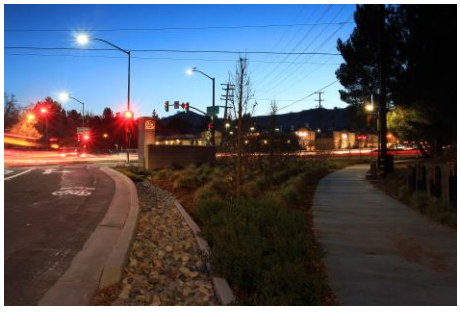
City of Pleasant Hill



Green Infrastructure Plan

AUGUST 30, 2019

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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
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 Pleasant Hill (City) 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 2015[1]. 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 to prepare a Green Infrastructure Plan, to be submitted with its Annual Report to the RWQCB due September 30, 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.

"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."

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 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] Order R2-2015-0049

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 µg/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 Pleasant Hill. 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 Pleasant Hill has referenced in Chapter 15.05 of the Pleasant Hill Municipal Code, Stormwater Management and Discharge Control.

To date the City has already completed one Green Infrastructure project: The Golf Club Road/Old Quarry Road Improvement Project. The project, considered a corridor enhancement project, constructed "complete street" enhancements along Golf Club Road (from the Contra Costa Canal Trail to approximately 300 feet east of the Old Quarry Road Intersection) and Old Quarry Road (between Golf Club Road and Chipancingo Parkway).

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.

1.3 Plan Context and Elements

1.3.1 Planning Context

- *Municipal Geography*

  According to the United States Census Bureau, the city has a total area of 8.2 square miles (20.8 km^2). Pleasant Hill has a varied landscape with some valleys and rolling hills. It is located in the central East San Francisco Bay.

- *Demographics*

  The 2010 United States Census reported that Pleasant Hill had a population of 33,152. The population density was 4,688.1 people per square mile (1,810.1/km^2). The racial makeup of Pleasant Hill was 24,846 (74.9%) White, 686 (2.1%) African American, 127 (0.4%) Native American, 4,516 (13.6%) Asian, 66 (0.2%) Pacific Islander, 1,079 (3.3%) from other races, and 1,832 (5.5%) from two or more races. Hispanic or Latino of any race were 4,009 persons (12.1%).

  The Census reported that 32,689 people (98.6 percent of the population) lived in households, 151 (0.5%) lived in non-institutionalized group quarters, and 312 (0.9%) were institutionalized.

  There were 13,708 households, out of which 3,892 (28.4%) had children under the age of 18 living in them, 6,329 (46.2%) were opposite-sex married couples living together, 1,359 (9.9%) had a female householder with no husband present, 597 (4.4%) had a male householder with no wife present. There were 789 (5.8%) unmarried opposite-sex partnerships, and 152 (1.1%) same-sex married couples or partnerships. 3,929 households (28.7%) were made up of individuals and 1,431 (10.4%) had someone living alone who was 65 years of age or older. The average household size was 2.38. There were 8,285 families (60.4 percent of all households); the average family size was 2.96.

  The population was spread out with 6,563 people (19.8%) under the age of 18, 3,180 people (9.6%) aged 18 to 24, 8,901 people (26.8%) aged 25 to 44, 9,902 people (29.9%) aged 45 to 64, and 4,606 people (13.9%) who were 65 years of age or older. The median age was 40.7 years. For every 100 females, there were 94.1 males. For every 100 females age 18 and over, there were 91.0 males.

There were 14,321 housing units at an average density of 2,025.2 per square mile (781.9/km²), of which 13,708 were occupied, of which 8,470 (61.8%) were owner-occupied, and 5,238 (38.2%) were occupied by renters. The homeowner vacancy rate was 1.3 percent; the rental vacancy rate was 5.1 percent. 21,253 people (64.1 percent of the population) lived in owner-occupied housing units and 11,436 people (34.5%) lived in rental housing units.

- *Commitment and Actions for Sustainability*

  The City will explore sustainability issues as we update the General Plan which will be happening over FY calendar 2019 and 2020 for General Plan 2040.

- *Staffing and Scope of Sustainability Programs*

  As part of the General Plan exploration of sustainability issues any needed staffing will be looked into as well.

- *CEQA*

  According to Section 18.75.040 Environmental Review of the Pleasant Hill Municipal Code, each land use application for a discretionary approval by the city is subject to the requirements of the California Environmental Quality Act (CEQA), the state CEQA Guidelines, and the city's CEQA Guidelines.

1.3.2 Watersheds and Storm Drainage Infrastructure

- *Watersheds and Watershed Characteristics and Challenges*

  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 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 has begun 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)."

- *Major Drainages and Major Drainage Characteristics and Challenges*

The following drainages are identified in the Pleasant Hill section of the Countywide Flood Insurance Study (FIS) provided by the Federal Emergency Management Agency (FEMA).

- Grayson Creek
- East Fork Grayson Creek
- West Fork Grayson Creek
- Murderer's Creek
- Mangini Creek
- McCollum Creek
- Flame Drive Creek
- Monument Drain

- *Storm Sewer System*

Significant flood events have occurred numerous times in the city. After a 1958 flood, the Contra Costa Water District used $24 million in Federal funds to construct a rectangular concrete channel from Gregory Lane on the East Fork of Grayson Creek, and Apollo Way on the West Fork, downstream to Viking Drive. From there downstream, the U.S. Natural Resource Conservation Service constructed a wider, trapezoidal earthen channel, and the U.S. Army Corps of Engineers subsequently heightened the adjacent levees. These structures have the capability of carrying runoff from a 50-year storm (which has a 2 percent chance of occurring during any year), while capacity of the unimproved creeks south of Gregory Lane is estimated at a 10-15-year storm (as much as a 10 percent chance of occurring any year).

During periods of moderately heavy rainfall, flooding occurs in the area between Murderer's Creek and the East Fork of Grayson Creek. Higher intensity storms may add flood potential near the confluence of Mangini Creek and the West Fork of Grayson Creek. During 50-year and stronger storms, shallow flooding also may occur between Grayson Creek and Contra Costa Boulevard, and along Walnut Creek in the Sherman Acres and Fair Oaks neighborhoods east of Interstate 680. Storm waters tend to spill over channels or banks and then flow along streets and across developed property.

- *Storm Sewer Challenges (Pertinent to GI)*

The City is largely built out. The commercial areas are essentially at the lower elevations that are also they older parts of town where the best opportunities would be expected to exist. This part of Pleasant Hill, however, has right-of-way (ROW) limitations making implementation of Green Infrastructure.

The major challenge is that storm drainage channels are largely on private property. Property owners have been reluctant to provide drainage easement limiting the ability to include GI planning for those reaches. Eventually the drainage goes to Grayson Creek, a channelized Flood Control channel

- *Flood Zones*

  The **Floodplain Boundaries** section of the current (2017) FIS provided by FEMA 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."

  The **Floodways** section of the current (2017) FIS states that the floodways presented in this FIS were computed for certain stream segments on the basis of equal conveyance reduction from each side of the floodplain. Floodway widths were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. The results of the floodway computations are tabulated for selected cross sections. The computed floodways are shown on the revised FIRM (Published Separately). In cases where the floodway and 1-percent annual chance floodplain boundaries are either close together or collinear, only the floodway boundary is shown. The area between the floodway and 1-percent annual chance floodplain boundaries is termed the floodway fringe. The floodway fringe encompasses the portion of the floodplain that could be completely obstructed without increasing the water-surface elevation of the 1-percent annual chance flood more than 1.0 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 1, "Floodway Schematic."

- The **Principal Flood Problems** as described in the current (2017) FIS state that the flooding in Pleasant Hill has been caused by local runoff that exceeded stream channel capacities and has been greatly aggravated by blocked drainage facilities. Along the lower reaches of Grayson Creek, principal flood problems are caused by a lack of channel capacity and constriction of the floodplain by inadequate levees. Beginning with the Center Avenue Bridge, located in the unincorporated areas of Contra Costa County, and proceeding upstream, numerous undersized or poorly maintained bridge crossings cause overbank flooding. In the upper portion of Grayson Creek, south of Viking Drive and continuing on to East Fork Grayson Creek, a concrete box channel constructed in the late 1950s causes overbank flooding. The channel cannot accommodate the 1-percent annual chance flood runoff from the urbanized drainage above it. Overbank flooding also occurs along East Fork Grayson Creek, south of Gregory Lane, and along Murderers Creek because existing channels and crossings cannot convey the 1-percent annual chance peak flows.

  The FIS further states that between 1950 and 1980, 16 floods occurred in the study area. Since that time, major flood events have occurred in the region in 1982, 1983, 1986, 1992, 1996, and 1998. In January 1952, 6.75 inches of rain fell in 6 days, and 450 families in eastern Contra Costa County were left homeless. The Pacheco area immediately north of the city limits was especially affected. In December 1955, although 11.75 inches fell in 6 days, less damage occurred than in 1952 because of improved

drainage facilities. At the corner of Ardith and Elinora Drives in the Gregory Gardens area, 2.5 feet of water ponded in the road. In 1958, Gregory Gardens flooded for the second time; 2,600 homes were affected. The CCCFCWCD then asked Congress for $24 million to implement flood-control measures.

Additionally, in 1955 and 1958, flood peaks of 416 and 602 cubic feet per second, respectively, were measured at stream gages on West Fork Grayson Creek. Based on regional analysis, these floods had estimated recurrence intervals of approximately 20 and 50 years, respectively. During a 1963 flood, although the Grayson Creek gage was no longer operating, the peak flow, measured at various gages in the basins south of Pleasant Hill, reflected a recurrence interval of between 10 and 35 years.

- *Flood Control Facilities*

According to the current (2017) FIS, in response to the 1958 request by the CCCFCWCD, the U.S. Department of Agriculture NRCS constructed flood channels on Grayson Creek and its East and West Forks in the early 1960s. Approximately 2.4 miles of rectangular concrete channel was constructed along Grayson Creek from 335 feet upstream of Viking Drive upstream to the confluence with East and West Forks, along East Fork Grayson Creek from the confluence upstream to Gregory Lane, and along West Fork Grayson Creek from the confluence upstream to the vicinity of the intersection of Mercury Way and Apollo Way.

Additionally, the FIS states that on the downstream portion of Grayson Creek, the NRCS constructed a trapezoidal earthen channel, and the USACE subsequently raised the height of the leveed banks. The NRCS project was completed before the 1963 flood. The revised analyses along Grayson Creek and East Fork Grayson Creek revealed that these flood protection measures along Grayson Creek and East Fork Grayson Creek are no longer sufficient to convey a 1-percent annual chance flood event. The West Fork Grayson Creek channel was not restudied as part of this study, but it is assumed adequate to convey a 0.2-percent annual chance flood event.

- *Flood Control Development Policies*

The City adopted Chapter 15.15 of the Municipal Code entitled Flood Damage Prevention. 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 provisions detailed in the Muni Code.

- *Storm Sewer Opportunities (Pertinent to GI)*

The City has included one concept plan, the Linda Ditch, which is included in the Capital Improvement Program (CIP) as a future unfunded project. This mobilizes a drainage ditch that conveyed drainage from a large section (over 100 acres) of the older part of Pleasant Hill to Grayson Creek. This project is included in the GI Project list.

A second opportunity in concept, yet to be studied, is to identify a major outfall on the Grayson-Murders creek watershed where there could be existing public land, or unusable land that could be acquired for the construction of a bioretention facility to treat required flow for GI.

- *Recent and Planned Drainage Improvements*

An update of the Storm Drain Master Plan is under way. This will consider system risks, opportunities and funding needs. This will eventually lead to the scoping of the necessary CIP projects.

- *Funding for Maintenance and for Capital Improvements*
  Maintenance funding will be part of the Master Plan.

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 Pleasant Hill has reviewed and/or updated the following planning documents to appropriately incorporate green infrastructure requirements:

Table 1. Documents Updated to Align with this Green Infrastructure Plan

Document	Summary of Updates	Completion Date
General Plan	Under study	2020

Green Building / Sustainability	Under consideration	With General Plan Rev 2020
Standard Details and Specifications	Under CC Program	June 30, 2019

As indicated above the review of applicability of changes to planning documents will be incorporated into the General Plan update in 2020. The standard details and specifications are being assembled from the previously mentioned sources that are in the public domain and will be promulgated at the time of the Annual Report.

Planning has already reviewed this Plan and has provided the guidance about incorporating any needed changes at the General Plan update time. Low impact development (LID) are already well engrained in the project review process as it has been required since the inclusion of C.3.d in the Permit.

1.3.5 Outreach and Education

The City's Green Infrastructure Plan development process in conjunction with the Contra Costa Clean Water Program engaged a wide variety of stakeholders, including both government staff and community members who will live, work, and play near future green infrastructure projects in the potential project location identification process. The City of Pleasant Hill will engage relevant government staff and community members as projects move forward towards design and implementation.

- *Interdepartmental coordination process leading to adoption of the Green Infrastructure*
  Coordination is being implemented among Development Engineering, Planning and the City Attorney's office.

- *Public process leading to adoption of the Green Infrastructure Plan.*
  The adoption process is comprised for coordination between Planning and Engineering with a final adoption via a Council Resolution as a first step in the public education process. The policy will embody the steps for outreach beyond City staff and will rely on promulgating notification to the development community of Program training and informational presentations.

  The City has identified a location and has done the scoping of a project to provide green infrastructure to over 100 acres of public and private ROW. While the project did not get ranked for state funding it is still included in the GI Plan for implementation and is investigating its own funding sources.

- *General outreach and targeted outreach to and training for professionals involved in green infrastructure planning and design.*
  The City encourages the design professional community in conjunction with the Contra Costa Clean Water Program to attend Program training in Green Infrastructure.

- *Staff training on green infrastructure planning and implementation, including planning, engineering, public works maintenance, finance, fire/life safety, and management staff.*

Guidance will be promulgated as later identified in this plan that takes into consideration the needs for complete streets, maintenance access needs, public safety personnel needs. Their considerations will be sought in the overall implementation process.

- *Staff participation in regional processes to promote Green Infrastructure (such as the regional roundtable and design charrette*).

  The City's consultant participated in the review of Green Infrastructure Guidelines, standard Details and Specifications on behalf of the City.

  The City's Stormwater Program Consultants attended the Green Infrastructure Workshop on behalf of the City.

1.3.6 Policies, Ordinances, and Legal Mechanisms

- Summarize resolutions, ordinances, and policies adopted in connection with the Green Infrastructure Plan.

  With Resolution 39-17 the City approved the Green Infrastructure Framework the set the stage for this Green Infrastructure Plan effort. It was adopted May 15, 2017.

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 Pleasant Hill's 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 Pleasant Hill 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, Pleasant Hill 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 Pleasant Hill 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 [Permittee'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.

Table 2. Estimates of Impervious Surface to Be Retrofit via Private Development

Year	Total Square Footage
2020	822,646
2030	195,226
2040	181,812

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.

Table 3. Estimates of Impervious Surface to Be Retrofit via Public Projects

Year	Square footage tributary to GI Projects included in this Plan	Additional square footage associated with projects yet to be identified	Total
2020	10,021	0	10,021
2030	2,373,905	0	2,373,905
2040	0	33,756	33,756

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

The City of Pleasant Hill utilized a number of tools to identify and prioritize potential public projects. The first process was the Contra Costa Watersheds Stormwater Resource Plan described briefly in sections 3.1.1 and 3.1.2 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. The City of Pleasant Hill's Linda Drive bio-retention project is included in the list.

- *Development of Initial Project Opportunity Lists*

The City of Pleasant Hill developed its project based the ability of a project to be built in the location and provide meaningful treatment.

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.

- *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.

Table 4. Benefit Categories of Potential CCW SWRP Projects

Category	Main Benefit	Additional Benefit
Water Quality	• Increased filtration and/or treatment of runoff	• Nonpoint source pollution control • Reestablished natural water drainage and treatment
Water Supply	• Water supply reliability • Conjunctive use	• Water conservation
Flood Management	• Decreased flood risk by reducing runoff rate and/or volume	• Reduced sanitary sewer overflows
Environmental	• Environmental and habitat projection and improvement • Increased urban green space	• Reduced energy use, greenhouse gas emissions, or provides a carbon sink • Reestablishment of the natural hydrograph
Community	• Employment opportunities provided • Public education	• 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 projects.

- *Prioritization Process*

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

- *Local staff identification of additional projects*

  Staff added to the SWRP the projects that it already had a concept for or was a location that had 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 Storm Drain Master Plan*

  The City of Pleasant Hill doesn't have a Storm Drain Master Plan. The major storm drain planning and construction was done in the late 1960's and early 1970's with Corps of Engineering flood control projects to alleviate flooding in low lying areas. That program was successful, and the facilities are part of the City Base Map database.

- *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.

3.2 Maps and Project Lists

The table shown below provides the project currently determined by the City to be feasible for inclusion in this GI Plan. Associated maps are included in Appendix A.

Table 5: City of Pleasant Hill Proposed GI Projects

Description	**2020**	**2030**	**2040**
St Mary's/Rheem/Bollinger Canyon Roundabouts	X		
Linda Ditch-Green Infrastructure and Treatment Facility Project		X	
Taylor Blvd Slide Repairs Project			X

4 Early Implementation Projects

4.1 Review of Capital Improvement Projects

MRP Provision C.3.j.ii. requires that City of Pleasant Hill must 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 City of Pleasant Hill 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."

Due to the long-range planning nature of the Capital Improvement Program no opportunities were identified.

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.

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.

Table 6. Capital Improvement Projects with Green Infrastructure Potential (identified 2015-2019)

Project Name	**Description**	**Potential Tributary Impervious Area (SF)**	**Project Status**	**Included in Green Infrastructure Plan (Y/N)**
Street Resurfacing Program	On-going maintenance of City's roads	NA	Ongoing	N
Traffic Re-Striping Program	Provides needed re-striping of pavement markings for safe movement	NA	Ongoing	N
Annual Creek Maintenance Program	Maintains city creeks and culverts clear of obstructions and debris to minimize future flooding potential	NA	Ongoing	N
Storm Drain Facilities Maintenance Program	Continued maintenance and repair of storm drain system and corrects drainage deficiencies	NA	Ongoing	N
Sidewalk Repair Program	Provides safe walk corridors and minimizes tripping hazards	NA	Ongoing	N
New Sidewalk Installation Program	Installs new sidewalks in areas of high pedestrian traffic	TBD	Ongoing	Potential with related development
Traffic Calming Program	Addresses areas of speeding concerns and provides traffic calming measures	NA	Ongoing	N
ADA Improvement Program	Installs ADA compliant	NA	Ongoing	N

	enhancements to provide for safe access along public facilities			
Storm Drain Program	Provides new storm drain facilities or improvements in areas of poor drainage or localized flooding problems	TBA	Ongoing	Potential with related development
City-wide Bridge Repair Program	Provides for repairs to bridges to maintain a reliable transportation system	NA	Ongoing	N
City Hall Painting Project	Exterior dry rot repair and repainting of entire City Hall	NA	In progress	N - Completed
City Gateway Structure Project	Provides for design of City gateway monuments	NA	Design	N
Boyd Road/Elinora Drive Sidewalk Project	Install new concrete sidewalk along north side of certain sections of Boyd Road	NA	Under construction	N - Completed
Contra Costa Boulevard Improvement Project (Beth Drive to Harriet Drive)	Replacement of sidewalk/pavement	NA	Under construction	N
Golf Club Rd/Old Quarry Rd Improvement Project	New sidewalk, repaving of existing road including reconfiguration of intersection as a roundabout	20,000	NA	Y - Completed
Linda Ditch Green Infrastructure Project	Installation of new bio-retention device from Linda to Linda Creek behind residences on Kathryn and Doris Drives	45,356,000	Beginning planning and design phase	Y

4.3 Workplan for Completion

Tasks and timeframes for constructing the projects identified in Section 4.2

The Linda Ditch project is a concept for future design development. It is shown in the CIP as a future project pending a funding opportunity.

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 maintains 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

- *Description of Guidelines*

  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.

6.2 Specifications and Typical Design Details

- Description of 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.

- *Description of "single approach" to GI sizing prepared through BASMAA*

  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 of Sustainable Streets" (Appendix C), April 2018 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 (Farfsing 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. 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.
- **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 (SWGP) 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.