



Green Infrastructure Plan



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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
CEQA	California Environmental Quality Act
GI	Green Infrastructure
GIS	Geographic Information System
IRWMP	Integrated Regional Water Management Plan
MRP	Municipal Regional Stormwater Permit
MTC	Metropolitan Transportation Commission
NPDES	National Pollutant Discharge Elimination System
PCBs	Polychlorinated Biphenyls
RWQCB	California Regional Water Quality Control Board – San Francisco Bay Region
TMDL	Total Maximum Daily Load

1 Introduction and Overview

1.1 Regulatory Mandate

The City of Martinez is one of 76 local government entities subject to the requirements of the California Regional Water Quality Control Board for the San Francisco Bay Region’s (RWQCB’s) Municipal Regional Stormwater Permit (MRP). The MRP 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 City of Martinez to prepare a Green Infrastructure (GI) Plan, to be submitted with its Annual Report to the RWQCB due September 30, 2019. The City indicated in their 2018/19 Annual Report that the GI Plan will be completed by end of 2019.

Green Infrastructure refers to the construction and retrofit of storm drainage 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 our creeks and Bay. Green infrastructure facilities include, but are not limited to, pervious pavement, infiltration basins, bioretention facilities or “raingardens”, green roofs, and rainwater harvesting systems. Green infrastructure can be incorporated into construction on new and previously developed parcels, as well as new and rebuilt streets, roads, and other infrastructure within the public right-of-way.

Water quality in San Francisco Bay is impaired by mercury and by polychlorinated biphenyls (PCBs). Sources of these pollutants include urban stormwater. By reducing and treating stormwater flows, green infrastructure reduces the quantity of these pollutants entering the Bay and will hasten the Bay’s recovery.

Provisions C.11 and C.12 in the MRP require Contra Costa Permittees (Contra Costa County and its 19 cities and towns) to reduce estimated PCBs loading by 23 grams/year and estimated mercury loading by 9 grams/year using green infrastructure by June 30, 2020. Regionally, Permittees must also project the load reductions achieved via

“Provisions C.11 and C.12 in the MRP require Contra Costa Permittees (Contra Costa County and its 19 cities and towns) to reduce estimated PCBs loading by 23 grams/year and estimated mercury loading by 9 grams/year using Green Infrastructure by June 30, 2020.”

¹ Order R2-2015-0049

Green Infrastructure by 2020, 2030, and 2040, showing that collectively, reductions will amount to 3 kg/year PCBs and 10 kg/year mercury by 2040.

1.1.1 Further Background on Mercury and PCBs in San Francisco Bay

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 to San Francisco Bay (a Waste Load Allocation, or WLA) 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 (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.

1.2 Objectives and Vision

This Plan will guide a shift from conventional “collect and convey” storm drain infrastructure to more resilient, sustainable stormwater management systems that reduce runoff volumes, disperse runoff to vegetated areas, harvest and use runoff where feasible, promote infiltration and evapotranspiration, and use natural processes to detain and treat runoff. Green infrastructure features and facilities include, but are not limited to, pervious pavement, infiltration basins, and bioretention facilities (“rain gardens”), green roofs, and rainwater harvesting systems.

As required by Provisions C.3.a. through C.3.i. in the MRP, these “Low Impact Development” practices are currently implemented on land development projects in the City of Martinez. Specific methods and design criteria are spelled out in the Contra Costa Clean Water Program’s (CCCWP’s) *Stormwater C.3 Guidebook*, which the City of Martinez has referenced in Chapter 15.06, Stormwater Management and Discharge Control.

This Plan details how similar methods will be incorporated to retrofit existing storm drainage infrastructure using green infrastructure facilities constructed on public and private parcels and within the public right-of-way.

- *Green infrastructure facilities previously constructed by the Permittee*
Parking Lot #4 was repaved and set up for GI but is incomplete

1.3 Plan Context and Elements

1.3.1 Planning Context

The GI Plan is intended to establish procedures and practices to implement GI facilities for private and public projects as set forth in the Provisions of C.3.j of the MRP.

- *Municipal geography*
As cited by Wikipedia from 2010 Census Interactive Population Search, “according to the United States Census Bureau, the city has a total area of 13.1 square miles (34 km²), of which, 12.1 square miles (31 km²) of it is land and 1.0 square mile (2.6 km²) of it (7.64 percent) is water.

“Although the common perception of Martinez is that of a refinery town, given the view from Highway 680 across the Shell refinery from the Benicia–Martinez Bridge, the city is in fact largely surrounded by water and regional open space preserves. The Martinez–Benicia Bridge carries Highway 680 across the eastern end of the Carquinez Strait to Solano County. The city can be defined as a more densely built downtown valley threaded by Alhambra Creek and north of Highway 4. Suburban areas stretch south of Highway 4 to join the neighboring city of Pleasant Hill. Unincorporated areas include the rural Alhambra Valley and the Franklin Canyon area.

“The Martinez Regional Shoreline bounds the city to the north along the Carquinez Strait. The Carquinez Strait Regional Shoreline includes the Franklin Hills west of downtown, stretching west to the unincorporated community of Port Costa and the town of Crockett. Briones Regional Park borders the Alhambra Valley to the south. Waterbird Regional Preserve and the McNabney Marsh border the city and

Highway 680 to the east. Martinez's location at the east end of the Carquinez Strait as it widens to Suisun Bay includes dramatic water views stretching to the Sierra range. From surrounding ridge tops views stretch to nearby Mount Diablo, Mount Saint Helena, Mount Tamalpais, and others.

"Martinez is one of the only two places in the Bay Area, the other being Golden Gate Bridge, where the Bay Area Ridge Trail and the San Francisco Bay Trail converge. The Bay Trail is a planned recreational corridor that, when complete, will encircle San Francisco and San Pablo bays with a continuous 400-mile (640 km) network of bicycling and hiking trails. It will connect the shoreline of all nine Bay Area counties, link 47 cities, and cross the major toll bridges in the region, including the Benicia–Martinez Bridge. To date, approximately 240 miles (390 km) of the alignment—over half the Bay Trail's ultimate length—have been completed. The Bay Area Ridge Trail ultimately will be a 500+ mile trail encircling the San Francisco Bay along the ridge tops, open to hikers, equestrians, mountain bicyclists, and outdoor enthusiasts of all types. So far, over 300 miles (480 km) of trail have been dedicated for use. East Bay Regional Park District's Iron Horse Regional Trail will join the Bay Trail along the waterfront, and the Contra Costa Canal Trail threads through the city from Pleasant Hill to the south."

➤ *Demographics*

As of the census of 2010, there were 35,824 people, 14,287 households, and 9,173 families residing in the city. The population density was 2,727.4 people per square mile (1,053.1/km²). There were 14,976 housing units at an average density of 1,140.2/sq mi (440.2/km²). The racial makeup of the city was 77.1 percent White, 3.6 percent Black or African American, 0.7 percent Native American, 8.0 percent Asian, 0.3 percent Pacific Islander, 4.0 percent from other races, and 6.3 percent from two or more races. 14.7 percent of the population were Hispanic or Latino of any race.



There were 14,287 households out of which 29.9 percent had children under the age of 18 living with them, 47.5 percent were married couples living together, 12.3 percent had a female householder with no husband present, and 34.9 percent were non-families. 27.4 percent of all households were made up of individuals and 7.5 percent had someone living alone who was 65 years of age or older. The average household size was 2.42 and the average family size was 2.95.

In the city, the age distribution of the population showed 20.5 percent under the age of 18, 7.9 percent from 18 to 24, 25.7 percent from 25 to 44, 33.8 percent from 45 to 64, and 12.1 percent who were 65 years of age or older. The median age was 42.2 years. For every 100 females, there were 96.9 males. For every 100 females age 18 and over, there were 94.8 males.

➤ *Economic and Social Trends*

Martinez will retain a unique, small town historic character within its larger suburban context of Central Contra Costa County. Martinez' identity will be largely based on its vibrant, eclectic downtown, set within pedestrian-oriented neighborhoods made up of varied and traditionally designed homes. The temperate climate, the Carquinez Straight, Alhambra Creek and its tributaries, and especially the open hillsides surrounding the existing urban areas frame our physical identity. Visitors will continue to be attracted to Martinez because of its unique small-town character, shops, restaurants, waterfront recreation, surrounding natural beauty and role as the County Seat. Martinez residents know that the City also provides a strong sense of belonging for its residents. It contains a broad array of 19th and early 20th century buildings that form multi-faceted streetscapes and neighborhoods and support an economically diverse community.

➤ *Development and Redevelopment Trends*

Newer neighborhoods will retain their livable mix of quality and varied housing opportunities, convenient and appropriately scaled commercial areas, and plentiful parks and open spaces. Martinez will retain its qualities for future generations by providing a vibrant economy linked to a viable community social structure and by conserving the ecosystem and built environment that supports it. Martinez is, and will remain, a community in which its residents can take pride.

The City will consider modifying the zoning ordinance regulations to encourage investment in existing structures in the Central Residential areas, including possible modification of the standard minimum front yard requirements to encourage compatibility with historic character and permit more traditional design elements. New multi-family residential development should be visually and functionally integrated and consistent in scale, mass, and character when located within an existing residential neighborhood.

➤ *Commitment and Actions for Sustainability*

The City has a page on its website devoted to Sustainability Resources. It has the City Climate Action Plan, information on energy efficiency and water conservation, and an entire page devoted to "Green Living". On the Green Living page there is guidance for taking small steps to becoming more sustainable.

To the extent possible, retain the channels, floodplains, riparian corridors (including suitable setbacks from top of bank) such as Alhambra Creek and its tributaries as significant open space areas. These areas should be maintained in their natural state to function as appropriate open space areas and to support a riparian habitat where feasible. Require where possible development within the Creek watersheds preserve watershed integrity, including natural vegetation, soil and slope stability, water quality, scenic values and potential archaeological resources.

The City will continue to work with State and Federal agencies, and local and state agencies to promote long term sustainability of natural resources into the term of the new General Plan 2025-35.

➤ *CEQA*

According to the Martinez Municipal Code (Chapter 20.04, Environmental Review), major consideration is to be given to preventing environmental damage as a consequence of activities of the City. Environmental

review is required for various applications (such as the Capital Improvement Program, Tentative Subdivision Map, Condominium Conversion, commercial and residential projects) and at various phases (project submittal, prior to issuance of permits), to confirm compliance with the California Environmental Quality Act (CEQA). Review is on a project by project basis. Any future project that is to be constructed by this Plan will conduct review of environmental impact as required by CEQA. Additionally, certain actions by regulatory agencies for protection of the environment is considered Categorical Exempt under CEQA section 15308, Class 8.

1.3.2 Watersheds and Storm Drainage Infrastructure

➤ *Watersheds and Watershed Characteristics and Challenges*

Walnut Creek Watershed

According to the Contra Costa Watersheds Stormwater Resource Plan, “the Walnut Creek watershed encompasses the Grayson-Murderers, Concord, Pine-Galindo, San Ramon, and Las Trampas sub-watersheds. Draining the west side of Mount Diablo and the east side of the East Bay hills, Walnut Creek’s major tributaries include San Ramon Creek, Bollinger Creek, Las Trampas Creek, Lafayette Creek, Grayson Creek, Murderer’s Creek, Pine Creek, Tice Creek, and Galindo Creek. The Cities of Walnut Creek, Lafayette, Pleasant Hill, and Danville lie completely within the boundaries of the Walnut Creek watershed, while the Cities of Concord, Martinez, and small areas of Moraga and San Ramon are partly within the watershed.

“Agriculture and livestock were previously important industries in the valleys of the Walnut Creek watershed. An increase in housing and commercial development along the creek created the need for improved flood control measures. Today, a stormwater drainage system reroutes surface waters from their original path through the valley. Land use and other physical factors have also affected the way surface and groundwater reach the creek channel.

“In 2014, the Contra Costa Flood Control District assumed management of the lowest four miles of Walnut Creek removed and began restoration planning. With the completion of a Project Study Report, the Flood Control District began the preparation of construction plans and environmental permits. The long-term vision for Lower Walnut Creek is “A sustainable channel that provides critical flood protection in a way that is more compatible with the plants and animals that call the creek home.”

“Land uses in the Walnut Creek watershed consist of 13% agricultural lands; 58% urban lands; and 29% open space, parks and recreation areas, and water.

“Walnut Creek has a TMDL for diazinon (SFBRWQCB, 2017).”

Alhambra Creek and Peyton Slough Watersheds

According to the Contra Costa Watersheds Stormwater Resource Plan, “the watersheds of Alhambra Creek and Peyton Slough are located in the northwestern region of the County. The majority of both watersheds are located in unincorporated County land area, with smaller portions within the City of Martinez.

“Alhambra Creek’s headwaters are located in Briones Regional Park. Its main stem is joined by two large tributaries, Franklin Creek and Arroyo Del Hambre, before making its way through the residential and commercial areas of downtown Martinez to discharge into the Carquinez Strait. The mouth of Alhambra Creek has moved northward since the beginning in the mid-1800s, when tons of sediment loosened by hydraulic mining practices in the Sierra Nevada washed into the Delta and changed the shape of the waterfront. The lower elevations of the watershed, primarily comprised of the floodplain of Alhambra Creek, were steadily urbanized through the late 1800s, but the upper watershed is largely undeveloped. Land uses in the Alhambra Creek watershed consist of 44% agricultural lands; 23% urban lands; and 33% open space, parks and recreation areas, and water.

“The highly urbanized Peyton Slough watershed is located east of the Alhambra Creek watershed. More than half of the Peyton Slough watershed including the entirety of the upper watershed is urbanized. Peyton Creek is culverted underground for over a third of its length through residential and industrial areas. Stormwater in the upper watershed is controlled by storm drain systems throughout the area, which is predominantly residential. McNabney Marsh, located to the west of the Slough, is home to many species of waterfowl and shorebirds and is part of the EBRPD’s Waterbird Regional Preserve.

“A project led by the Alhambra Creek Restoration and Environmental Education Collaborative completed Phase 1 of a restoration project on Alhambra Creek that removed rock gabions and non-native invasive plant species from the active channel and installed an equilibrium channel. Using bioengineering techniques and native riparian plant species, a more natural riparian corridor was created while stabilizing the creek banks.

“Land uses in the Peyton Slough watershed consist of 74% urban lands and 26% open space, parks and recreation areas, and water.

“Neither Alhambra Creek nor Peyton Slough has been identified in the State’s 303(d) list of Impaired Water Bodies (SFBRWQCB, 2017).”

➤ *Major Drainages*

The City includes the following drainages:

- Alhambra Creek
- Tributary 1 to Alhambra Creek
- Tributary 2 to Alhambra Creek
- Tributary 3 to Alhambra Creek
- Arroyo Del Hambre Creek
- Franklin Creek
- Line A, DA-40
- Nancy Boyd Creek
- Pacheco Creek
- Peyton Slough

➤ *Storm Sewer System*

The storm drain system drains primarily to Alhambra Creek. Some of the most southwesterly part of Martinez drains to Franklin Creek. Northwesterly areas drain to Pacheco Creek. Alhambra Creek is in private property as it courses through Martinez running south to north to the Bay. Development has straddled the creeks so that the vast majority of runoff, with the confluence of Franklin Creek ends up in Alhambra Creek. A lesser amount around the development adjacent Pacheco Blvd drains to Peyton Slough.

➤ *Storm Sewer Challenges (Pertinent to GI)*

The City is largely built out. The commercial areas are essentially at the lower elevations that are also the older parts of town where the best opportunities would be expected to exist. This part of Martinez, however, has right-of-way (ROW) limitations making implementation of Green Infrastructure difficult. Development has built up around Peyton and Alhambra Creek and bank erosion, bank undercutting and incising is occurring on private property. Green Infrastructure implementation then will need to take place in the limited public right of way as opportunities appear.

➤ *Flood Zones*

The **Floodplain Boundaries** section of the current (2017) Flood Insurance Study (FIS) provided by the Federal Emergency Management Agency, states, that “(in order) to provide a national standard without regional discrimination, the 1-percent annual chance flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2-percent annual chance flood is employed to indicate additional areas of flood risk in the community. For the stream studied in detail, the 1- and 0.2- percent annual chance floodplains have been delineated using the flood elevations determined at each cross section. Between cross sections, the boundaries were interpolated using topographic maps at a scale and a contour interval as shown on Table 12, “Topographic Map Information” on the FEMA website.

“The 1- and 0.2-percent annual chance floodplain boundaries are shown on the FIRM (Published Separately). On this map, the 1-percent annual chance floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones A and AE), and the 0.2-percent annual chance floodplain boundary corresponds to the boundary of areas of moderate flood hazards. In cases where the 1- and 0.2-percent annual chance floodplain boundaries are close together, only the 1-percent annual chance floodplain boundary has been shown. Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

“For the streams studied by approximate methods, only the 1-percent annual chance floodplain boundary is shown on the FIRM (Published Separately).

“Approximate 1-percent annual chance floodplain boundaries were taken originally from the Flood Hazard Boundary Map for the unincorporated areas of Contra Costa County (Reference 119).”

The **Floodways** section of the current (2017) FIS states that: “Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard. For purposes of the NFIP, a floodway is used as a tool to assist local communities in this aspect of floodplain management. Under this concept, the area of the 1-percent annual chance floodplain is divided into a floodway and a floodway fringe. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the 1-percent annual chance flood can be carried without substantial increases in flood heights. Minimum Federal standards limit such increases to 1.0 foot, provided that hazardous velocities are not produced. The floodways in this study are presented to local agencies as a minimum standard that can be adopted directly or that can be used as a basis for additional floodway studies.”

The **Principal Flood Problems** as described in the current (2017) FIS are that: “the flooding that occurs on Line A, DA-40 is a result of inadequate capacity in the 10-foot diameter storm drain for peak flows upstream of Howe Road, with subsequent overland flow occurring along the same alignment as the storm drain during a 1-percent annual chance storm event resulting in depths of flow of less than one foot. The study reach of Line A, DA-40 consists of an existing 10- foot diameter storm drain extending from the upstream limits of the study area downstream to Howe Road. The storm drain alignment follows several roads and crosses under the backyards of several houses in the subdivision. For the remainder of the study area, Line A, DA-40 consists of a grass-lined trapezoidal shaped open channel. The open channel then flows into a long culvert underneath the Shell Oil Refinery, eventually discharging into tidal wetlands.

“There are two major flood problems in the study reach of Arroyo del Hambre Creek: (1) lack of channel and bridge capacity in the lower reach (from Muir Station Road to Tahoe Drive); and, (2) the Alhambra Avenue Culvert. In the lower sections, flow leaves the channel over both banks. Flow lost over the right bank eventually returns downstream near State Highway 4 where it re-enters at a long culvert. Flow that leaves the left bank moves into a depression area to the west. Flows accumulate in this depression, causing shallow flooding. The second area of flooding occurs upstream of the Alhambra Avenue crossing. Lack of culvert capacity and an old hydraulic structure immediately upstream of the culvert cause backwater effects to spill from the channel. Water spills at the culvert headwall causing flow to move both east and west along Alhambra Avenue. The old hydraulic structure further compounds the problem, increasing the backwater problem and causing shallow flooding to the west.”

➤ *Flood Control Facilities*

According to the current (2017) FIS, “The storm drain system in Martinez is not designed to protect the city against a flooding event of 1-percent annual chance recurrence interval. No other flood protection measures are existing or planned that would affect flooding in Martinez.” The City follows the Contra Costa County Flood Control design criteria and guidelines. Depending on the watershed, less than 10 square miles, or over the design will be for the 10-year storm or the 25-year storm respectively.

➤ *Flood Control Development Policies*

The City has adopted Section 15.30 of the Municipal Code entitled Floodplain Management. The purpose of this section is to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas by legally enforceable regulations applied uniformly throughout the community to all publicly and privately-owned land within flood prone areas.

Additionally, within Title 21, Subdivisions, of the Municipal Code, the City has adopted the following subsections:

- Subsection 21.38.060 - Adequate Drainage Required which states that, "The developer shall provide for adequate drainage so as to reduce the community's exposure to flood hazards with respect to adjacent and downstream properties."
- 21.38.070 - Cumulative Effect of Development on Flooding which states that, "The cumulative effect of any proposed development, when combined with all other existing and anticipated development, shall not increase the water surface elevation of the base flood more than one foot at any point. The subdivider shall provide the necessary engineering calculations of the cumulative effect for the proposed development."

➤ *Storm Sewer Potential Opportunities (Pertinent to GI)*

The Marina Master Plan will be considered for opportunities.

➤ *Recent and Planned Drainage Improvements*

The most recent improvements were the improvement of a creek from Green Street to the Bay.

➤ *Funding for Maintenance and for Capital Improvements*

Funding for maintenance and Capital Improvement Projects comes from 8 different sources ranging from City portion of the Countywide Stormwater Utility to City facility maintenance program and mitigation impact Fees. Each source has a specific set of criteria that define what that funding can be used for. No General Fund revenue is used for Capital projects unless otherwise directed by the Council. And roadway infrastructure maintenance is primarily paid for from Gas Tax, the Countywide Sales Tax Measure J and the local measure sales tax Measure D.

1.3.3 Related Regional and Countywide Plans and Planning Documents

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

- The Contra Costa Watersheds Stormwater Resource Plan (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 Contra Costa Clean Water Program (CCCWP). The CCW SWRP identified and prioritized 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 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 projects identified in this Plan. Results pertinent to green infrastructure planning and implementation are discussed in Section 2 of this Plan.
- The City of San Pablo and the City of Richmond have embarked on a Grant application for Alternative Compliance/Water Quality Trading in Contra Costa County. As of this writing the status of the grant success is unknown.

1.3.4 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, City of Martinez has reviewed and/or updated the following planning documents to appropriately incorporate green infrastructure requirements:

Table 1. Documents Reviewed for Alignment with this Green Infrastructure Plan		
Document	Summary of Updates	Completion Date
General Plan	Ongoing	2020
Storm Drainage Master Plan	As built plans into GIS	Recently updated
Standard Details and Specifications	Compiled by the Contra Costa County Cleanwater Program (CCCWP)	December 2020

1.3.5 Outreach and Education

The City of Martinez Green Infrastructure Plan development process engaged a wide variety of stakeholders, including both government staff and community members who will live, work, and play near future green infrastructure projects. The City of Martinez also intends to engage relevant government staff and community members as projects move forward towards design and implementation.

The City’s GI efforts have been ongoing since 2016.

- 2016: the City Council conducted Green Infrastructure briefings with staff and provided several written updates to the City Council.
- 2016: City Staff presented a memo dated March 11, 2016 to the City Council with the information package prepared by the CCCWP in connection with the green infrastructure requirements as per Provisions C.11 and C.12 of the MRP
- 2017: City staff from various City departments including Engineering, Planning and Building Departments contributed to the preparation of the Green Infrastructure Plan.
- June 30, 2017 : The City's Green Infrastructure Framework Plan was signed by the City Engineer and City Manager and was adopted by City Council.
- 2017-18: City Engineering and Planning departments, Public Works and the City Council were informed of the green infrastructure and requirements.
- 2017-18: Staff continued to update the Council on the status of the development of the Green Infrastructure requirements and Plan during the annual presentation on the Stormwater Program budget.
- April 24, 2018: two members from the engineering department attended a C.3 requirements workshop conducted by the CCCWP. The workshop covered updates to C.3 requirements; planning, design, and construction of land development projects, water treatment C.3 facilities, and including green infrastructure planning.
- September 26, 2018 – two members of the Engineering Department staff participated in the Green Infrastructure Planning Workshop for Permittees.
- 2018-19: City Engineering staff, supported by staff from various departments, drafted the City's Green Infrastructure Plan (this document).
- The City participated in a countywide interagency process, convened by the CCCWP, to facilitate excellence and consistency in the design and construction of Green Infrastructure features and facilities. The City:
 - Reviewed with other Contra Costa municipalities, through the CCCWP, conceptual, preliminary, and final plans and specifications developed for Green Infrastructure projects.
 - Identified significant Green Infrastructure 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.
 - Participated in evaluation and recommendation of design details and specifications for Green Infrastructure, where doing so furthers the purposes of countywide consistency and cost-efficiency, and quality of the built facilities.
 - Participated, as a reviewer, in the drafting and updating of a Green Infrastructure Design Guide, the purpose of which will be to assist capital improvement projects staff in Contra Costa municipalities throughout the steps of project identification, evaluation, design, and construction.

1.3.6 Policies, Ordinances, and Legal Mechanisms

- *Resolutions, ordinances, and policies adopted in connection with the Green Infrastructure Plan*
 - June 30, 2017: The City's Green Infrastructure Framework Plan was signed by City Engineer and the City Manager and adopted by the City.
 - City's Stormwater Ordinance.

- Policies from the City's Annual Report (Attachment G.)
- Contra Costa Program C.3 Guidebook
- Participation in the Countywide Interagency Process.
- This Green Infrastructure Plan (this plan) approved December 13, 2019.

2 Green Infrastructure Targets

Provisions C.11 and C.12 in the MRP require Contra Costa Permittees (Contra Costa County and its 19 cities and towns) to reduce estimated PCBs loading by 23 grams/year and estimated mercury loading by 9 grams/year using green infrastructure by June 30, 2020. Regionally, Permittees must also project the load reductions achieved via green infrastructure by 2020, 2030, and 2040, showing that collectively, reductions will amount to 3 kg/year PCBs and 10 kg/year mercury by 2040.

This planning process developed and assessed projections for the square footage of impervious surface to be retrofitted and treated with green infrastructure from private projects within the City of Martinez jurisdiction by 2020, 2030, and 2040. It also incorporates targets for the square footage of impervious surface to be retrofitted and treated with green infrastructure through potential public projects within the City jurisdiction by 2020, 2030, and 2040.



2.1 Countywide Attainment Scenario

A “Countywide Attainment Scenario” was modeled as part of the RAA modeling to help Permittees with their GI Planning. The Contra Costa Countywide Reasonable Assurance Analysis (RAA), summarized in the Geosyntec Consultants draft memo to the CCCWP entitled, “Reasonable Assurance Analysis Countywide Attainment Strategy” dated May 1, 2019, attached as Appendix B, focused on PCBs while also evaluating opportunities for mercury reduction. The results of this analysis demonstrate that the public GI retrofit opportunities with the highest potential to reduce PCBs loads are concentrated within a small subset of Contra Costa Permittee area due to the pattern of pre-1980 industrial development within the region. Conversely, many Contra Costa Permittees have no or very few opportunities to contribute significantly toward achievement of PCBs loading reductions via implementation of GI in their communities.

Given the findings, it is likely that a countywide strategy would be the most efficient and effective way to achieve the PCB load reduction goals. However, a preliminary review of the legal and administrative requirements involved with implementing a countywide strategy indicates that they are complex and would require considerable effort to resolve. Additionally, it would require comprehensive dialogue in the public forum lead by the elected officials and ultimately overall agreement which is beyond the scope of this plan.

For the purposes of creating the local GI Plan, Martinez prioritized their GI projects based on achieving other multiple benefits including controlling other stormwater pollutants, preserving and enhancing local stream hydrology, reducing localized flooding, increasing the resiliency of water supply, ancillary benefits that derive from adding landscaped areas within the urbanized environment, and mitigating the urban heat island effect.

2.2 Private Development Projections

To forecast private development, the City of Martinez participated in a regional process coordinated through the CCCWP and shared with BASMAA member agencies. This process utilized the outputs 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). UrbanSim is a modeling system 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 Association of Bay Area Government [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). The resulting maps were reviewed by local staff for consistency with the City’s local knowledge and local planning and economic development initiatives. The maps were revised, and each revision documented.

It is assumed that multifamily residential and commercial/industrial developments will incorporate stormwater treatment facilities (typically bioretention) in accordance with MRP Provisions C.3.b., C.3.c., and C.3.d. Because of high land values, it is expected that more than 50% of the existing impervious area in each parcel will be replaced if a parcel is developed, and therefore the entire parcel will be subject to Provision C.3 requirements (that is, will be retrofit with Green Infrastructure), 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.

Based on these assumptions and the revised maps, the amounts of existing impervious surface forecast to be retrofit with green infrastructure via private development are as shown in Table 2.

Year	Total Square Footage
2020	1,555,074
2030	207,054
2040	728,298

2.3 Targets for Public Projects

Forecasted impervious surface to be retrofit via public projects is in two categories:

1. Estimated tributary impervious surface for Green Infrastructure Projects identified in this Plan.
2. Additional tributary impervious surface associated with projects yet to be identified. These projects are associated with general geographic areas (neighborhoods or blocks) but specific facility locations have not yet been identified.

These forecasts are summarized in Table 3.

Year	Square footage tributary to GI Projects included in this Plan	Additional square footage associated with projects yet to be identified	Total
2020	413,996	0	413,996
2030	0	774,513	774,513
2040	0	774,512	774,512

2.4 Projected Load Reductions

As part of the RAA process, the estimates of projected private development (described in Section 2.2) and the general and specific locations of public projects (summarized in Section 2.3 and detailed in Chapter 3) will be incorporated into a 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 RAA report.

3 Public Project Identification, Prioritization, and Mapping

3.1 Tools for Public Project Identification and Prioritization

To prioritize projects the City of Martinez the Contra Costa Watersheds Stormwater Resource Plan described below.

➤ *CCW SWRP Overview*

The Contra Costa Watersheds (CCW) Stormwater Resource Plan (SWRP) was created to help build stormwater management projects and programs within Contra Costa County (County). The plan builds upon a foundation of support for and successful implementation of watershed protection programs, restoration projects, and low impact development throughout the County.



The CCW SWRP forms a connection between regional water quality and water resources planning goals. The CCW SWRP identifies projects that can support municipal GI planning and implementation driven by water quality regulations. The CCW SWRP also reflects the goals of and will be incorporated into Integrated Regional Water Management (IRWM) plans within the County, providing a link between stormwater and management of other water resources. The implementation of multiple benefit CCW SWRP projects will help protect and improve water bodies in the County, which provide important environmental, community, health, and economic benefits within the County. CCW SWRP also represents progress towards treating stormwater as a valuable local water resource.

The process for identifying project opportunities and then selecting ten potential projects for concept development is outlined below.

1. Identify projects – Potential projects were provided by the Permittees and other CCW SWRP stakeholders. Additional potential project locations were identified and catalogued using a geographic information system (GIS)-based opportunity analysis.
2. Score projects using an automated metrics-based evaluation – The CCW SWRP used a quantitative metrics-based multiple benefit evaluation, as required by the Storm Water Resource Plan Guidelines (SWRP Guidelines, SWRCB, 2015), to score potential projects. Multiple benefits evaluated included water quality, water supply, flood control, environmental and community benefits of projects. The scoring was automated using metrics based on available project attributes. These scores were then used to preliminarily rank the projects for each jurisdiction.
3. Rank projects based on input from CCCWP Permittees and the Technical Advisory Group (TAG) – Using the project scores along with other institutional knowledge, the CCCWP, jurisdictions, and Contra Costa Watersheds ES-7 August 2018 DRAFT Stormwater Resource Plan the TAG provided input on project ranking and prioritization of projects as required by the SWRP Guidelines.

4. Develop Project Concept Designs – Ten projects were selected for development of concept designs showing the project footprint, stormwater treatment facilities, projected PCBs and mercury load reductions and other benefits, and a cost estimate.

➤ *Development of Initial Project Opportunity Lists*

The City identified its projects based on their ability to be built in the location and provide meaningful treatment as part of a development project.

The Contra Costa Clean Water Program (CCCWP) led the development of the CCW SWRP, on behalf of Contra Costa County Flood Control and Water Conservation District (Flood Control District), unincorporated Contra Costa County, the 19 incorporated cities and towns within Contra Costa County (Permittees), and other stakeholders. The CCW SWRP development involved a robust outreach program to engage and solicit feedback from the County's well-organized and empowered community groups and the public. A Technical Advisory Group (TAG), made up of representatives from state, regional, and local agencies as well as stakeholder groups, was also established to help guide the CCW SWRP development. The stakeholder developed potential project by gathering the following information for the SWRP:

Facility Name

Location with APN or GPS coordinates

Facility size and or volume

Other information such as assessment of benefits, the stage of planning/completion date and other descriptive information.

➤ *Stakeholder Engagement Process*

The development of a successful CCW SWRP required the coordination and collaboration among municipalities, special districts, NGOs, other stakeholders within the County and the public, as well as government agencies, to gather data, identify project opportunities, and ensure that local goals and values are reflected in the document. A group of technical advisors, representing municipalities, watershed advocacy and planning groups, and disadvantaged communities was assembled into a technical advisory group (TAG) to help guide the development of the CCW SWRP. This section describes the roles of cooperating entities, the TAG, supporting entities, and the public as well as the CCW SWRP's relationship with existing and anticipated planning documents. Specific public education and outreach activities that were conducted during the CCW SWRP development process.

➤ *Project Opportunity Identification Tool*

A desktop project opportunity analysis was conducted in a GIS platform to identify opportunity locations for GI projects. The desktop GIS analysis entailed screening for publicly-owned parcels and rights-of-way (ROW) without physical feasibility constraints that would preclude implementation of a GI project. The process for identifying additional projects was as follows:

1. Identify publicly owned parcels
2. Screen identified publicly owned parcels
3. Identify right of way

4. Identify land uses
5. Screen all identified locations for physical feasibility

The projects identified through the GIS opportunity analysis and stakeholder GI projects process were categorized as parcel-based, regional, or ROW/green street projects.

➤ *Summarize CCW SWRP criteria for selecting/scoring multi-benefit projects*

The SWRP Guidelines require an assessment of water quality, water supply, flood management, environmental, and community benefits of potential CCW SWRP projects. The SWRP Guidelines divide these benefit categories into “main” and “additional” benefits

Category	Main Benefit	Additional Benefit
Water Quality	<ul style="list-style-type: none"> • Increased filtration and/or treatment of runoff 	<ul style="list-style-type: none"> • Nonpoint source pollution control • Reestablished natural water drainage and treatment
Water Supply	<ul style="list-style-type: none"> • Water supply reliability • Conjunctive use 	<ul style="list-style-type: none"> • Water conservation
Flood Management	<ul style="list-style-type: none"> • Decreased flood risk by reducing runoff rate and/or volume 	<ul style="list-style-type: none"> • Reduced sanitary sewer overflows
Environmental	<ul style="list-style-type: none"> • Environmental and habitat protection and improvement • Increased urban green space 	<ul style="list-style-type: none"> • Reduced energy use, greenhouse gas emissions, or provides a carbon sink • Reestablishment of the natural hydrograph
Community	<ul style="list-style-type: none"> • Employment opportunities provided • Public education 	<ul style="list-style-type: none"> • Community involvement • Enhance and/or create recreational and public use areas

Using the information compiled in the identified project opportunity database, each project received a score using the point system. A description of each scored project component is provided below:

Parcel area (for regional and parcel-based GI projects only) – This scoring component awarded more points for larger parcels, as it is easier to site a project on a larger parcel.

Slope – This scoring component is related to ease of construction and implementation. Flatter locations typically require less grading and hydraulic connection considerations and received more points.

Infiltration feasibility – More points were awarded to projects that overlie infiltrating soils, as retention of runoff through infiltration provides enhanced pollutant reduction, reestablishment of natural

drainage, groundwater aquifer recharge potential, and reduction of runoff rates, among other beneficial outcomes.

PCBs/mercury yield classification in project drainage area – This scoring component is related to the influent TMDL pollutant loads. Facilities that are in areas with higher pollutant loading rates for PCBs and mercury have greater potential to reduce pollutant loads. An additional point was awarded to projects with a property within its assumed drainage area that is known to be a source of elevated PCBs loads to the storm drain system.

Removes pollutant loads from stormwater – Points were awarded to facilities designed as green infrastructure or treatment control facilities. More points were awarded to partially and fully infiltrating green infrastructure projects than non-infiltrating projects, as infiltration increases pollutant load reduction. An additional point was awarded for regional projects, as these projects would remove a larger pollutant load than a parcel-based or ROW project.

Augments water supply – Increasing points were awarded based on potential water supply provided. Projects located over infiltrating soils and overlying potential water supply aquifers that promote infiltration were given one point, while projects that are specifically designed to augment water supply were given two points.

Provides flood control benefits – Flood control facilities received points specific to providing flood control benefits. Green infrastructure projects (fully or partially infiltrating) were assumed to provide some flood control benefits, while projects specifically designed to address flooding issues were given more points.

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. Fully and partially infiltrating green infrastructure projects were given one point for providing hydrologic benefit.

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.

➤ *Additional criteria used by municipal staff*

Staff also considered the cost benefit as part of the “buildability” of the project.

➤ *Prioritization Process*

The scored project opportunity database was used to create opportunity checklists for each jurisdiction.

➤ *Local staff identification of additional projects*

Staff looks at all opportunities that have potential to be “buildable.” This effort will also identify in the field a scope concept for project identified as high potential for contribution to load reduction under the Countywide Attainment Scenario.

- *Integration with Capital Improvement Project planning process*
All project proposals are evaluated in the context of the City priorities. The highest priority is the maintenance of current facilities. After that new project proposals are evaluated based on funding available and the use of dedicated or restricted funding.

- *Integration with Complete Streets and other transportation planning processes*
Where funding and right of way opportunities present themselves, green infrastructure will be examined for incorporation into transportation projects.

- *Additional processes and techniques used for project identification and conceptual design*
The designer of CIP projects is directed to look for GI opportunities in the project. This final scope determination is, of course, limited by budget, feasibility and ROW restrictions. Should the project impervious surface exceed the threshold for C.3 regulated projects, treatment facilities will be implemented as per the CCCWP C.3 Guidebook.

3.2 Maps and Project Lists

The table shown below provides the project being examined for feasibility to include GI components. Associated maps are included in Appendix A.

Table 5: City of Martinez Proposed GI Projects			
Description	2020	2030	2040
Pacheco Blvd Improvements		X	
Ward Street Improvements		X	
Alhambra Avenue Improvements			X
Parking Lot #2 Renovations 17-19		X	
Parking Lot #4 Renovations 17-19	X		
Alhambra Creek Sediment Removal Project -from Railroad to Ward Street		X	

4 Early Implementation Projects

4.1 Review of Capital Improvement Projects

MRP Provision C.3.j.ii. requires that City of Martinez prepare and maintain a list of public and private green infrastructure projects planned for implementation during the 2015- 2020 permit term, and public projects that have potential for green infrastructure measures. The City 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 is supported by guidance developed by BASMAA: “Guidance for Identifying Green Infrastructure Potential in Municipal Capital Improvement Projects” (May 6, 2016). The BASMAA Guidance is attached to this document as Appendix F.

“The City of Martinez submitted an initial project list with the FY15-16 Annual Report and updated the list in the FY 16-17 and FY 17-18 Annual Reports.

4.2 List of Projects Identified

CIP Projects with Green Infrastructure potential that were identified during 2015-2019 are listed in Table 6, along with their status.

Project Name	Description	Potential Tributary Impervious Area (SF)	Project Status	Included in Green Infrastructure Plan (Y/N)
Waterfront Park improvement	A park renovation project	TBD	Completed 1/16/19	N Regulated project
Pacheco Boulevard Improvement	Installing a traffic signal and street widening improvement within the City Limits from Arnold Drive to Sunrise Drive.	TBD	The project design is 75% complete. The project is currently on hold pending other agencies (County and Caltrans) completing their studies and plans for the area. FY 20-21	Y
Ward Street Landscape Improvement Project	Street Landscaping improvement.	TBD	Preliminary Planning Phase FY 20-21	Y
Alhambra Ave Improvement Project	Street improvement.	TBD	Preliminary Planning Phase FY 20-21	Y
Parking lot # 2 Renovation Project	Parking lot renovation and paving.	7,500	Preliminary Planning Phase FY 20-21	Y

Parking lot # 4 Renovation Project	Parking lot landscaping along street frontage.	40,000	Preliminary Planning FY 20-21	Y
Alhambra Creek Sediment Removal Project (Railroad to Ward Street)	Projected ±3,100 CY of sediment to be removed	150,000 SF ± (3.44 acres)	Design Complete	Y

4.3 Workplan for Completion

To the extent known the schedule is shown in Table 4.2 above. The projects are in preliminary stages. When scope and funding sources and schedule is to be determined for each project, the feasibility on including GI components will be evaluated and included in the projects, subject to Council approval.

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 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-facing websites or distributed to the public. These maps can be developed to contain information regarding the GI project data input into the AGOL system.

5.2 Results

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 developed for the County. That functionality is planned to be active by the end of the current permit term.

The City actively engages with the AGOL tool and maintain up-to-date City project data. The City currently conducts updates of the AGOL tool at an annual frequency.

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, project managers and designers will 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, and other resources available on the CCCWP website.

<https://www.cccleanwater.org/construction-business/green-infrastructure/resources>

6.2 Specifications and Typical Design Details

LID features and facilities will be designed and constructed in accordance with the applicable specifications and criteria in the Contra Costa Clean Water Program's 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.

6.3 Sizing Requirements

The City uses the sizing guidelines generated by the Bay Area Stormwater Management Agencies Association (BASMAA) report, Guidance for Sizing Green Infrastructure Facilities in Street Projects, attached as Appendix D.

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.

7 Funding Options

7.1 Funding Strategies Developed Regionally

The City is committed to the implementation of green infrastructure in future development, but also in retrofitting the existing infrastructure to move away from existing “gray” infrastructure. To that end the City will be working collaboratively with its co-permittees in the pursuit of funding and project opportunities that are aimed at creating green infrastructure. The primary purpose in participating in the Contra Costa Watersheds Stormwater Resources Plan (SWRP) development was to be eligible for state grant funds by having all potential projects in the SWRP. The BASMAA Roadmap for Funding of Sustainable Streets will be an important tool in the quest for funding.

BASMAA’s “Roadmap for Funding Solutions for Sustainable Streets”, April 2018, attached as Appendix C: states: (The) “Roadmap, 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, and that are maintained in a state of good or fair condition. The specific actions included in the Roadmap are designed to improve the capacity – both statewide and in the San Francisco Bay Area -- to fund Sustainable Street projects that support compliance with regional permit requirements to reduce pollutant loading to San Francisco Bay, while also helping to achieve the region’s greenhouse gas reduction targets.

“To date, Sustainable Streets have faced funding obstacles due to the restrictions of various funding programs – which may not recognize the potential for overall cost savings that local agencies may achieve through multi-benefit Sustainable Streets projects. Some transportation grants may fund only some aspects of a Sustainable Street project, while resource grants may fund other aspects – and assembling multiple funding sources brings new challenges and costs to a project.

“Over the next 20 to 30 years, cities throughout the Bay Area, and in other parts of California, are required to invest in widespread construction of infrastructure projects that remove pollutants from stormwater runoff, in order to achieve water quality goals for San Francisco Bay. The cost is anticipated to parallel the costs to meet similar requirements in other parts of the state. For example, City of Los Angeles alone, over the next 20 to 30 years, has estimated that \$7 to \$9 billion dollars will be needed to implement the city’s Water Quality Compliance Master Plan for Urban Runoff (Farfing and Watson 2014). Sustainable Streets are designed to cost effectively deliver multiple benefits, including: climate change mitigation, air quality improvement, water quality improvement, localized flood control, and community benefits.

(The) “Roadmap presents specific actions intended to ease the financial burden local governments are facing by maximizing available resources and/or identifying new funding streams excluding any General Fund money. The specific actions to fund Sustainable Streets are scheduled for the following timeframes:

- Immediate actions, such as addressing Sustainable Streets in grant solicitations
- Short-term actions, such as reviewing policies for better ways to fund Sustainable Streets
- Long-term solutions, including legislative engagement and/or advocacy regarding Sustainable Street”

7.2 Local Funding Strategies

It is noted that per the Permit Requirements, the sources of funding which the City is currently pursuing or will pursue for GI Project development should include an evaluation of prioritized funding options, including, but not limited to, alternative compliance funds, grant monies, new taxes and other levies, and other municipal/Permittee resources.

A first step to evaluating potential local funding strategies would be to work with the CCCWP to investigate the legislative constraints for the use of Contra Costa Transportation Authority sales tax revenue. An initial review indicates that the language of Public Utilities Code Division 19, Chapter 1, Section 180001 (e) stating that the funding is "...to be used to supplement and not replace existing local revenues for transportation purpose" would seem to exclude a Clean Water Act purpose of using the funds used for green infrastructure in conjunction with the pavement maintenance mandate. A second step would be to get a ruling from MTC if the Highway User Gas Tax Account (HUTA), Street and Highways Code Section 2101, could be used for Green Infrastructure. Those are the top priorities.

To fund projects, they are recommended for consideration based on the needs of the various operating departments and divisions (Entities). Each Entity is to provide a prioritized list along with any funding or grant information that may applicable. This is important because all projects compete for scarce funds. General Fund money is typically not available to any Capital Projects as those funds are dedicated to the operation of the general government, including Police operations.

Given the various sources of funds, projects are ranked by: 1. Health and safety need, 2. Maintenance of current facilities, 3. expansion of existing programs and 4. new programs. This is taken together with sources of funding, so a project that otherwise may not have a high a priority, has funding that cannot be used elsewhere is funded. This is true for transportation projects that variously have, Gas Tax, Measure C or J, traffic mitigation fee revenue or developer mitigation fees. The most flexible funding is saved to be committed last and restricted funds are programmed first. The flexible funds are used to fill in at the end in their applicable category.

In that context, projects have a scope of work developed and a preliminary plan, sometimes only schematic, is developed. For street projects the scope is based on the need and purpose of the project. If the project is a complete streets project, or a street beautification project, green infrastructure will be considered for incorporation considering a number of factors. First is the need being addressed, the second is whether there is eligible funding for the scope of work. The third is the available right of way for the project. Many projects in the developed commercial area are constrained to pavement rehabilitation.

8 Adaptive Management

8.1 Process for Plan Updates

The process to update the plan will be to review what has happened and what has changed as the City moves into the budgeting period. This will be the time to:

- Update the new development commitments that are subject to C.3
- Make any necessary changes to the “UrbanSim” model to reflect more current future projections
- Add any completed public projects
- Update the CIP list for newly developed desired projects

8.2 Pursuing Future Funding Sources

Pursuing future funding resources will have challenges. As the BASMAA “Roadmap” reports:

“Because each funding programs has historically focused on only one or a few of the multiple benefits provided by Sustainable Streets, local agencies have encountered challenges in funding Sustainable Streets projects including:

- **Ineligible components of Sustainable Streets projects:** Green infrastructure may be ineligible for funding by transportation grants; transportation facilities may be ineligible for funding by resource agency grants.
- **Ineligible activities:** Some grants may not cover all project phases, such as planning or short-term maintenance.
- **Inability to use other grants as matching funds:** Matching funds must cover eligible activities; therefore, grant funding for GI components of a Sustainable Street project may not “count” as a match for a transportation grant, and vice versa.
- **Funding cycles of grants are not coordinated:** Projects that must assemble funding from multiple grants may have difficulty finding two applicable grants that will be available at the same time.
- **Costs of tracking and applying for grants:** Local agencies often lack the resources to track grant opportunities, prepare applications, and “repackage” the same project to apply for multiple grants.
- **Costs of administering and reporting on grants:** Obtaining multiple grants for a single project adds substantial administrative requirements due to separate record-keeping and reporting including the risk of not complying with non-concurrent completion dates to retain the funding. Also small projects have disproportionate administrative burdens for the grant received.
- **Scoring approaches may penalize multiple-benefit projects:** Sustainable Streets projects may not score competitively for grants that seek the most cost-effective transportation solution, due to the inclusion of ineligible costs.”

With guidance of the Roadmap, a Roadmap Committee will follow three pathways; Pathway 1 – Prioritize Sustainable Street in Funding Resources, Pathway 2 – Improve Conditions for Projects that Are Funded by Multiple Grants, and Pathway 3 – Pursue Additional Funding Options.

Pathway 1 is to "... maximize the ability of each funding source to fund both transportation and green stormwater infrastructure improvements -- reflecting the integration of transportation and resource benefits in Sustainable Streets A number of the actions are specific to the State Water Resources Control Board's Storm Water Grant Program (SWGPP) and the Metropolitan Transportation Commission's One Bay Area Grant Program (OBAG)," The Pathway also looks to "... recommend requirements for interagency collaboration and or participation by key agencies in actions that promote widespread implementation of sustainable streets, recognizing that requirements have been needed for interagency collaboration ..."

Pathway 2 seeks to improve conditions for projects with multiple funding sources. The goal is to remove obstacles that agencies have encountered to obtain multiple grants for a single sustainable streets project.

Pathway 3 is intended to find ways to "... improve conditions for local agencies to fund Sustainable Streets projects with a range of funding options, including fees and loans, and the funding of pavement rehabilitation projects, through sources identified in Senate Bill 1 (SB 1), the Road Repair and Accountability Act of 2017, which was signed into law on April 28, 2017."

8.3 Alternative Compliance and Credit Trading Investigations

Alternative compliance will need to be carefully reviewed for both the opportunity to achieve compliance but also to be aware of funding use restraints when working collaboratively. Determining whether the Permittees would collectively pursue Alternative Compliance will be a lengthy process requiring a comprehensive dialogue in the public forum lead by the elected officials. Further, commitment to the implementation of any alternative compliance scenarios would necessarily require overall agreement and is beyond the scope of this plan.

Nonetheless, the Geosyntec Consultants May 1, 2019 memo to the CCCWP entitled "Reasonable Assurance Analysis Countywide Attainment Strategy" details preliminary findings, a countywide attainment scenario and strategy. The memo is attached as Appendix B.