACKSON WAY — | BIKE PATH | — RAIN GARDEN — | SIDEWALK — | — URBAN TILTH NORTH RICHMOND FARM —

SECTION ELEVATION

URBAN TILTH RAIN GARDEN - City of Richmond, CA

23 APRIL 2018
Restoration Design Group, Inc.



First Mile/Last Mile Tree Installations

(Contra Costa Co. PWD - Transportation Engineering and Watershed Program).

- Leverages federal Active Transportation Project grant funding for bike-ped infrastructure to improve community access along a primary travel corridor.
- Includes planting of 37 Street trees, + 2 potential bulb outs
- Community outreach and engagement to select the street tree species
- Installation of an automated irrigation system to establish the trees, tree stakes and grates



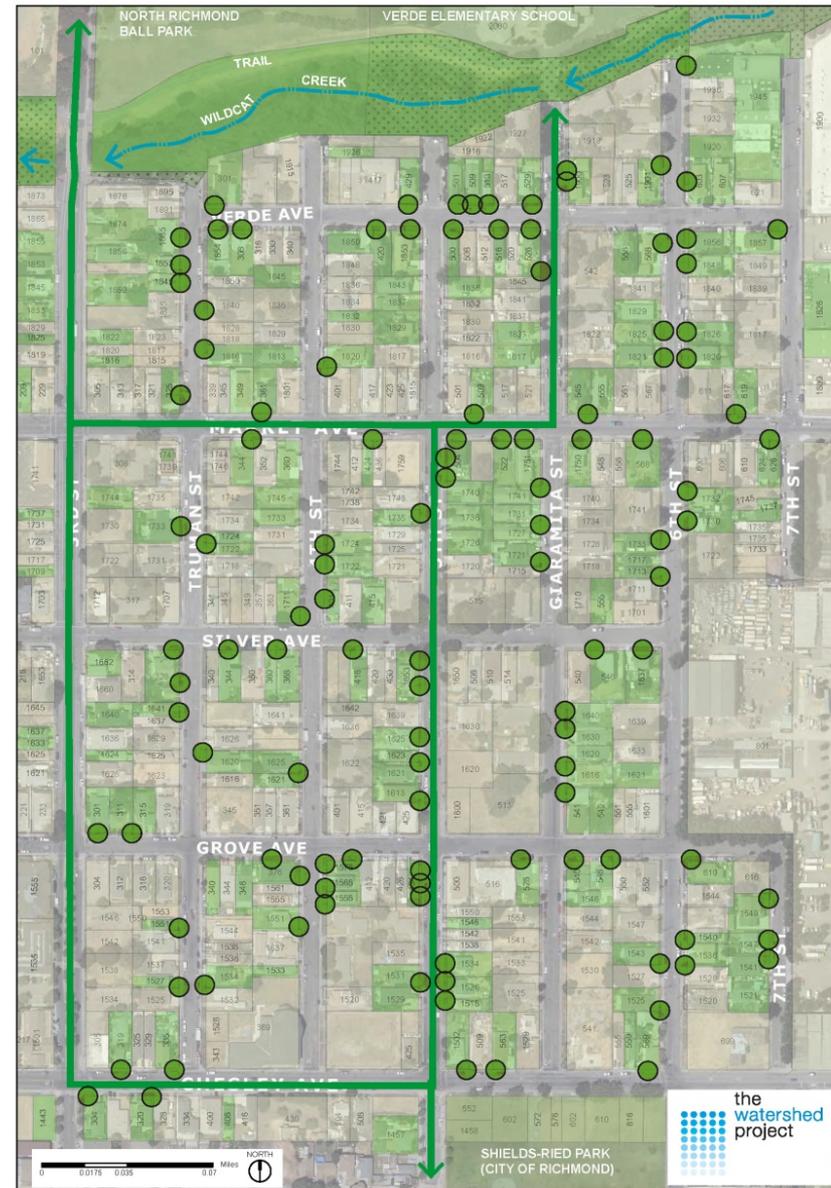
North Richmond Watershed Connections: a partnership project of the Contra Costa County Watershed Program and Transportation Engineering, the Watershed Project, and Urban Tilth

Clean and Green Adopt-a-Tree



Redwood trees planted at North Richmond Ballpark

Community outreach to identify suitable locations for tree planting (public or private space) and drought-tolerant native plant gardens



Design Plan:
Clean and Green Adopt-A-Tree Program
NORTH RICHMOND WATERSHED CONNECTIONS
A MULTI-BENEFIT URBAN GREENING DEMONSTRATION PROJECT

- Legend**
-  Assumed Owner Occupied
 -  Assumed Non-Owner Occupied
 -  Public Parks and Open Space
 -  Adopt-a-Tree Opportunity Site
118 potential locations
50 adopt-a-trees requested
 -  Watershed Connections Route

Placemaking & Wayfinding: Connecting People to Place

Clean & Green Adopt-a-Tree Program & Walkable Watersheds

Project Lead: The Watershed Project

-  Urban Greening: Adopt-a-Tree Program / 50 Trees (refer to design plan for opportunity sites)
-  Walkable Watersheds: 4 interpretive features, 15 wayfinding markers, painted pavements, art
-  Water Quality / Litter Reduction: 3 "jewel boxes" (litter/recycling receptacles with mosaic art)



Complete Streets
integrates urban greening, sustainable features, stormwater management and active transportation

Trail Signage
encourages active transportation and mode choice; improves bicycle safety

Pavement Marking
playful stormwater art highlights the connection between clean streets and water quality

Adopt-a-Tree Program
a sustainable program to plant street trees in collaboration with home owners and maintain them

Wayfinding & Distance Markers
improves walkability; encourages exercise; identifies safe routes; calls out multi-benefit green infrastructure features

Interpretive Signage
references natural and cultural features; promotes watershed awareness

- Mileage and directional signs to Wildcat Creek Marsh, North Richmond Shoreline, Bay Trail
- Jewel boxes depicting historical ecology of Wildcat Creek watershed



Trail Signage



Pavement Marking



Jewel Box Litter/Recycling



Utility Box Art



Wayfinding & Distance Markers



Interpretive Signage small



Interpretive Signage large



Interpretive Signage large

Budget

Task #	Task	REQUEST State Coastal Conservancy (SCC)	MATCHING FUNDS		Total Cost
			Applicant Funding (includes in-kind)	Other Funds	
1	Fred Jackson Way Rain Gardens	\$422,000	\$0	\$22,000	\$443,000
2	First Mile/Last Mile Tree Installations	\$234,000	\$0	\$224,000	\$458,000
3	Adopt-a-Tree Program	\$70,000	\$0	\$0	\$70,000
4	Clean and Green Adopt-a-Block	\$0	\$100,000	\$0	\$100,000
5	Wayfinding, interpretive	\$80,000	\$0	\$0	\$80,000
6	Project Administration,	\$78,400	\$50,000	\$0	\$78,400
TOTAL		\$884,000	\$150,000	\$224,000	\$1,301,000

Next Steps and Project Timeframe

Recommendation: 1) Accept report and refer to the BOS for the resolution to accept grant from the SCC

Estimated Start and End Dates: October 1, 2019 - October 1, 2023 (SCC Awards grant on August 18, '19)

Comments and questions...



North Richmond Watershed Connections: a partnership project of the Contra Costa County Watershed Program and Transportation Engineering, the Watershed Project, and Urban Tilth



Contra Costa County Board of Supervisors

Subcommittee Report

TRANSPORTATION, WATER & INFRASTRUCTURE COMMITTEE

9.

Meeting Date: 07/18/2019

Subject: CONSIDER report: Local, Regional, State, and Federal Transportation Issues: Legislation, Studies, Miscellaneous Updates, take ACTION as Appropriate

Department: Conservation & Development

Referral No.: 1

Referral Name: REVIEW legislative matters on transportation, water, and infrastructure.

Presenter: John Cunningham, DCD

Contact: John Cunningham
(925)674-7883

Referral History:

This is a standing item on the Transportation, Water, and Infrastructure Committee referral list and meeting agenda.

Referral Update:

In developing transportation related issues and proposals to bring forward for consideration by TWIC, staff receives input from the Board of Supervisors (BOS), references the County's adopted Legislative Platforms, coordinates with our legislative advocates, partner agencies and organizations, and consults with the Committee itself.

This report includes four sections, 1: LOCAL, 2: REGIONAL, 3: STATE, and 4: FEDERAL.

1. LOCAL

No Local Report in July.

2. REGIONAL

No Regional report in July.

3. STATE

The County's Legislative Advocate will be present at the July Committee meeting and provide a report.

Legislation of Specific Interest

AB 1025 (Grayson): TRANSPORTATION: California Transportation Commission: San Ramon Branch Corridor: Reimbursement aka "The Iron Horse Bill".

Position: Sponsor/Support

Status: The bill passed out of Senate Transportation Committee in early July.

Discussion: Mr. Watts will provide an update on the status of the bill.

Background: The bill removes County obligations to the State associated with legacy grants from the original San Ramon Branch Corridor right of way purchase in the 1980s.

AB 970 (Salas): California Department of Aging: Grants: Transportation

Status: The bill passed out of the Senate Environmental Quality Committee in early July and re-referred to Appropriations.

Discussion: The County has submitted numerous comment letters with request for amendments to address the shortcomings of the bill. The Author, his staff, and the legislative analyst's office have been receptive to input from the County, the bill has gone through several revisions reflecting that input. Additional revisions will be necessary in order for the County to adopt a support position. A concern is that if the legislation is enacted without appropriate revisions it will make subsequent legislation accessing Cap and Trade revenue for the SPD population.

Background: AB 970 was similar to a bill developed by Contra Costa County in that it accessed Cap and Trade revenue to fund improvements to transportation services for seniors & persons with disabilities (SPD). Relative to the County proposal, the bill had limited language relative to the administration of the grant program and rationale for accessing Cap and Trade revenue. Given that 1) the County had that additional detail already developed, and 2) more critically we did not secure an author for our own bill, the County transmitted a "Support if Amended" letter and engaged the Author's staff.

Attached: July TWIC Report - Legislation of Interest.

4. FEDERAL

No written report in June.

Legislative activities of the TWIC are conducted in conformance with Contra Costa County Administrative Bulletin #110.4

Recommendation(s)/Next Step(s):

CONSIDER report on Local, Regional, State, and Federal Transportation Related Legislative Issues and take ACTION as appropriate.

Fiscal Impact (if any):

There is no fiscal impact.

Attachments

TWIC Leg Tracking List July 2019

Status actions entered today are **listed in bold**.

File name: Master

California

1. **CA AB 311**



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2nd Chamber

Executive

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Author: Frazier (D)
Title: Regional Centers: Billing: Daily Rates
Introduced: 01/29/2019
Location: Assembly Appropriations Committee
Digest: AB 311, as introduced, Frazier. Regional centers: billing: daily rates.

2. **CA AB 641**



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2nd Committee

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Author: Frazier (D)
Title: Developmental Services
Introduced: 02/15/2019
Last Amend: 03/21/2019
Location: Assembly Appropriations Committee
Digest: AB 641, as amended, Frazier. Developmental[D>-disabilities.<D][A> services: integrated competitive employment. <A]

3. **CA AB 812**



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Author: Frazier (D)
Title: Developmental Services: Inspector General
Introduced: 02/20/2019
Last Amend: 04/25/2019
Location: Assembly Appropriations Committee
Digest: AB 812, as amended, Frazier. Developmental services: Inspector General.

4. CA AB 823



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Author: Arambula (D)
Title: Developmental Services
Introduced: 02/20/2019
Location: Assembly Human Services Committee
Digest: AB 823, as introduced, Arambula. Developmental services.

5. CA AB 847



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Author: Grayson (D)
Title: Housing: Transportation Related Impact Fee Grants
Introduced: 02/20/2019

Last Amend: 03/27/2019
Location: Assembly Housing and Community Development Committee
Digest: AB 847, as amended, Grayson. [~~D>Transportation finance: priorities: housing.~~ <D>][A>Housing: transportation-related impact fees grant program. <A>]

6. **CA AB 970**  **SESSION ADJOURNMENT** 
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Our Forecast ⁱ ▼ Show More	✓	✓	✓	✓		

Author: Salas (D)
Title: California Department Of Aging: Grants: Transportation
Introduced: 02/21/2019
Last Amend: 07/05/2019
Location: Senate Appropriations Committee
Digest: AB 970, as amended, Salas. California Department of Aging: grants: transportation.

7. **CA AB 1025**  **SESSION ADJOURNMENT** 
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Author: Grayson (D)
Title: Transportation Commission: San Ramon Branch Corridor
Introduced: 02/21/2019
Last Amend: 03/26/2019
Committee: Senate Transportation Committee
Hearing: 07/09/2019 1:30 pm, John L. Burton Hearing Room (4203)  
Digest: AB 1025, as amended, Grayson. [~~D>Transit and Intercity Rail Capital Program.~~ <D>][A>Transportation: California Transportation Commission: San Ramon Branch Corridor: reimbursement. <A>]

8. **CA AB 1112**



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Author: Friedman (D)
Title: Shared Mobility Devices: Local Regulation
Introduced: 02/21/2019
Last Amend: 06/19/2019
Location: Senate Transportation Committee
Digest: AB 1112, as amended, Friedman. Shared mobility devices: local regulation.

9. **CA AB 1279**



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Author: Bloom (D)
Title: Planning and Zoning: Housing Development
Introduced: 02/21/2019
Location: Senate Housing Committee
Digest: AB 1279, as introduced, Bloom. Planning and zoning: housing development: high-resource areas.

10. **CA AB 1475**



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Author: Bauer-Kahan (D)
Title: Construction Method: Transportation Projects
Introduced: 02/22/2019
Last Amend: 06/11/2019
Location: Senate Appropriations Committee
Digest: AB 1475, as amended, Bauer-Kahan. Construction Manager/General Contractor method: transportation projects.

11. CA AB 1487



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1st Committee



1st Fiscal Committee



1st Chamber



2nd Committee



2nd Chamber



Executive

Author: Chiu (D)
Title: San Francisco Bay Area: Housing Development: Financing
Introduced: 02/22/2019
Last Amend: 07/03/2019
Committee: Senate Governance and Finance Committee
Hearing: 07/10/2019 9:30 am, Room 112
Digest: AB 1487, as amended, Chiu. San Francisco Bay area: housing development: financing.

12. CA AB 1492



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1st Committee



1st Chamber



2nd Committee



2nd Chamber

Executive

Author: Boerner Horvath (D)

Title: Public Resources: San Onofre State Beach
Introduced: 02/22/2019
Last Amend: 06/12/2019
Location: Senate Transportation Committee
Digest: AB 1492, as amended, Boerner Horvath. [~~D>Speed limits: City of Encinitas.<D~~][~~A>Public resources: San Onofre State Beach: Richard and Donna O'Neill Conservancy: road construction.<A~~]

13. **CA AB 1568**



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1st Committee



1st Fiscal Committee



1st Chamber

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Executive

Author: McCarty (D)
Title: Housing Law Compliance: State Grants
Introduced: 02/22/2019
Last Amend: 04/11/2019
Location: Assembly Appropriations Committee
Digest: AB 1568, as amended, McCarty. Housing law compliance: prohibition on applying for state grants.

14. **CA SB 10**



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1st Committee



1st Fiscal Committee



1st Chamber



2nd Committee



2nd Fiscal Committee



2nd Chamber

Author: Beall (D)
Title: Mental Health: Peer Support Specialist Certification
Introduced: 12/03/2018
Last Amend: 06/18/2019
Location: Assembly Appropriations Committee

Digest: SB 10, as amended, Beall. Mental health services: peer support specialist certification.

Position: Support

15. **CA SB 13**



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Author: Wieckowski (D)

Title: Accessory Dwelling Units

Introduced: 12/03/2018

Last Amend: 07/01/2019

Committee: Assembly Local Government Committee

Hearing: 07/10/2019 1:30 pm, State Capitol, Room 444  

Digest: SB 13, as amended, Wieckowski. Accessory dwelling units.

16. **CA SB 50**



SESSION ADJOURNMENT
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Author: Wiener (D)

Title: Planning and Zoning: Housing Development

Introduced: 12/03/2018

Last Amend: 06/04/2019

Location: Senate Appropriations Committee

Digest: SB 50, as amended, Wiener. Planning and zoning: housing development:[A> streamlined approval:<A] incentives.

17.

CA SB 59



SESSION ADJOURNMENT
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Author: Allen (D)

Title: Autonomous Vehicle Technology: Statewide Policy

Introduced: 12/19/2018

Last Amend: 07/03/2019

Committee: Assembly Communications and Conveyance Committee

Hearing: 07/10/2019 10:00 am, State Capitol, Room 447

Digest: SB 59, as amended, Allen. [D>~~Autonomous vehicle technology: Statewide policy.~~<D]
[A>California Transportation Commission: advisory committee: autonomous vehicle technology.<A]

18. CA SB 127



SESSION ADJOURNMENT
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Author: Wiener (D)

Title: Transportation Funding: Active Transportation: Streets

Introduced: 01/10/2019

Last Amend: 07/01/2019

Committee: Assembly Transportation Committee

Hearing: 07/08/2019 2:30 pm, State Capitol, Room 4202

Digest: SB 127, as amended, Wiener. Transportation funding: active transportation: complete streets.

19. CA SB 137



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Author: Dodd (D)
Title: Federal Transportation Funds: State Exchange Programs
Introduced: 01/15/2019
Last Amend: 06/18/2019
Location: Assembly Appropriations Committee
Digest: SB 137, as amended, Dodd. Federal transportation funds: state exchange programs.

20. **CA SB 152**



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Author: Beall (D)
Title: Active Transportation Program
Introduced: 01/22/2019
Last Amend: 04/25/2019
Location: Senate Appropriations Committee
Digest: SB 152, as amended, Beall. Active Transportation Program.

21. **CA SB 228**



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Author: Jackson (D)
Title: Master Plan on Aging
Introduced: 02/07/2019

Last Amend: 04/25/2019
Committee: Assembly Appropriations Committee
Hearing: 07/10/2019 9:00 am, State Capitol, Room 4202  
Digest: SB 228, as amended, Jackson. Master Plan on Aging.

22. **CA SB 235**



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Author: Dodd (D)
Title: Planning and Zoning: Housing Production Report
Introduced: 02/11/2019
Last Amend: 03/25/2019
Location: Assembly Appropriations Committee
Digest: SB 235, as amended, Dodd. Planning and zoning: housing production report: regional housing need allocation.

23. **CA SB 330**



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Author: Skinner (D)
Title: Housing Crisis Act
Introduced: 02/19/2019
Last Amend: 07/01/2019
Committee: Assembly Local Government Committee
Hearing: 07/10/2019 1:30 pm, State Capitol, Room 444  
Digest: SB 330, as amended, Skinner. Housing Crisis Act of 2019.

24. **CA SB 400**



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Author: Umberg (D)
Title: Reduction of Greenhouse Gases Emissions: Mobility
Introduced: 02/20/2019
Location: Assembly Appropriations Committee
Digest: SB 400, as introduced, Umberg. Reduction of greenhouse gases emissions: mobility options.

25. **CA SB 526**



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Author: Allen (D)
Title: Regional Transportation Plans: Greenhouse Gas Emissions
Introduced: 02/21/2019
Last Amend: 04/30/2019
Location: Senate Appropriations Committee
Digest: SB 526, as amended, Allen. Regional transportation plans: greenhouse gas emissions: State Mobility Action Plan for Healthy Communities.



Contra Costa County Board of Supervisors

Subcommittee Report

TRANSPORTATION, WATER & INFRASTRUCTURE COMMITTEE

10.

Meeting Date: 07/18/2019

Subject: RECOMMEND to the Board of Supervisors that "Transportation/Circulation Issues: General Plan Update" be referred to TWIC

Submitted For: TRANSPORTATION, WATER & INFRASTRUCTURE COMMITTEE,

Department: Conservation & Development

Referral No.: N/A

Referral Name: N/A - TWIC is considering the addition of a new referral which would authorize their monitoring of the subject issue.

Presenter: John Cunningham, DCD

Contact: John Cunningham
(925)674-7833

Referral History:

This is an administrative item of the Committee.

Referral Update:

A report was provided at the December 19, 2017 Board of Supervisors meeting entitled, "Proposed Options for County General Plan Update". In that report (attached) the section describing the update to the Transportation and Circulation Element began, "The approach to transportation planning has fundamentally shifted over the past 15+/- years and is likely to continue shifting, thus necessitating a substantial effort to revise the General Plan Transportation and Circulation Element (TCE)."

With the initiation of the General Plan update, staff anticipates the need to have detailed reports and presentations on a variety of Transportation/Circulation specific issues. These include the transition from level-of-service to vehicle miles traveled performance measures, complete streets implementation, transportation system safety, and interaction with the Contra Costa Transportation Authority's Growth Management Program.

These issues would benefit from the additional scrutiny possible at TWIC.

Recommendation(s)/Next Step(s):

RECOMMEND to the Board of Supervisors that "Transportation/Circulation Issues: General Plan Update" be referred to the Transportation, Water, and Infrastructure Committee.

Fiscal Impact (if any):

N/A

Attachments

No file(s) attached.
