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FINAL
MONTEREY PENINSULA REGION STORMWATER RESOURCE PLAN

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LIST OF ACRONYMS AND ABBREVIATIONS

13267 Letter	Water Code Section 13267 Technical Report Order
ac-ft/yr	acre-feet per year
AMBAG	Association of Monterey Bay Area Governments
APN	Assessor Parcel Number
ASBS	Areas of Special Biological Significance
BMPs	best management practices
CalAm	California American Water Company
Caltrans	California Department of Transportation
CASGEM	California Statewide Groundwater Elevation Monitoring
CAWD	Carmel Area Wastewater District
CCC	California Coastal Commission
CCRWQCB	Central Coast Regional Water Quality Control Board
CDO	Cease and Desist Order
CEQA	California Environmental Quality Act
CIP	capital improvement program
CMAC	Continuous Monitoring and Adaptive Control
DACs	Disadvantaged Communities
DD&A	Denise Duffy & Associates, Inc.
DWR	Department of Water Resources
E. coli	Escherichia coli
EIR	Environmental Impact Report
feet msl	feet above mean sea level
ft/yr	feet per year
Geosyntec	Geosyntec Consultants, Inc.
GIS	geographic information systems
HEC-HMS	Hydrologic Modeling System
HSG	hydrologic soil group
HSPF	Hydrological Simulation Program
Impaired Waters Policy	Water Quality Control Policy for Addressing Impaired Waters: Regulatory Structure and Options
IRWM	Integrated Regional Water Management

IRWMP	Integrated Regional Water Management Program
LAFCO	Local Agency Formation Commission
LIDI	Low Impact Development Initiative
MBNMS	Monterey Bay National Marine Sanctuary
Monterey Peninsula	Monterey Peninsula, Carmel Bay, and South Monterey Bay
MPWMD	Monterey Peninsula Water Management District
MRSWMP	Monterey Regional Stormwater Management Program
MS4	Municipal Separate Storm Sewer System
NGOs	nongovernmental organizations
NRCS	Natural Resources Conservation Service
PCBs	polychlorinated biphenyls
PEAIP	Program Effectiveness Assessment and Improvement Plan
Phase II Permit	Phase II Small Municipal Separate Storm Sewer System (MS4) General Permit
Plan	SWRP Stakeholder Outreach, Education, and Engagement Plan
ROW	right-of-way
RWMG	Regional Water Management Group
SBPAT	Structural BMP Prioritization and Analysis Tool
SMCWPPP	San Mateo Countywide Water Pollution Prevention Program
SUSTAIN	System for Urban Stormwater Treatment and Analysis Integration
SWMM	Stormwater Management Model
SWRCB	State Water Resources Control Board
SWRP	Stormwater Resource Plan
TAC	Technical Advisory Committee
TELR	Tool to Estimate Load Reductions
TMDL	Total Maximum Daily Load
ton/ac-yr	ton per acre-year
TR-55	Technical Release 55
TSS	total suspended solids
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
W&WD	Water & Wastes Digest

EXECUTIVE SUMMARY

ES-1. Introduction

Monterey One Water, formerly the Monterey Regional Water Pollution Control Agency (MRWPCA), provides wastewater treatment services to the Monterey Peninsula region and was the lead entity in the development of this Stormwater Resource Plan (SWRP) for the Monterey Peninsula, Carmel Bay, and South Monterey Bay (Monterey Peninsula) Integrated Regional Water Management (IRWM) Planning Area. Monterey One Water has prepared this Monterey Peninsula Region SWRP on behalf of the Monterey Regional Stormwater Management Program (MRSWMP), including the cities of Carmel-by-the-Sea, Del Rey Oaks, Monterey, Pacific Grove, Sand City, and Seaside, and Monterey County. In addition to the MRSWMP members, the Monterey Peninsula Water Management District is also a cooperating entity for the development of this SWRP. Unincorporated communities of Monterey County in this SWRP include Carmel Valley, Pebble Beach, Carmel Highlands, the Laguna Seca area, and the Ord Community. A Consultant Project Team consisting of Geosyntec Consultants, Inc. (Geosyntec), EOA, Inc. (EOA), and Denise Duffy & Associates, Inc. (DD&A) prepared the SWRP and conducted associated analyses. Preparation of the Monterey Peninsula SWRP was funded by a Proposition 1 Planning Grant and local match funds, including the locally funded Monterey Peninsula Water Recovery Study Report, the results of which are integrated into this SWRP.

Water quantity issues in the Monterey Peninsula region include an impacted water supply due to a Cease and Desist Order (CDO) for diversions from the Carmel River in 2009 (Order WR 2009-0060), amended on July 19, 2016 (Order WR 2016-0016), and adjudication of the Seaside Groundwater Basin by the Superior Court in 2006, which are currently the primary water supply sources in the Planning Area. Surface water quality issues in the Monterey Peninsula region include pollutant loading from urban and rural runoff, contributing to five impaired water bodies and one total maximum daily load (TMDL). The Planning Area is also includes three Areas of Special Biological Significance (ASBS) – the Point Lobos ASBS, which contains the Point Lobos State Marine Reserve; the Carmel Bay ASBS, which borders the City of Carmel and Pebble Beach Golf Course and contains the Carmel Bay State Marine Conservation Area; and the Pacific Grove ASBS, an area adjacent to Pacific Grove near the boundary of the City of Monterey which contains the Pacific Grove State Marine Conservation Area and the Hopkins State Marine Reserve. All three ASBS areas lie within the Monterey Bay National Marine Sanctuary (MBNMS), which was designated in 1992 as a federally-protected marine area.

The purpose of this SWRP is to identify stormwater capture project opportunities that could be utilized as new water supply sources for the Monterey Peninsula and provide additional water quality and environmental benefits.

The purpose of the Monterey Peninsula Water Recovery Study, which was conducted as part of the development of this Monterey Peninsula Region SWRP, was to examine the feasibility of establishing a Peninsula-wide water recovery and reclamation system, including identifying and evaluating potential projects that could capture sources of wet and dry weather runoff within the Monterey Peninsula IRWM Planning Area for water recovery and use.

The water recovery projects were specifically identified based on their potential to reduce the Peninsula's dependence on the Carmel River, Carmel Valley Alluvial Aquifer, and adjudicated Seaside Groundwater Basin. The study considered how to store, treat, and transport potential sources of runoff prior to entering existing water and wastewater infrastructure for use, but did not identify projects that expand existing water distribution and wastewater storage, treatment, and conveyance system capacities, or determine if this will be needed.

ES-2. Coordination

Cooperating entities participating in the Monterey Peninsula Region SWRP include the MRSWMP member agencies, as well as the Monterey Peninsula Water Management District. Additionally, all components of the SWRP were discussed and reviewed by the Monterey Peninsula Region SWRP Technical Advisory Committee (TAC), which included cooperating entities, regulators, and other interested parties.

A comprehensive and wide-reaching Stakeholder Group, consisting of dozens of federal, state, regional, and local agencies; water/wastewater districts and water suppliers; non-governmental organizations and citizen groups; academic and research institutions; and private businesses, was developed to provide input on the SWRP. Multiple opportunities for stakeholder and public participation were provided during SWRP development.

ES-3. Watershed Identification

The USGS and California Department of Water Resources (DWR) watersheds in the Planning Area are briefly described below:

- The Carmel River Basin watershed, the largest watershed within the Planning Area. The watershed is largely located within unincorporated Monterey County lands, and a portion of the city of Carmel-by-the-Sea intersects the watershed. A portion of the Carmel River Basin watershed is underlain by the Carmel Valley Alluvial Aquifer. Water quality priorities within the Carmel River Basin watershed include the sustainment of beneficial uses within the Carmel River, along with addressing water pollutant concerns present in the Clean Water Act Section 303(d) (303[d]) listings for Tularcitos Creek. Additionally, a Fecal Indicator Bacteria TMDL has been adopted for Tularcitos Creek (CCRWQCB, 2011).
- Most of the Canyon Del Rey/Frontal Monterey Bay watershed, the second largest watershed area within the Planning Area, containing almost all the urbanized areas. Most of the watershed is located within the Planning Area. Water quality priorities within the

watershed include addressing water pollutant concerns present in the four 303(d) listed waterbodies within the watershed, along with protection of the MBNMS and the three ASBS that receive drainage from the watershed (Pacific Grove and Carmel Bay). The 303(d) listed waterbodies within the Canyon Del Rey/Frontal Monterey Bay watershed include Monterey Harbor, Pacific Ocean at Stillwater Cove Beach, and Majors Creek.

- A small portion of the Big Sur/Frontal Pacific Ocean watershed, consisting entirely of unincorporated Monterey County land. The portion of the watershed in the Planning Area includes two major creeks that are largely unaffected by development – the ecologically important San Jose Creek, and the smaller Mal Paso Creek.
- A small portion of the El Toro Creek/ Salinas River watershed, entirely within the federally managed Fort Ord National Monument, and land uses consist mostly of open space lands (see Figure 3). The portion of the El Toro Creek/Salinas River watershed that lies within the Planning Area is underlain by the adjudicated Seaside Groundwater Basin.

In 2009, SWRCB issued a Cease-and-Desist Order to CalAm and set January 1, 2016 as a deadline to cease unauthorized diversions from the Carmel River (SWRCB, 2009). The Cease-and-Desist Order was extended in 2016 with a new deadline of January 1, 2022 for compliance (SWRCB, 2016). Currently, over 60% of the potable water (groundwater) used in the Monterey Peninsula region originates from the Carmel Valley Alluvial Aquifer. The Seaside Groundwater Basin (the Basin) underlies an approximately 19- to 24-square-mile area below Sand City, Seaside, Del Rey Oaks, unincorporated Monterey County, and the Fort Ord Community. The action to adjudicate the Seaside Groundwater Basin was filed in 2003 and the Watermaster for the Basin was created in 2006 in response to potential overdraft conditions.

ES-4. Water Quality Compliance

There are several water quality regulatory requirements that some or all the Cooperating Entities must comply with, including the Phase II Small Municipal Separate Storm Sewer System (MS4) General Permit (Phase II Permit) (Order 2013-0001-DWQ)[1], a guidance letter from the CCRWQCB (13267 Letter), Statewide Trash Amendments, and the Tularcitos Creek TMDL. Additionally, the three ASBS in the Planning Area are subject to ASBS Special Protections, and areas that discharge stormwater to the ASBS must develop compliance plans to meet those Protections. Federal development and redevelopment projects taking place on federal lands within the Planning Area are required to reduce stormwater runoff under Section 438 of the Energy Independence and Security Act of 2007.

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[1] http://www.waterboards.ca.gov/water_issues/programs/stormwater/phase_ii_municipal.shtml. The Phase II Permit requires stormwater agencies to comply with the corresponding TMDL requirements, as specified within the Permit and Attachment G, Region-Specific Requirements for Implementation of TMDLs. However, there are no region-specific requirements affecting the Monterey Peninsula Region.

There have been numerous actions taken in the region to protect water quality. In addition to wastewater control improvements, the cities participating in the MBNMS Water Quality Protection Program have sought to reduce the impacts of urban runoff pollution through a combination of low impact development, stormwater treatment measures (e.g., bioretention and other measures), and source control programs through the implementation of the Sanctuary's Urban Runoff Plan, the prior Model Urban Runoff Program (1996), Monterey Regional Storm Water Pollution Prevention Program (2002), and the MRSWMP (2006 to present).

MRSWMP agencies have also been engaged in the development of TELR and BMP Rapid Assessment Methodology. TELR is intended to be used to prioritize stormwater actions to improve water quality and support water resource objectives, and to track effectiveness of these actions over time.

ES-5. Quantitative Methods for Identification and Prioritization of Stormwater and Dry Weather Projects

All projects identified in the SWRP were evaluated using a metrics-based multi-benefit approach to score projects based on the benefits achieved. The methodology conducted included the following steps:

1. Identify project opportunities – planned and potential project opportunities were identified through three avenues. Planned future projects were provided by SWRP cooperating entities, interested parties, and stakeholders. Additional project opportunity locations were identified and catalogued by the Project Team using a geospatially-based opportunity analysis. Further project opportunities were identified as part of the Monterey Peninsula Water Recovery Study.
2. Screen and classify identified projects – all identified project opportunities were classified by project type, scale, and infiltration feasibility using information provided for planned projects and underlying geospatial characteristics. Project opportunities were then screened for project implementation feasibility and potential performance using geospatial data obtained from the TELR model, publicly available sources, and cooperating entities.
3. Score projects using metrics-based multi-benefit analysis – using the GIS data compiled for each project opportunity as part of Step 2, a quantitative metrics-based multiple benefit evaluation was conducted to score all identified projects.
4. Prioritize and rank projects based on input from cooperating entities, interested parties, stakeholders, and the TAC.
5. Quantification of benefits – the volume of runoff captured was quantified for projects selected for development of concept design.

ES-6. Identification and Prioritization of Projects

The SWRP project identification, analysis, prioritization, and selection process included the following steps:

1. Identify project opportunities and perform a metrics-based evaluation to obtain a preliminary project "score."
2. Send project opportunities and preliminary scores to project opportunity location organizations to perform project prioritization and rank projects.
3. Send revised master project database with project rankings to Monterey Peninsula Stakeholder Group to obtain feedback.
4. Finalize selection of seven projects for concept designs through the TAC, considering the preliminary project scores, the agency rankings, input from the Monterey Peninsula Stakeholder Group, and other local and institutional knowledge. Select one of the seven projects for preparation of a 30% design and CEQA Checklist.

Using these methods, a total of 84 planned projects were received from 17 entities, 241 Water Recovery Study projects were identified, and 377 parcel-based, 61 regional, and 1,609 right-of-way (ROW) projects were identified through the geospatial analysis in the Planning Area.

Based on Stakeholder Group and TAC input and comments, the primary factor in project selection for concept design was to capture as much usable water as possible to help meet dry weather recycled water demands and augment water supply at other time with prior authorization from Monterey One Water. The seven projects selected for concept design include:

- The Hartnell Gulch Restoration and Runoff Diversion project, a proposed diversion to sanitary sewer and restoration project, is in the City of Monterey. The project is estimated to achieve between 20 to 100 ac-ft/yr of water supply. This project was also developed into a 30% design and a preliminary CEQA checklist was completed.
- The Lake El Estero Diversion to Sanitary Sewer project, in the City of Monterey, would augment water supply via diversion of flows to the sanitary sewer, instead of discharging into Monterey Bay. The project is estimated to achieve over 100 ac-ft/yr of water supply from the approximately 3,670-acre tributary drainage area.
- The Monterey Tunnel stormwater diversion project is in the City of Monterey. The project would divert flows from the downtown Tunnel and Oliver Street storm drain gravity pipe and to the sanitary sewer instead of discharging it into Monterey Bay. The project is estimated to achieve from 10 to 20 ac-ft/yr of water supply from the approximately 150-acre tributary drainage area.

- The Carmel-by-the-Sea Stormwater Diversion project, located in the City of Carmel-by-the-Sea, would divert dry weather runoff and wet weather first flush flows from the inland storm drain network to the sanitary sewer main along San Antonio Avenue for treatment and reuse for golf course irrigation. The project is estimated to achieve between 10 to 20 ac-ft/yr of water supply from its approximately 310-acre tributary drainage area.
- The Pacific Grove-Monterey ASBS Watershed – David Avenue Stormwater Storage and Diversion project in the City of Pacific Grove would store wet and dry weather flows for diversion to the sanitary sewer instead of discharging runoff into Monterey Bay and the Pacific Grove ASBS region. This project is estimated to achieve from 10 to 20 ac-ft/yr of water supply from its approximately 100-acre tributary drainage area.
- The regional Del Monte Manor Park Infiltration Project in the City of Seaside, which would include open space park improvements and flood management to infiltrate runoff from the surrounding ROW. The project is estimated to provide indirect benefits of infiltrating 5 to 10 ac-ft/yr of urban runoff above a potable water supply aquifer from its approximately 25-acre tributary drainage area that contains a DAC.
- The Drywell Aquifer Recharge Program in the City of Seaside, with support from regional partners, would focus on using drywells to recharge urban runoff to a primary water supply aquifer. The project is estimated to achieve between 20 to 100 ac-ft/yr of water supply.

Quantification of project benefits utilized a conceptual-level modeling approach. Both wet and dry weather runoff were considered. Wet weather runoff supply was calculated as a function of catchment hydrology, facility configuration, and drawdown rate using continuous hydrologic simulation with USEPA's Stormwater Management Model (SWMM), and the method included in the Phase II Permit for comparison. Dry weather runoff was estimated for a subset of projects by extrapolating dry weather yield results from previously implemented and evaluated projects.

ES-7. Implementation Strategy and Schedule

It is anticipated that Monterey One Water and MRSWMP will facilitate future SWRP updates and ongoing adaptive management. As part of ongoing management, these regular meetings may include a SWRP meeting agenda item as needed to discuss potential updates to the SWRP and how to prepare and fund the updates.

Funding for implementation of projects included in this SWRP will be obtained by the municipal agency, partnership of agencies, or other stakeholder project sponsors capable of implementing the identified projects. A subset of projects identified in this SWRP were identified for potential implementation by 2040, should projects be found to be feasible through detailed investigation, and project funding be secured. Projects identified in this SWRP may be implemented as funding opportunities become available and funds are awarded or allocated to the project. Sources of project funding may include grants, bond measures, local capital improvement program (CIP) budgets, local revenue streams such as utility rates or fees, and/or other funding mechanisms.

Monterey One Water coordinated with the Monterey Peninsula IRWM Regional Water Management Group (RWMG) on incorporation of this SWRP into the Monterey Peninsula IRWMP. The SWRP was introduced to the RWMG at a meeting on November 1, 2018 and the SWRP was unanimously accepted for inclusion in the IRWMP as an appendix.

ES-8. Education, Outreach, and Public Participation

Stakeholder outreach was built upon the work done by the Monterey Peninsula RWMG to develop the Monterey Peninsula IRWMP. As part of developing the Monterey Peninsula IRWMP, the RWMG identified and contacted 130 stakeholders, representing public agencies, local municipalities and special districts, environmental non-profits, community groups, academic educational institutions, private companies, landowners, and individuals. Stakeholders were informed about the SWRP via multiple emails and invited to attend Stakeholder Group meetings. Stakeholders representing DACs were also mailed postcards with information on the first meeting. Two Stakeholder Group meetings were held to share information and solicit input on the SWRP:

- The first meeting, held on October 17, 2017, introduced the Stakeholder Group to the SWRP planning process, provided information on the metrics and methodology for identifying, assessing, and prioritizing potential projects, presented preliminary findings from the Water Recovery Project Feasibility Study, and provided opportunities for stakeholders to submit project ideas.
- The second meeting, held on February 8, 2018, presented the prioritized list of multi-benefit stormwater capture projects to stakeholders, and requested their feedback on the top ranked projects. Stakeholders were also requested to provide input on project characteristics that should be considered for identifying top projects.

One public meeting was held on June 27, 2018 to present the Public Draft SWRP to stakeholders and the public to obtain their feedback. A bilingual flyer (English and Spanish) advertising the public outreach meeting was developed and distributed via email and community center postings. The bilingual flyer and Public Meeting summary are provided in Appendix H.

Comments received through the public meeting and the public comment period have been addressed in this Final Draft SWRP. A comments matrix with a summary of responses and edits is provided in Appendix H.

1. INTRODUCTION

1.1 Organization of Entities Involved in Plan Development

Monterey One Water, formerly the Monterey Regional Water Pollution Control Agency (MRWPCA), provides wastewater treatment services to the Monterey Peninsula region and was the lead entity in the development of this Stormwater Resource Plan (SWRP) for the Monterey Peninsula, Carmel Bay, and South Monterey Bay (Monterey Peninsula) Integrated Regional Water Management (IRWM) Planning Area (Planning Area). Monterey One Water has prepared this Monterey Peninsula Region SWRP on behalf of the Monterey Regional Stormwater Management Program (MRSWMP), including the cities of Carmel-by-the-Sea, Del Rey Oaks, Monterey, Pacific Grove, Sand City, and Seaside, and Monterey County. In addition to the MRSWMP members, the Monterey Peninsula Water Management District is also a cooperating entity for the development of this SWRP. Unincorporated communities of Monterey County in this SWRP include Carmel Valley, Pebble Beach, Carmel Highlands, the Laguna Seca area, and the Ord Community. A Consultant Project Team consisting of Geosyntec Consultants, Inc. (Geosyntec), EOA, Inc. (EOA), and Denise Duffy & Associates, Inc. (DD&A) prepared the SWRP and conducted associated analyses.

Preparation of the Monterey Peninsula SWRP was funded by a Proposition 1 Planning Grant and the MRSWMP. The Monterey Peninsula Water Recovery Study Report, the results of which are integrated into this SWRP, was used as a local match for the grant funds, along with the Tool to Estimate Load Reductions (TELR) development project and MRSWMP staff hours. The Monterey Peninsula Water Recovery Study was funded through a Local Water Project Grant from the Monterey Peninsula Water Management District and the City of Monterey's Neighborhood Improvement Program (NIP). The TELR Model was developed through a partnership of the Low Impact Development Initiative (LIDI), the CCRWQCB, and partner Central Coast municipalities, including the MRSWMP agencies.

All components of the SWRP were discussed and reviewed by the Monterey Peninsula Region SWRP Technical Advisory Committee (TAC), which included cooperating entities, regulators, and other interested parties. The TAC is discussed in further detail in Section 2 of this SWRP.

1.2 Regional Water Quality and Quantity Considerations

Water quantity issues in the Monterey Peninsula region include an impacted water supply due to a Cease and Desist Order (CDO) for diversions from the Carmel River in 2009 (Order WR 2009-0060), amended on July 19, 2016 (Order WR 2016-0016), and adjudication of the Seaside Groundwater Basin by the Superior Court in 2006, which are currently the primary water supply sources in the Planning Area. Surface water quality issues in the Monterey Peninsula region include pollutant loading from urban and rural runoff, contributing to five impaired water bodies and one total maximum daily load (TMDL). The Planning Area is also includes three Areas of

Special Biological Significance (ASBS) – the Point Lobos ASBS, which contains the Point Lobos State Marine Reserve; the Carmel Bay ASBS, which borders the City of Carmel and Pebble Beach Golf Course and contains the Carmel Bay State Marine Conservation Area; and the Pacific Grove ASBS, an area adjacent to Pacific Grove near the boundary of the City of Monterey which contains the Pacific Grove State Marine Conservation Area and the Hopkins State Marine Reserve. All three ASBS areas lie within the Monterey Bay National Marine Sanctuary (MBNMS), which was designated in 1992 as a federally-protected marine area. Additionally, coastal and water supply vulnerabilities to climate change impacts are a concern for the Monterey Peninsula region. More information about the issues impacting watersheds in the Planning Area is provided in Section 3 of this SWRP.

1.3 Purpose of Regional SWRP

The purpose of this SWRP is to identify stormwater capture project opportunities that could be utilized as new water supply sources for the Monterey Peninsula and provide additional water quality and environmental benefits. An overview of how project opportunities were identified is provided in Section 5. A summary of the resulting project opportunities is provided in Section 6 and in Appendix E.

The completed SWRP and the project opportunities identified as part of its development will allow the Monterey Peninsula region to be eligible for Proposition 1 implementation grant funding and other state bond-funded grants. Such financial support from state grant funds for stormwater and dry weather capture projects will:

- Help protect beneficial uses of waterbodies in the Monterey Peninsula region, which provide environmental, community, health, and economic benefits;
- Support implementation strategies using multi-benefit projects and treatment of urban runoff as a resource rather than a waste; and
- Assist in the identification of new water supply sources for the Monterey Peninsula.

1.4 Monterey Peninsula Water Recovery Study

The purpose of the Monterey Peninsula Water Recovery Study, which was conducted as part of the development of this Monterey Peninsula Region SWRP, was to examine the feasibility of establishing a Peninsula-wide water recovery and reclamation system, including identifying and evaluating potential projects that could capture sources of wet and dry weather runoff within the Monterey Peninsula IRWM Planning Area for water recovery and use.

The water recovery projects were specifically identified based on their potential to reduce the Peninsula's dependence on the Carmel River, Carmel Valley Alluvial Aquifer, and adjudicated Seaside Groundwater Basin. The study considered how to store, treat, and transport potential sources of runoff prior to entering existing water and wastewater infrastructure for use, but did not identify projects that expand existing water distribution and wastewater storage, treatment, and conveyance system capacities, or determine if this will be needed.

In addition to identifying and evaluating stormwater capture projects that could specifically provide additional water supply to the region, the study also included the development of two project concept designs, along with a 30% design, California Environmental Quality Act (CEQA) checklist, and project implementation plan and schedule for the top project.

All projects identified through the Water Recovery Study were included in the SWRP project list and analyzed using the SWRP metrics-based multi-benefit approach (see Section 5). Selection of the Water Recovery Study projects that were developed into concepts and 30% design were identified using the methods described in Sections 5 and 6. The Water Recovery Study report, which describes the methods and results, is provided as Appendix D.

1.5 Project Concepts and Project Opportunities

As part of the SWRP, seven of the identified project opportunities were selected to be developed into project concept designs (all of which were also identified in the Water Recovery Study). The projects selected for concept development were identified through a multi-step process. Identified projects were preliminarily scored using a metrics-based multi-benefit analyses consistent with the State Water Resources Control Board (SWRCB) SWRP Guidelines (SWRCB, 2015a), as described in Section 5.

Jurisdictions and other public entities owning parcels on which project opportunities were identified were provided the opportunity to rank and prioritize the project opportunities using the preliminary scores along with other locally applicable knowledge. In addition, input on the ranked and prioritized projects was requested from the Stakeholder Groups during a stakeholder meeting held in early February 2018. The preliminary scores and collective input on project opportunities was compiled and presented to the TAC in a meeting held in late February 2018. Using this input, along with local knowledge about water quantity and quality issues, community support, and financing, the TAC selected the seven projects for concept design. The selection process and the seven selected projects are described in Section 6.

1.6 Community Outreach and Coordination

A comprehensive and wide-reaching Stakeholder Group, consisting of dozens of federal, state, regional, and local agencies; water/wastewater districts and water suppliers; non-governmental organizations and citizen groups; academic and research institutions; and private businesses, was developed to provide input on the SWRP. Multiple opportunities for stakeholder and public participation were provided during SWRP development. A summary of outreach to the

Stakeholder Group is provided in Section 8 of this SWRP. The Stakeholder Outreach Plan is provided in Appendix H.

1.7 Report Organization

This report is organized as follows:

- Section 2 provides a summary of the cooperating entities, TAC, and Stakeholder Group, and how each group was involved in the development of the SWRP.
- Section 3 provides an overview of the watersheds present in the Planning Area, along with the water quantity and quality issues associated with each watershed.
- Section 4 provides a discussion of the various water quality regulations present in the Planning Area and strategies for compliance.
- Section 5 summarizes the quantitative methods used to identify, analyze, and prioritize stormwater capture project opportunities.
- Section 6 describes the results of the analyses, including a summary of the identified projects and details regarding selection of the seven projects for development of concept designs.
- Section 7 provides the implementation strategy for the SWRP.
- Section 8 includes a summary of the stakeholder outreach efforts conducted during the development of the SWRP.

In addition, the following appendices are provided as attachments to this plan:

- Appendix A: SWRP Self-Certification Checklist.
- Appendix B: TAC Meeting Summaries.
- Appendix C: Annotated List of Reviewed Data and Reports.
- Appendix D: Monterey Peninsula Water Recovery Study Report.
- Appendix E: Project Database.
- Appendix F: Project Concept Designs.
- Appendix G: Hartnell Gulch Project Concepts and Preliminary CEQA Checklist.
- Appendix H: Summary of Stakeholder Meetings.

2. ORGANIZATION, COORDINATION, AND COLLABORATION

The California Water Code Section requires that local agencies and nongovernmental organizations (NGOs) be consulted in the SWRP development. This section of the SWRP describes the organization and roles of the SWRP developers and the community engagement process that occurred during SWRP development, while Section 7 describes the plan for ongoing collaboration during the SWRP implementation and Section 8 focuses on stakeholder participation during SWRP development.

2.1 Coordination of Cooperating Entities

Cooperating entities participating in the Monterey Peninsula Region SWRP include the MRSWMP member agencies, introduced in Section 1.1, as well as the Monterey Peninsula Water Management District. The cooperating entities provided input and coordination on the SWRP through a sub-committee of MRSWMP members, which met monthly throughout the duration of the project, as well as involvement on the TAC (described in further detail in Section 2.2). In addition to the cooperating entities, several interested parties were involved in the project through participation on the TAC and through the Stakeholder Group (see Section 2.3). A summary of the Monterey Peninsula region cooperating entities and interested parties is provided in Table 1, below. An “x” indicates the entity has signed one of the agreements summarized below or provided a letter of support.

Agreements and/or support letters that demonstrate agency support and inclusion within the Monterey Peninsula Region SWRP include:

- A Joint Exercise of Powers Agreement (JPA) combined public agencies from Monterey County and created Monterey One Water (M1W in Table 1), formerly the Monterey Regional Water Pollution Control Agency (MRWPCA), in 1979.
- In 2002, a regional Memorandum of Agreement (MOA) was signed with other local MS4 agencies to form the MRSWMP. With the onset of the region’s first Phase II MS4 Permit, the member agencies began implementing the MRSWMP, which was approved by the Central Coast RWQCB in 2006 for implementation by the MRSWMP members to fulfill municipal permittee obligations locally. The MRSWMP MOA was subsequently updated and renewed by the member agencies in parallel with the second Phase II MS4 Permit timeline.
- A MOA established the Central Coast Regional Areas of Special Biological Significance (ASBS) Dischargers Monitoring Program for all stormwater dischargers to the Carmel Bay ASBS and Pacific Grove ASBS, along with other ASBS outside of the Monterey Peninsula area in 2012. In 2015, this MOA was extended through December 31, 2016.

Table 1: Cooperating Entities and Interested Parties

Entities	Roles and Responsibilities	M1W	MRSWMP	ASBS	Letter of Support
Monterey One Water	Lead Entity	x	x	x	
Monterey Regional Stormwater Management Program	Cooperating Entity		x		
City of Carmel-By-The-Sea	Cooperating Entity		x	x	
City of Del Rey Oaks	Cooperating Entity	x	x		
City of Monterey	Cooperating Entity	x	x	x	
City of Pacific Grove	Cooperating Entity	x	x	x	
City of Sand City	Cooperating Entity	x	x		
City of Seaside	Cooperating Entity	x	x		
County of Monterey	Cooperating Entity	x	x	x	
Monterey Peninsula Water Management District	Cooperating Entity				x
City of Salinas	Interested Party	x			
Fort Ord Military Reservation	Interested Party	x			
California State Parks	Interested Party			x	
Hopkins Marine Station	Interested Party			x	
Monterey Bay Aquarium Foundation	Interested Party			x	
Pebble Beach Company	Interested Party			x	x
California Department of Transportation (Caltrans)	Interested Party			x	
Greater Monterey County Integrated Regional Water Management Program (IRWMP)	Interested Party				x
Central Coast Areas of Special Biological Significance Regional Dischargers Monitoring Program	Interested Party				x
Carmel Area Waste Water District	Interested Party				x
Transportation Agency for Monterey County	Interested Party				x
Big Sur Land Trust	Interested Party				x
Monterey Bay National Marine Sanctuary	Interested Party				x

2.2 TAC Involvement

The TAC provided input on the SWRP through four meetings conducted over the course of the project to date, as well as through review of SWRP state submittals. The TAC was primarily responsible for providing feedback of state submittals prior to delivery by the Project Team, providing input on project identification and metrics-based multi-benefit analyses (see Section 5), selecting the top seven project opportunities developed into concept designs, and selecting the top project, developed into a 30% design. The TAC also provided review of this Administrative Draft SWRP prior to finalizing the public draft.

A summary of the TAC members and roles for the project, including involvement with the MRSWMP Subcommittee, is provided in Table 2, below.

Table 2: TAC Members and Roles

Name	Role(s)	Organization[1]
Scott Ottmar	MRSWMP Subcommittee Member; Technical Reviewer	City of Seaside
Jeff Krebs	MRSWMP Subcommittee Member; Technical Reviewer	City of Monterey
Tom Harty	MRSWMP Subcommittee Member; Technical Reviewer	County of Monterey Resource Management Agency
Jeff Condit	Project Manager; MRSWMP Subcommittee Member; Technical Reviewer	Monterey One Water
Alison Imamura	Technical Reviewer	Monterey One Water
Larry Hampson	Technical Reviewer	Monterey Peninsula Water Management District
Dominic Roques	Technical Reviewer	Regional Water Quality Control Board, Central Coast Region
Sarah Hardgrave	Technical Reviewer	Big Sur Land Trust
Jeffrey Albrecht	Technical Reviewer	State Water Resources Control Board
Elizabeth Payne	Technical Reviewer	State Water Resources Control Board
Jill Bicknell	TAC Facilitator	EOA, Inc. (consultant to Monterey One Water)
Lisa Austin	Project Director	Geosyntec (consultant to Monterey One Water)
Kelly Havens	Technical Task Lead/ Project Manager	Geosyntec (consultant to Monterey One Water)
Lisa Welsh	Assistant Project Manager	Geosyntec (consultant to Monterey One Water)
Denise Duffy	TAC Facilitation, Local Perspective	DD&A (consultant to Monterey One Water)
Rachid Ait-Lasri	Grant Manager	State Water Resources Control Board, Division of Financial Assistance

[1] Individual's organization during the development of the SWRP.

A summary of the TAC meetings and topics of discussion is provided in Table 3, below. TAC meeting summaries are provided as Appendix B.

Table 3: Summary of Monterey Peninsula Region SWRP TAC Meeting Topics

TAC Meeting	Date	Topics Discussed
1/Kickoff	September 12, 2017	Project purpose, background, approach, and schedule. Stormwater Resource Plan Outline. Stormwater Resource Planning Area Description Memorandum. Approach to addressing water quality. Stakeholder Outreach Plan. Approval of TAC member list.
2	November 2, 2017	Stakeholder Meeting #1. Relationship between the SWRP and the IRWMP. Data review and project metrics-based analysis and quantification. Technical Memorandum on Water Recovery Study Methodology.
3	February 22, 2018	Implementation strategy for the SWRP. Water Recovery Study findings. Preliminary SWRP project list and prioritization results. Selection of projects for concept design.
4	April 12, 2018	DRAFT Administrative Draft SWRP. Status of preparation of 10% and 30% concept designs. Plan for the public outreach meeting for presentation of the Public Draft SWRP.
5	August 13, 2018	Public Comments on Public Draft SWRP. Update on 30% Design for Hartnell Gulch. Plan for project completion.

2.3 Stakeholder Involvement

The identified Stakeholder Group was engaged in the SWRP development process through email updates and two stakeholder meetings. The Stakeholder Group includes representatives from city, county, regional, state, and federal government agencies; water and wastewater districts and private water suppliers; research institutions; and non-profit organizations and citizen groups. A full list of the stakeholders is provided in Appendix H. The non-profit organizations working on stormwater and dry weather resource planning and management include the following:

- Big Sur Land Trust
- Carmel River Steelhead Association
- Carmel River Watershed Conservancy
- Carmel Valley Association
- Ecology Action
- Keep Fort Ord Wild
- LandWatch Monterey County
- Monterey Coastkeeper/The Otter Project

- Planning and Conservation League
- Santa Lucia Conservancy
- Save Our Shores
- Sierra Club
- Step Up 2 Green / Sustainability Academy
- Surfrider Foundation
- Sustainable Marina (residents' group)
- The Nature Conservancy
- Trout Unlimited
- Ventana Wilderness Alliance

The first meeting was held on October 17, 2017 and included information on the SWRP purpose, the methods used to identify and preliminarily score the project opportunities using a metrics-based multi-benefit analysis, and next steps for the project. Stakeholder input regarding the development of the SWRP and the project identification and scoring process was documented and considered prior to finalizing the analytical methods used.

The second meeting was held on February 8, 2018 and consisted of an overview of the project identification, analysis, and preliminary scoring results. The prioritized list of multi-benefit stormwater capture projects was presented to stakeholders, and their input on the top ranked projects was requested. Stakeholders were also asked to provide input on project characteristics that should be considered for identifying the projects for concept design. A summary of the stakeholder outreach is provided in Section 8 of this SWRP, and meeting notes and summaries are provided in Appendix H.

Additionally, the Stakeholder Group participated in a public meeting held on June 27, 2018 that focused on the Public Draft SWRP. The public meeting consisted of an overview of (1) the SWRP chapters and the methodology for identifying, evaluating, and prioritizing local and regional stormwater capture projects; (2) the IRWMP and relationship to the SWRP; and (3) the seven project concepts selected by the TAC for conceptual design. After the presentation, attendees were encouraged to walk around the meeting room, view the project concepts displayed on poster boards and ask questions of the project proponents. Stakeholders were also invited to provide written feedback at the meeting and asked to submit additional comments online by July 25, 2018. A summary of the public meeting is provided in Appendix H.

2.4 Coordination with Integrated Regional Water Management Group

The Monterey Peninsula SWRP has been prepared in close collaboration with the Monterey Peninsula IRWM Regional Water Management Group (RWMG). The RWMG includes many of the same agencies that are cooperating entities or interested parties in the development of the SWRP. The Monterey Peninsula IRWM lead is the Monterey Peninsula Water Management District (MPWMD). The SWRP was introduced to the RWMG at a meeting on November 1, 2018 and the SWRP was unanimously accepted for inclusion in the IRWMP as an appendix. Projects proposed in the SWRP will also be vetted through the IRWM project prioritization process and included as part of the IRWM project list (also see Appendix I).

The goals of the 2014 IRWMP were organized into six general categories: water supply, water quality, flood protection and erosion prevention, environmental protection and enhancement, climate change, and regional communication and cooperation (MPWMD and DD&A, 2014). Details related to these goals are provided in Table 4, as updated in 2018 from the 2014 IRWMP (MPWMD and DD&A, 2014; MPWMD, 2019). The 2018 update also resulted in two additional categories from those identified in 2014 (i.e., watershed management and coastal and streamside erosion; erosion had previously been included as part of the flood control category).

Table 4: Monterey Peninsula Regional IRWMP Goals

Water Supply	**Water Quality**
Improve regional water supply reliability through environmentally responsible solutions that promote water and energy conservation. Protect the community from drought and climate change effects with a focus on interagency cooperation and conjunctive use of regional water resources.	Protect and improve water quality for beneficial uses consistent with regional community interests and the RWQCB Basin Plan through planning and implementation in cooperation with local and state agencies and regional stakeholders.
Watershed Management (WM)	**Coastal and Streamside Erosion (CSE)**
Develop watershed scale management strategies, considering climate change effects and maximizing opportunities for comprehensive management of water resources.	Ensure that erosion management strategies are developed and implemented through a collaborative and watershed-wide approach and are designed to consider climate change effects.
Flood Protection (FP)	**Environmental Protection & Enhancement (EV)**
Ensure that flood protection strategies are developed and implemented through a collaborative and watershed-wide approach and are designed to consider climate change effects and maximize opportunities for comprehensive management of water resources.	Preserve the environmental health and well-being of the Region’s streams, watersheds, and the ocean by taking advantage of opportunities to assess, restore and enhance these natural resources when developing water supply, water quality, and flood protection strategies. Seek opportunities to conserve water and energy, and adapt to the effects of climate change.

Climate Change (CC)	Regional Communication (RC)
Adapt the region's water management approach to deal with impacts of climate change using science-based approaches, and minimize the regional causal effects related to water resources.	Identify an appropriate forum for regional communication, cooperation, and education. Develop protocols for encouraging integration and reducing inconsistencies in water management strategies between local, regional, State, and Federal entities. Provide balanced access and opportunity for the public, stakeholders, and DACs to participate in IRWM efforts.

A lengthy objective review process, including input from stakeholders, resulted in the identification of IRWMP goals and objectives within each of the identified categories. The IRWMP objectives are provided in Table 5, as updated in 2018 from the 2014 IRWMP (MPWMD and DD&A, 2014; MPWMD, 2019). As of 2018, there are thirty-two (32) total IRWMP objectives identified.

Table 5: IRWM Plan Update Prioritized Regional Objectives

Water Supply (WS)
WS-1. Meet existing water supply replacement needs of the Carmel River system and Seaside Groundwater Basin.
WS-2. Maximize use of recycled water and other reuse and where feasible, expand sewer services to areas with onsite systems to increase sources of water for recycling.*
WS-3. Develop opportunities for stormwater capture and reuse pursuant to the Stormwater Resource Plan.
WS-4. Evaluate, advance, or create water conservation throughout the Region.*
WS-5. Improve water supply needs to achieve multiple benefits, beneficial uses and environmental flows. WS-6. Seek long-term sustainable supplies for adopted future demand estimates.
Water Quality (WQ)
WQ-1. Improve inland surface water quality for environmental resources (e.g. steelhead), including headwaters and tributaries of streams, and to protect potable water supplies.*
WQ-2. Improve ocean water quality, including, but not limited to, Areas of Special Biological Significance (ASBS), by minimizing pollutants in stormwater discharges.
WQ-3. Protect and improve water quality in groundwater basins, especially where at risk from seawater intrusion.
Flood Protection (FP)
FP-1. Develop regional projects and plans necessary to protect critical infrastructure and sensitive habitats from flood damage and sea level rise, in particular, along the Carmel Bay and South Monterey Bay shoreline.*
FP-2. Develop approaches for floodplain restoration or adaptive management that minimize maintenance and repair requirements (sustainable flood management systems).
FP-3. Promote floodplain restoration that protect quality and availability of water while preserving or restoring ecologic and stream function.
FP-4. Provide community benefits beyond flood protection, such as public access, open space, recreation, agricultural preservation, and economic development.*
Coastal and Streamside Erosion (CSE)
CSE-1. Manage areas along the shoreline susceptible to erosion, including long-term strategic retreat where appropriate.
CSE-2. Identify opportunities to restore natural stream function, including meandering, in the lower 15 miles of the Carmel River and selected tributaries.
CSE-3. Reduce or prevent adverse downcutting in the main stem Carmel River and its tributaries.

Watershed Management (WM)
WM-1. Reduce human-induced sources of non-point fine sediment runoff.
WM-2. Restore natural fire frequency in headwater forests.
WM-3. Restore the natural hydrologic flow regime in disturbed watersheds where appropriate, including low impact development strategies in urbanized areas.
WM-4. Re-establish a natural level of sediment supply within the Carmel River and its tributaries.
Environmental Protection and Enhancement (EV)
EV-1. Protect and enhance sensitive species and their habitats in the regional watersheds*; including, but not limited to, promoting the steelhead recovery by meeting accepted or approved environmental flows within the regional watersheds. .
EV-2. Assess, protect, enhance, and/or restore natural resources, including consideration of climate change, when developing water management strategies and projects.*
EV-3. Minimize adverse effects on biological and cultural resources when implementing strategies and projects.
EV-4. Identify opportunities for open spaces, trails and parks along streams and other recreational areas in the watershed that can be incorporated into projects.*
EV-5. Identify and integrate elements from appropriate Federal and State species protection and recovery plans.
EV-6. Promote watershed activities for fire fuel management and adaptive management strategies to protect water quality and water supplies from catastrophic wildfires.*
Climate Change (CC)
CC-1. Implement adaptation measures and mitigation solutions to climate change effects, including increased large storm intensity and/or frequency, sea level rise, drought and wildfire.
CC-2. Support increased education, monitoring and research to increase understanding of long-term impacts of climate change in the region.
CC-3. Increase energy conservation measures and alternatives to fossil fuel and non-renewable resources to reduce greenhouse gas emissions associated with water and wastewater facility operations and IRWM projects.
Regional Communication and Cooperation (RC)
RC-1. Identify cooperative, integrated strategies for protecting both infrastructure and environmental resources, including from climate change impacts.
RC-2. Foster collaboration among regional entities as an alternative to litigation through ongoing meetings of the RWMG and regional data sharing.
RC-3. Identify and pursue additional opportunities for public education, outreach, and communication on water resource management and climate change, including to disadvantaged communities and stakeholders with interests in water management issues.
RC-4. Build relationships with State and Federal regulatory agencies and other water forums and agencies.
NOTE: * = Objective is closely aligned with Statewide Priorities.

2.5 Coordination with Regulatory Agencies

Local, regional, and state regulatory agencies have been engaged and actively involved in the development of this Monterey Peninsula Region SWRP. As summarized in Section 2.1, the SWRP cooperating entities include Monterey Peninsula cities, which have regulatory authority over planning and project permitting, along with Monterey One Water and the MPWMD, which locally regulate wastewater and water supply in the region, respectively.

Select cooperating entities were also involved in the project through the MRSWMP subcommittee and the TAC, as described in Sections 2.1 and 2.2. In addition to these cooperating entities, a representative from the Central Coast Regional Water Quality Control Board (CCRWQCB) was a member of the TAC, as well as three representatives from the SWRCB (as summarized in Table 2). These regional and state regulatory agencies had the opportunity to provide input on the SWRP as it was being developed.

Decisions relating to plan implementation that must be made by the involved regulatory agencies include project review and approval. In addition to typical project design review conducted by cities within which projects are located, the CCRWQCB may be involved in facilitating project review and approving required permits, such as 401 certifications. Monitoring and visualization of surface water and/or groundwater is required by the ASBS special protections, is carried out as part of groundwater characterization, and is conducted as part of the MRSWMP monitoring program.

In addition to coordination with local, regional, and state regulatory agencies, this SWRP has been prepared consistent with the SWRP Guidelines (SWRCB, 2015a). A self-certification checklist is provided as Appendix A.

2.6 Relationship to Existing Planning Documents

This SWRP was developed with consideration of numerous existing planning documents. A summary of these existing planning documents is provided in Appendix C. Included in this Annotated List of Plans and Reports are the titles of the applicable plans and reports, the authoring organization, the year the document was finalized, a description of the document, and a matrix indicating the topics covered by the document.

3. WATERSHED IDENTIFICATION

Water Code Sections 10565(c) and 10562(b)(1) require defining the appropriate geographic scale of watersheds for stormwater resource planning. The four United States Geological Survey (USGS) and California Department of Water Resources (DWR) watersheds that are located within the Planning Area have been used as the basis for the Monterey Peninsula Region SWRP. The jurisdictional boundaries within these watersheds were also used to further delineate planning priorities. The USGS and DWR watersheds in the Planning Area include (Figure 1):

- The Carmel River Basin watershed;
- Most of the Canyon Del Rey/Frontal Monterey Bay watershed;
- A small portion of the Big Sur/Frontal Pacific Ocean watershed; and
- A small portion of the El Toro Creek/ Salinas River watershed.

3.1 Watersheds and Subwatersheds Descriptions

The Carmel River Basin is the largest basin in the Planning Area and the Carmel River represents the largest source of potable water for the region. The Carmel River Basin is less developed than the Canyon Del Rey/Frontal Monterey Bay watershed but does have some water quality issues that are discussed as part of this plan. The Carmel River Basin watershed is underlain by the Carmel Valley groundwater basin.

The Canyon Del Rey/Frontal Monterey Bay watershed contains most of the urbanized area within the Planning Area, and thus has different water quality priorities than the Carmel River Basin. The watershed is underlain by the adjudicated Seaside Groundwater Basin, which augments the water supply provided by the Carmel River Basin watershed, but jurisdictions within this watershed constitute many users of water supply from the Carmel River.

The small portion of the Big Sur/Frontal Pacific Ocean watershed within the Planning Area is not as developed as other areas within the region, consisting largely of unincorporated Monterey County lands. The watershed overlies a small portion of the Carmel Valley Alluvial Aquifer. Much of the water quality concerns in the watershed are like those of the Carmel River Basin.

The small portion of the El Toro Creek/Salinas River watershed is located adjacent to urban areas within the Canyon Del Rey/Frontal Monterey Bay watershed. This portion of the watershed is included in the Planning Area as it is largely open space and overlies the Seaside Groundwater Basin. This plan touches on some of the water quality issues within the larger watershed, but largely discusses this watershed in the same context as the Canyon Del Rey/Frontal Monterey Bay watershed.

Figure 1 displays the Planning Area, along with the four USGS watersheds, the jurisdictions, the underlying groundwater basins, state and federal lands, creeks, lakes, rivers, and water distribution, and wastewater facility boundaries. The Planning Area drains to three ASBS: Point Lobos, Carmel Bay, and Pacific Grove. These ASBS are shown in Figure 1; drainage areas to the ASBS are displayed in Figure 2.

The Planning Area is also adjacent to the MBNMS. The MBNMS was designated in 1992 as a federally-protected marine area offshore of California's central coast. Its natural resources include the United States' largest kelp forest, one of North America's largest underwater canyons, and the closest-to-shore deep ocean environment in the continental United States. It is home to one of the most diverse marine ecosystems in the world. Urban stormwater runoff has the potential to impact water quality in the MBNMS, per findings from monitoring and analysis in both the near shore environment and coastal watersheds.

Each of the four watersheds are described in further detail in the following sections.

3.2 Carmel River Basin

The Carmel River Basin comprises the largest area within the Planning Area. The watershed is largely located within unincorporated Monterey County lands, but a portion of the city of Carmel-by-the-Sea is within the Carmel River Basin watershed.

Federal parks in the watershed include the Ventana Wilderness within Los Padres National Forest. Native habitats and natural open space include lands administered by the Bureau of Land Management, along with other open space areas, including several parks and open space administered by the Monterey Regional Park District, the largest of which include the Palo Corona Regional Park and the Garland Ranch Regional Park. These areas are shown in Figure 1.

Land use in the 255-square-mile Carmel River Basin watershed includes wilderness, viticulture, grazing, recreation (golf courses and park areas), and rural residential, suburban, commercial, and light industrial. Very little of the watershed is currently in traditional agricultural use (MPWMD and DD&A, 2014). Open space areas in the Planning Area are shown in Figure 3.

A portion of the Carmel River Basin watershed is underlain by the Carmel Valley Alluvial Aquifer. Currently, over 60% of the potable water (groundwater) used in the Monterey Peninsula region originates from the Carmel Valley Alluvial Aquifer. The Carmel River Basin watershed is also home to 29 fish and wildlife species that are identified federally or by the state of California as "special," "threatened," or "endangered," along with seven plant species (The Carmel River Watershed Conservancy, 2017a; The Carmel River Watershed Conservancy et al., 2017b).

The Carmel River is used as potable water for the region by the California American Water Company (CalAm). CalAm operates the Los Padres Dam and 21 downstream wells which pump water from the Carmel Valley Alluvial Aquifer to the Monterey Peninsula.

The Carmel Valley Alluvial Aquifer is one of only three basins in California in which the SWRCB has determined that groundwater flow is in defined subterranean channels that are under the SWRCB jurisdiction. In 1995, the SWRCB limited the amount of water that can be pumped from under the Carmel River by CalAm, which supplies most of the water on the Monterey Peninsula, and declared the alluvial aquifer to be fully appropriated during the dry season. SWRCB found in Order 95-10[2] that two-thirds of the water CalAm diverted was without authorization or basis of rights and the company was ordered to find replacement supplies. In 2009, SWRCB issued a Cease-and-Desist Order to CalAm and set January 1, 2016 as a deadline to cease unauthorized diversions (SWRCB, 2009). The Cease-and-Desist Order was extended in 2016 with a new deadline of January 1, 2022 for compliance (SWRCB, 2016).

The 2016 Order includes an effective diversion limit of 8,310 acre-feet per year (ac-ft/yr) through December 31, 2021. The 2016 Order indicates that the diversion limit shall be reduced by 1 acre-foot for every acre-foot of Pure Water Monterey Groundwater Replenishment Water delivered. Additionally, there are identified annual milestones in the 2016 Order that, if not met, will result in a reduction of the effective diversion limit of 1,000 ac-ft/yr for each milestone missed.

Table 6 provides a summary of current water rights. While the face value of water rights appears to be sufficient to supply the needs of the Monterey Peninsula, the reality is that a substantial portion of the water rights are subject to meeting instream flow requirements. Because the Carmel River has such a wide range of annual flows, it is not a reliable source to fully meet the community's needs.

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[2] Order 95-102009-0060 (SWRCB, 1995) indicates that CalAm has the following rights: 1) a pre-1914 appropriative right for 1,137 acre-feet per year; 2) approximately 60 acre-feet per year for riparian parcels within the valley through riparian rights; 3) an appropriative right that was reduced from the original licensed amount to divert up to 3,030 acre-feet per year storage to Los Padres Reservoir from October 1 through May 31 through License 11866, though the actual diversion is limited to 2,179 acre-feet per year due to siltation in the reservoir. The Order states that CalAm was diverting about 10,730 acre-feet per year without a valid basis of right (per Order 95-10).

Table 6: Summary of Carmel River Water Rights

Entity	Water Right	Face value (ac-ft/yr)	Yield (ac-ft/yr)	Maximum Diversion Rate (cubic feet per second)
CalAm	Pre-1914	1,137	1,137	1.6
	Riparian	60	60	0.1
	License 11866	3,030	2,179	2.0
	Permit 21330	1,488	400	2.6
Subtotal CalAm		*5,715*	*3,776*	*6.3*
MPWMD	Permit 20808A[1]	2,426	730	6.7
	Permit 20808B	18,764	unknown	42.0
	Permit 20808C[1]	2,900	870	8.0
Subtotal MPWMD		*24,090*	*1,600*	*56.7*
Subtotal CalAm and MPWMD		***29,805***	***5,376***	***63.0***
Other	Table 13[2]	1,256	low	4.3
	Other riparian	2,200	2,200	3.6
Total		**33,261**	**7,576**	**70.9**

Notes:
1. Held jointly by MPWMD and CalAm.
2. Permitted or reserved amounts.

The MPWMD augments, manages, and regulates surface and groundwater resources in the Carmel Valley and the greater Monterey Peninsula. MPWMD's jurisdiction includes the area served by CalAm's Monterey District and CalAm's sources of supply, (the Seaside Groundwater Basin and Carmel Valley Alluvial Aquifer), which MPWMD defines as the Monterey Peninsula Water Resource System. The Monterey Peninsula Water Resource System includes supplies for non-CalAm pumpers in the Seaside Basin and Carmel Valley Alluvial Aquifer, as well. The MPWMD was established by state statute in 1978 to provide integrated management of all water resources for the Monterey Peninsula; among its functions is the allocation of water supply within its boundaries. Monterey Peninsula Water Management District Boundary is shown on Figure 1.

CalAm serves the cities of Carmel-by-the-Sea, Del Rey Oaks, Monterey, Pacific Grove, Sand City, and some unincorporated Monterey County communities from supplies in the Carmel River Basin and Seaside Groundwater Basin (MPWMD and DD&A, 2014). The Seaside Groundwater Basin is described in the Canyon Del Rey/Frontal Monterey Bay watershed description provided in the following section.

Portions of unincorporated Monterey County within the Carmel River Basin watershed are served by onsite private wells or small water systems. These wells are regulated by DWR, MPWMD, Monterey County, and by the California Coastal Commission (CCC), if serving coastal development. In addition to a well permit issued by DWR, the property owner receives a Use Permit through Monterey County for development of a new well to support planned development, providing that the well yields enough water without significant impacts. For coastal developments, this involves converting a temporary well permit issued by the CCC to a permanent well (MPWMD and DD&A, 2014). MPWMD also regulates private wells within its boundaries through its Water Distribution System Rules and Regulations. The focus of the MPWMD permit system is to limit withdrawals in areas where basins are being over pumped and to monitor the sustainability of using percolating groundwater in other areas.

The Carmel Area Wastewater District (CAWD) provides wastewater treatment for the City of Carmel-by-the-Sea and some unincorporated areas such as the mouth of Carmel Valley, portions of Pebble Beach and Carmel Highlands, and other unincorporated areas surrounding the city of Carmel-by-the-Sea. Most unincorporated areas within Carmel Valley use individual septic systems.

3.2.1 Water Quality

Major tributaries within the Carmel River Basin watershed include Cachagua Creek, Pine Creek, San Clemente Creek, Carmel River, Hitchcock Canyon Creek, Las Garzas Creek, Robinson Canyon Creek, Potrero Creek, and Tularcitos Creek. These waterbodies are shown in Figure 1.

Water quality priorities within the watershed include the sustainment of beneficial uses within the Carmel River, protection of the ASBS that receives drainage from the watershed (Point Lobos; see Figure 2 for drainage areas to the ASBS) along with addressing water pollutant concerns present in the Clean Water Act Section 303(d) (303[d]) listed for Tularcitos Creek. A summary of the waterbody impairments, along with the estimated TMDL completion dates, are provided in Table 7 and shown in Figure 2. These impairments are current as of the approval of the CCRWQCB's 2014 303(d) list, approved through Resolution R3-2016-0053 and accompanying Staff Report (CCRWQCB, 2016).

Table 7: 303(d) Listed Waterbodies in the Carmel River Basin Watershed

Waterbody	Impairment(s)	303(d) Decision ID	TMDL Completion Date
Tularcitos Creek	Chloride	23164	2021
	Sodium	23093	2021
	Fecal Coliform	37561	2011

Tularcitos Creek provides agricultural beneficial uses. The sources of the chloride and sodium impairments in Tularcitos Creek are currently unknown, according to the 2014 303(d) list. The source of fecal coliform impairment is listed as domestic animals/livestock and natural sources. The impairment is currently being addressed by the Tularcitos Creek Fecal Indicator Bacteria TMDL, which also covers the Lower San Antonio River, Cholame Creek, San Lorenzo Creek, and Arroyo De La Cruz watersheds (CCRWQCB, 2011).

3.2.2 Watershed Processes

Precipitation within the Carmel River Basin watershed primarily falls between November and April. Average annual precipitation varies from the inland portion of the watershed to the coast, where annual precipitation is approximately 12% higher (MPWMD, 2014). Precipitation can also vary significantly from year to year, like much of California. Elevations within the watershed range from approximately 5,000 feet above mean sea level (feet msl) to 0 feet msl at the coast. Upland source areas for the Carmel River are the major source of water reaching the lower Carmel Valley (MPWMD, 2014), with annual precipitation reaching over 50 inches per year at the higher peaks in the Santa Lucia range.

Alteration of natural hydrologic processes in the watershed primarily consists of construction of dams on the Carmel River, the use of the Carmel River for water supply, and development in the lower elevations of the watershed. These alterations have resulted in changes to both natural drainage and environmental/ecological processes, as well as water quality and flooding threats as a result of urbanization. The majority of the upper watershed still has relatively few pervious areas, so changes to flow quantity primarily impact the more developed lower areas of the watershed.

Three dams were constructed on Carmel River between 1880 and 1948 – The Old Carmel River Dam (1883), the San Clemente Dam (1921), and the Los Padres Dam (1948). The Old Carmel River Dam and the San Clemente Dam were both removed from the Carmel River in 2015 and 2016, and projects are underway to restore the channel and habitat areas above and below the dams and reestablish sediment transport mechanisms within the River (The Carmel River Watershed Conservancy, 2017a; San Clemente Dam Removal Project, 2017). The removal of the San Clemente Dam is the largest dam removal project to ever occur in California, and reconnected large portions of the Carmel River Basin watershed. Following the removal of the San Clemente Dam, only the upper 45 square miles of the Carmel River Basin watershed remain disconnected by the main-stem Los Padres Dam (MPWMD and DD&A, 2014). These 45 miles primarily consist of Ventana Wilderness areas and support approximately 50 percent of the watershed's steelhead spawning habitat and 42 percent of the watershed's juvenile rearing habitat (MPWMD, 2014).

The Los Padres Dam is located 25 miles inland from the mouth of the Carmel River, and forms the Los Padres Reservoir. The Los Padres Reservoir's estimated usable storage has been reduced significantly since its construction due to sedimentation (MPWMD and DD&A, 2014; The Carmel River Watershed Conservancy, 2017a).

Changes to environmental processes in the watershed have occurred in the lower portion of the watershed to protect built infrastructure. The Carmel River flows from the central portion of Monterey County toward the Pacific Ocean. During dry periods, the Carmel River does not flow into the Pacific Ocean, instead pooling at the Carmel Lagoon located on the coast of the Monterey Peninsula. To prevent flooding to adjacent properties during the rainy season, an artificial channel is often created through the sand barrier that contains the Carmel Lagoon on the west, though this mechanical breaching activity has been opposed by the National Marine Fisheries Service and conservation groups, as the Carmel Lagoon serves as habitat for certain endangered species, including a population of Central California Coast steelhead (The Carmel River Watershed Conservancy, 2017a; Monterey County Resource Management Agency, 2014a). As a result, there are proposals to develop an ecosystem protective barrier at the mouth of the Carmel Lagoon that would allow breaching of the barrier beach to occur naturally, preventing flood risk, while maintaining ecological function (Monterey County Resource Management Agency, 2014a).

Over the 20th century, significant development along the lower 15 miles of the Carmel River within the Carmel River 100-year floodplain has exacerbated storm-related losses during floods that in some cases have caused damage to roads, infrastructure, and private property, including residences (The Carmel River Watershed Conservancy, 2017a; Monterey County Resource Management Agency, 2014b). Flooding of built infrastructure within the floodplain in the lower portion of the watershed is a significant concern, in addition to the environmental changes discussed. As with all development, increased imperviousness also causes changes to flow quantity and water quality.

3.3 Canyon Del Rey/Frontal Monterey Bay

The Canyon Del Rey/Frontal Monterey Bay watershed comprises the second largest watershed area within the Planning Area and contains almost all the urbanized areas. Most of the watershed is located within the Planning Area. The cities of Pacific Grove, Monterey, Sand City, Del Rey Oaks, and Seaside are located entirely within the Canyon Del Rey/Frontal Monterey Bay watershed, and the City of Carmel-by-the-Sea is partially located within the watershed. The remainder of the watershed consists of unincorporated Monterey County land, including some unincorporated rural residential communities, such as Corral de Tierra.

Within the Canyon Del Rey/Frontal Monterey Bay watershed are several smaller urban watersheds, delineated as “Planning Watersheds” per the California Interagency Watershed Map of 1999 (updated May 2004, “calw221”). These include Indian Head Beach, Seaside, Laguna Beach, Point Pinos, and a portion of the Carmel Bay watersheds. These planning-level watersheds may be used for organization of project opportunities; because the watershed characteristics, water quality concerns, and goals are similar among the subwatersheds, they are discussed together in this Planning Area description as part of the Canyon Del Rey/Frontal Monterey Bay watershed.

State and federal lands in the watershed include Ford Ord Dunes State Park, a portion of Ford Ord National Monument, the Naval Postgraduate School, the United States Army Presidio of Monterey, the Monterey County Fairgrounds, Monterey State Historic Park, and a portion of California State University Monterey Bay, as well as several small regional parks. These areas are shown in Figure 1.

Land use within the watershed varies; within the Cities of Monterey, Pacific Grove, Sand City, Del Rey Oaks, Carmel-by-the-Sea, and Seaside, land use is primarily high- and low-density residential and commercial, with some industrial areas. Unincorporated areas within the watershed are largely low-density residential and open space, including several golf courses. Open space areas in the Planning Area are shown in Figure 3.

The Canyon Del Rey/Frontal Monterey Bay watershed is partially underlain by the adjudicated Seaside Groundwater Basin as well as parts of the Salinas Valley – Corral De Tierra Area and the Salinas Valley – Marina Area groundwater sub-basins. See Figure 1 for a map of the underlying groundwater basins.

The Seaside Groundwater Basin (the Basin) underlies an approximately 19- to 24-square-mile area below Sand City, Seaside, Del Rey Oaks, unincorporated Monterey County, and the Fort Ord Community. The action to adjudicate the Seaside Groundwater Basin was filed in 2003 and the Watermaster for the Basin was created in 2006 in response to potential overdraft conditions. Pumping reduction requirements were established by the adjudication decision. The Watermaster carries out the Seaside Basin Monitoring and Management Plan and establishes a procedure for dealing with seawater intrusion, should it occur. The objectives of plan included the development of an exploratory borehole drilling program, geophysical surveys, and new monitoring wells to fully characterize the Basin, piezometric and water quality monitoring to examine longer-term trends, and development and implementation of a management program to optimize pumping and returning the Basin to equilibrium through implementation of conservation methods (Seaside Groundwater Basin Watermaster Board, 2006).

The Canyon Del Rey/Frontal Monterey Bay watershed located within the Planning Area is almost entirely located within the boundary of the Monterey Peninsula Water Management District.

Most of the cities within the watershed obtain water supply from CalAm. The exception to this includes a portion of the City of Seaside, which has a municipal water system that services 3,300 residential customers primarily adjacent to the Ord Community, representing about 10% of the population of the City of Seaside (MPWMD and DD&A, 2014; City of Seaside, 2017). The Seaside Municipal Water System consists of one groundwater well and two 500,000-gallon water tanks (City of Seaside, 2017). Most of the population of the City of Seaside is serviced by CalAm, and the remainder of the City of Seaside, located within the Ord Community, is serviced by the Marina Coast Water District Ord Community service area (MPWMD and DD&A, 2014; Marina Coast Water District, 2017). The Marina Coast Water District also services Central Marina (part of the Greater Monterey County IRWM region and SWRP). The Marina Coast Water District obtains all its water supply from the Salinas Valley Groundwater Basin, and groundwater withdrawals are approximately 3,200 ac-ft/yr through the production wells that the Marina Coast Water District owns and operates (Marina Coast Water District, 2017). The Marina Coast Water District is also a partner in the Pure Water Monterey Project and would like to expand the supply of recycled water from that facility in the future to serve future customers in Fort Ord.

Collection of wastewater within the Canyon Del Rey/Frontal Monterey Bay Watershed is the responsibility of the cities. Monterey One Water is responsible for transferring wastewater from the cities and Ford Ord and treating it at the Regional Treatment Plant in Marina. The Marina Coast Water District provides wastewater collection services for the Ord Community within the Canyon Del Rey/Frontal Monterey Bay watershed. CAWD provides wastewater treatment for the city of Carmel-by-the-Sea, and some adjacent unincorporated areas (see Figure 1).

3.3.1 Water Quality

Major waterbodies within the Canyon Del Rey/Frontal Monterey Bay watershed include Canyon Del Rey, El Estero Lake, Laguna Grande, Roberts Lake, Del Monte Lake, Majors Creek, and Seal Rock Creek.

Water quality priorities within the watershed include addressing water pollutant concerns present in the four 303(d) listed waterbodies within the watershed, along with protection of the MBNMS and the two ASBS that receive drainage from the watershed (Pacific Grove and Carmel Bay; see Figure 2 for drainage areas to the ASBS). The 303(d) listed waterbodies within the Canyon Del Rey/Frontal Monterey Bay watershed include Monterey Harbor, Pacific Ocean at Stillwater Cove Beach, and Majors Creek. A summary of the waterbody impairments and the estimated TMDL completion dates are included in Table 8 and shown in Figure 2. These impairments are current as of the approval of the CCRWQCB's 2014 303(d) list, approved through Resolution R3-2016-0053 and accompanying Staff Report (CCRWQCB, 2016).

Table 8: 303(d) Listed Waterbodies in the Canyon Del Rey/Frontal Monterey Bay Watershed

Waterbody	Impairment(s)	303(d) Decision ID	Expected TMDL Completion Date
Monterey Harbor	Arsenic Copper Oxygen, Dissolved Polychlorinated Biphenyls (PCBs) Toxicity	41157 42111 49417 49419 42195	2027 2027 2027 2027 2023
Majors Creek	Copper *Escherichia coli (E. coli)* Lead Zinc	42843 42895 42433 42726	2027 2027 2027 2027
Pacific Ocean at Stillwater Cove Beach	*Enterococcus*	44433	2027
Pacific Ocean at Monterey State Beach (Del Monte Beach)	*Enterococcus* Total Coliform	36783 37096	2027 2027

The sources of arsenic, copper, lack of dissolved oxygen, PCBs, and toxicity at Monterey Harbor are unknown. Beneficial use of Monterey Harbor includes commercial or recreational collection of fish, shellfish, or organisms.

The source of copper, *E. coli*, lead, and zinc in Majors Creek is urban runoff and storm sewers, as well as unknown sources, according to the 2014 303(d) list. Natural sources are also included as a source for *E. coli* impairment. The beneficial use of Majors Creek is cold freshwater habitat.

The source of *Enterococcus* at Stillwater Cove Beach and *Enterococcus* and total coliform in the Pacific Ocean at Monterey State Beach is unknown, according to the 2014 303(d) list. Beneficial use of the Pacific Ocean at Stillwater Cove Beach includes water contact recreation.

The ASBS Special Protections require water quality monitoring. Additionally, the Cities of Pacific Grove and Monterey have proposed the ASBS Stormwater Management Project to further protect ASBS from some wet weather flows discharged from urbanized areas. The primary goal of the Pacific Grove ASBS Stormwater Management Project is to improve stormwater quality discharged into the ASBS located along the Pacific Grove coastline.

3.3.2 Watershed Processes

The Canyon Del Rey/Frontal Monterey Bay watershed is the most urbanized of the watersheds in the Planning Area. Imperviousness resulting from urbanization is known to increase the quantity of stormwater that is produced and discharged from an area during rainfall events. While much of the soil in the Canyon del Rey and Seaside Basin has a high sand content and is therefore highly pervious, there are still numerous stormwater outfalls that discharge stormwater runoff from the watershed directly into the Monterey Bay. Much of Monterey, Pacific Grove, and Carmel are underlain by older weakly to moderately consolidated deposits with outcrops of the Monterey Formation (shale), sandstone formations, and granodiorite (USGS, 1997). In these areas, infiltration of rainfall and runoff can be low.

Alteration of natural hydrologic processes in the watershed that are caused by urbanization include changes in quantity and timing of flows, potential impacts to water quality discharged to the Monterey Bay, and environmental effects in natural and urbanized channels. Flood protection in the Canyon Del Rey watershed can also be a challenge. Within the incorporated cities in the watershed, flooding problems are generally localized, affecting fewer structures than some flooding in the unincorporated areas. High flows from the urbanized areas can overwhelm the storm drain systems in these areas discharging to Monterey Bay, including ASBS, presenting a challenge in reducing wet weather discharges from urbanized areas to the Bays and ASBS (MPWMD and DD&A, 2014).

3.4 Big Sur/Frontal Pacific Ocean

The portion of the Big Sur/Frontal Pacific Ocean watershed within the Planning Area consists entirely of unincorporated Monterey County land. The area is primarily open space land, with some residential and minor commercial development in the Carmel Highlands community on the coast. State parks in the watershed include Point Lobos State Natural Reserve and the upper portion of Garrapata State Park. The portion of the watershed within the Planning Area is shown in Figure 1.

The Big Sur/Frontal Pacific Ocean watershed is underlain by a portion of the Carmel Valley Alluvial Aquifer. The Carmel Highlands are located within the MPWMD boundary but are served by the Carmel Riviera Mutual Water Company for water supply. The Water Company draws water from eight wells from groundwater stored in miscellaneous formations and the nearby Mal Paso Creek to serve the estimated 600 residents within their service area, working with Carmel Lahaina Utility Services, Inc. to provide water treatment and distribution operations (Water & Wastes Digest [W&WD], 2010). Most of the residential housing south of the Carmel River is not currently connected to CAWD and uses septic tank systems. Carmel Highlands has an Onsite Wastewater Management Plan. The plan describes the terms of a Memorandum of Understanding that the County of Monterey has with the CCRWQCB to administer individual onsite wastewater disposal regulations in conformity with the Water Quality Control Plan for the Central Coast (Basin Plan). The regulations are also provided in Chapter 15.20 of the Monterey County Code (Monterey County Health Department, 2009). CAWD is in the process of examining the potential for annexation of some of the communities to extend the district boundary south to serve additional units (Local Agency Formation Commission [LAFCO] of Monterey County, 2016).

The portion of the watershed in the Planning Area includes two major creeks that are largely unaffected by development – the ecologically important San Jose Creek, and the smaller Mal Paso Creek, which is partially within the Planning Area and provides water supply to the Carmel Riviera Mutual Water Company.

San Jose Creek is a steelhead-bearing waterbody which traverses 14.2 miles of steep terrain prior to discharging into the Pacific Ocean. Promoting the steelhead run, including assessing (and improving) the San Jose Creek Lagoon's connectivity to the ocean, is one of the regional priorities in the IRWMP. A study on San Jose Creek found that sedimentation could inhibit the ability of the Creek to serve as salmonid habitat. A portion of the San Jose Creek has also been designated as critical habitat for California red-legged frogs (MPWMD and DD&A, 2014). Much of the San Jose Creek watershed is conserved public open space managed by State Parks and Monterey Peninsula Regional Park District, and the upper watershed includes open space protected by the Santa Lucia Conservancy and Big Sur Land Trust.

There are no 303(d) listed waterbodies bodies within the portion of the Big Sur/Frontal Pacific Ocean watershed that lies within the Planning Area. A portion of this watershed drains to the Point Lobos ASBS. Water quality priorities are like those within the Carmel River Basin watershed, along with protection of coastal resources. Watershed processes are much the same as the Carmel River Basin, with open space lands primarily located in the upper portion of the watershed and development on the coast. Due to the ecological importance of the San Jose Creek, it is not being considered as a potential water supply source (MPWMD and DD&A, 2014).

3.5 El Toro Creek/Salinas River

A small portion of the El Toro Creek/Salinas River watershed is located within the Planning Area. This area is entirely within the federally managed Fort Ord National Monument, and land uses consist mostly of open space lands (see Figure 3). The portion of the El Toro Creek/Salinas River watershed that lies within the Planning Area is underlain by the adjudicated Seaside Groundwater Basin. The portion of the watershed within the Planning Area is shown in Figure 1. All runoff produced eventually drains towards the Salinas River, which is located within the Greater Monterey SWRP area; however, since the Fort Ord National Monument is entirely included in the Monterey Peninsula SWRP and this area overlies the Seaside Groundwater Basin, this area is included within the Planning Area.

The small portion of the El Toro Creek/Salinas River watershed located within the Planning Area is outside of the MPWMD service area boundary. Water supply needs in this area are limited and are met using private wells.

There are no major waterbodies in the portion of the El Toro Creek/Salinas River watershed within the Planning Area, and therefore no 303(d) listed waterbodies are located within the portion of the watershed that lies within the Planning Area.

While historic military practices in portions of the area have likely altered some of the natural watershed processes, the portion of the watershed within the Planning Area has very few impervious areas. As such, little additional runoff is anticipated to be produced from this portion of the watershed as compared to pre-development levels.

4. WATER QUALITY COMPLIANCE

There are several water quality regulatory requirements that some or all the Cooperating Entities must comply with, including the Phase II Small Municipal Separate Storm Sewer System (MS4) General Permit (Phase II Permit) (Order 2013-0001-DWQ)[3], a guidance letter from the CCRWQCB (13267 Letter), Statewide Trash Amendments, and TMDLs. The SWRP will assist in complying with these various permits and documents, as described below.

4.1 Pollutant-Generating Activities

Runoff from watersheds within the Monterey Peninsula region carries pollutants associated with urban development, industrial, and agricultural land use activities, and atmospheric deposition to local receiving water bodies, as described in Section 3. The Phase II recognizes the following:

> *Finding 2. As human population increases, urban development creates new pollution sources and brings with it proportionately higher levels of car emissions, car maintenance wastes, municipal sewage, pesticides, household hazardous wastes, pet wastes, trash, etc. which can either be washed or directly dumped into the municipal separate storm sewer system (MS4). As a result, the runoff leaving the developed urban area is greater in pollutant load than the pre-development runoff from the same area. Also, when natural vegetated pervious ground cover is converted to impervious surfaces such as paved highways, streets, rooftops, walkways and parking lots, the natural absorption and infiltration abilities of the land are lost. Therefore, runoff leaving developed urban area is significantly greater in runoff volume, velocity, peak flow rate, and duration than pre-development runoff from the same area. The increased volume, velocity, rate, and duration of runoff greatly accelerate the erosion of downstream natural channels. In addition, the greater the impervious cover the greater the significance of the degradation.*

> *Finding 3. Pollutants of concern found in urban runoff include sediments, non-sediment solids, nutrients, pathogens, oxygen-demanding substances, petroleum hydrocarbons, heavy metals, floatables, polycyclic aromatic hydrocarbons (PAHs), trash, pesticides and herbicides.*

> *Finding 4. Trash and litter are a pervasive problem in California. Controlling trash is a priority, because trash adversely affects our use of California's waterways. Trash impacts aquatic life in streams, rivers, and the ocean as well as terrestrial species in adjacent riparian and shore areas. Trash, particularly plastics, persists for years. It concentrates organic toxins, entangles and ensnares wildlife, and disrupts feeding when animals mistake plastic for food*

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[3] http://www.waterboards.ca.gov/water_issues/programs/stormwater/phase_ii_municipal.shtml. The Phase II Permit requires stormwater agencies to comply with the corresponding TMDL requirements, as specified within the Permit and Attachment G, Region-Specific Requirements for Implementation of TMDLs. However, there are no region-specific requirements affecting the Monterey Peninsula Region.

and ingest it. Additionally, trash creates aesthetic impacts, impairing our ability to enjoy our waterways.

Specific surface water quality issues identified in the Monterey Peninsula region include urban runoff pollution, including impairments for metals, bacteria, dissolved solids, PCBs, and general toxicity. There are four impaired water bodies and one TMDL (Tularcitos Creek TMDL for fecal coliform) in the Planning Area, which are described in Section 3 and summarized in Table 9.

Table 9: Monterey Peninsula Region SWRP Planning Area Impaired Waterbodies

Water Body	2014 303(d) Listed Impairment(s)
Majors Creek in the City of Monterey	*E. Coli*, Copper, Lead, and Zinc
Monterey Harbor	Arsenic, Copper, Dissolved Oxygen, PCBs, and Toxicity
Pacific Ocean at Stillwater Cove	*Enterococcus*
Pacific Ocean at Monterey State Beach (Del Monte Beach)	*Enterococcus*, Total Coliform
Tularcitos Creek in the Carmel River watershed	Chloride, Sodium, and Fecal Coliform (addressed by TMDL)

The Planning Area is also adjacent to three ASBS as well as the MBNMS, and urban runoff is a possible cause of water pollution affecting the MBNMS.

4.2 Permits and TMDLs

4.2.1 Applicable Permit Requirements

MRSWMP member agencies are required to comply with the Phase II Permit. The following provisions of the Phase II Permit are related to analyses and deliverables prepared as part of this SWRP project:

- Provision E.14.a., Program Effectiveness Assessment and Improvement, which requires the development of a Program Effectiveness Assessment and Improvement Plan (PEAIP) and quantitative effectiveness assessment. The CCRWQCB provided a "Water Code Section 13267 Technical Report Order" guidance letter (13267 Letter) on June 13, 2016. The purpose of the 13267 Letter was to provide additional clarification on reporting requirements (in addition to requirements for implementing progress of key activities). The intent was to enable PEAIPs to sufficiently assess stormwater pollutant reductions and aid in developing meaningful stormwater program modifications for the fifth year Annual Reports (due October 15, 2018) (Provision E.14.b). The 13267 Letter specifically requires each Permittee to:

  1. Delineate and characterize catchments within the MS4 Permit area;

2. Create and populate an inventory of structural best management practices (BMPs) located within the MS4 Permit area;
3. Estimate stormwater runoff volumes and pollutant loads from all catchments prior to BMP Implementation (unmitigated scenario);
4. Rank catchments relative to all MS4 Permit area catchments based on unmitigated runoff volume and pollutant loads;
5. Assess all inventoried BMPs to determine BMP effectiveness relative to the intended design;
6. Estimate stormwater runoff volumes and pollutant loads from all catchments after BMP implementation (mitigated scenario); and
7. Rank catchments relative to all MS4 Permit area catchments based on mitigated runoff volume and pollutant loads.

The 13267 Letter includes prescriptive details about how to meet each of the above requirements and allows for alternative approaches that are equivalent and equally defensible.

Data developed for the model that will be used for assessing the effectiveness of program components described within the PEAIP, the TELR model, have been used for some of the SWRP project opportunity metrics-based multi-benefit analyses conducted (see Section 5). The analyses conducted for the SWRP are not anticipated to be used to meet PEAIP requirements of the 13267 Letter, but the potential projects identified could be input into separate PEAIP analyses conducted to meet items 6 and 7 summarized above.

MRSWMP has a Stormwater Technical Guide for Low Impact Development (MRSWMP, 2015) that provides additional resources for new or redevelopment projects that must implement LID measures per the CCRWQCB Post-Construction Requirements (PCRs). The PCRs were adopted by the CCRWQCB in 2013 and apply in urbanized areas within specified Watershed Management Zones. This Stormwater Technical Guide provides design criteria and types of BMPs to be used for such projects (MRSWMP, 2015).

4.2.2 Areas of Special Biological Significance

There are three ASBS in the Planning Area: Point Lobos ASBS, which contains the Point Lobos State Marine Reserve, Carmel Bay from the east boundary of Point Lobos State Park to Ghost Tree in Pebble Beach, and an area adjacent to Pacific Grove near the boundary of the City of Monterey. These areas are subject to ASBS Special Protections, and areas that discharge stormwater to the ASBS must develop compliance plans to meet those Protections.

As summarized in the Monterey Peninsula IRWMP (MPWMD and DD&A, 2014), the ASBS Special Protections generally include the elimination of dry weather runoff to the ASBS, developing measures to prevent wet weather runoff from altering natural water quality in the ASBS, and conducting adequate monitoring to examine if natural water quality and the marine life beneficial use is protected.

4.2.3 Tularcitos Creek TMDL

Grazing lands and ranching are the predominate land use activities in the Tularcitos Creek watershed. The CCRWQCB certified the Tularcitos Creek Fecal Indicator Bacteria TMDL in May 2011 (the TMDL also covers several other water bodies in Monterey County), and the TMDL was approved by United States Environmental Protection Agency (USEPA) in November 2011. The CCRWQCB approved an alternative TMDL implementation program to rectify impairment due to fecal indicator bacteria under the Water Quality Control Policy for Addressing Impaired Waters: Regulatory Structure and Options (SWRCB, adopted by Resolution 2005-0050) (Impaired Waters Policy).[4] The CCRWQCB has certified the California Rangeland Water Quality Management Plan as the mechanism for implementing the TMDL. The SWRP primarily focuses on identifying urban stormwater projects within the Planning Area, and additional project identification analysis will not be conducted to identify rangeland management projects.

4.2.4 Statewide Trash Provisions

On April 7, 2015, the SWRCB adopted the statewide Trash Provisions (SWRCB, 2015b), which amended two statewide water quality control plans to include trash control requirements for owners/operators of MS4s. A primary intent of the requirements is to achieve significant reductions in the discharge of trash to local water bodies from cities and counties throughout the State. The Trash Provisions define trash as follows:

> *Trash means all improperly discarded solid material from any production, manufacturing, or processing operation including, but not limited to, products, product packaging, or containers constructed of plastic, steel, aluminum, glass, paper, or other synthetic or natural materials.*

The Trash Provisions propose to implement the water quality objectives for trash through a conditional prohibition of discharge of trash directly into waters of the state or where trash may ultimately be deposited into waters of the state. The prohibition of discharge applies to both permitted and non-permitted dischargers. Implementation provisions focus on a land-use-based compliance approach that focuses trash controls in areas with high trash generation rates, which

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[4] The Impaired Waters Policy provides for a process in which the Regional Water Quality Control Boards may rely on methods used by another entity that is involved in effective efforts to address an impairment, and that the Regional Water Quality Control Board should seek to take those efforts into account and, where appropriate, take advantage of these third-party efforts. The Impaired Waters Policy establishes a certification process whereby the Regional Water Quality Control Boards can formally recognize regulatory or non-regulatory actions of other entities as appropriate TMDL implementation programs when the Regional Water Quality Control Boards determine those actions will result in attainment of standards.

are referred to as “priority land uses.” The Trash Provisions allow for a dual compliance track approach for MS4 Permittees:

- **Track 1:** Install, operate, and maintain full capture systems for the storm drain network that capture runoff from the priority land uses in their jurisdiction.
- **Track 2:** Install, operate, and maintain any combination of full capture systems, multi-benefit projects, other treatment controls, and/or institutional controls within either the jurisdiction of the MS4 permittee or the jurisdiction of the MS4 permittee and contiguous MS4 permittees. Permittees choosing Track 2 must demonstrate that the approach will achieve full capture system equivalency.

MRSWMP permittees received 13383 order letters from the SWRCB in June 2017 that required them to submit methods to comply with the Statewide Trash Provisions.

4.2.5 Federal Lands

Federal agencies are required to reduce stormwater runoff from federal development and redevelopment projects under Section 438 of the Energy Independence and Security Act of 2007. This SWRP acknowledges these requirements for the federal lands that are within the Planning Area, but as these areas are outside the jurisdiction of Monterey One Water and the cooperating entities of this SWRP (federal agencies are interested parties and stakeholders of the SWRP), stormwater compliance requirements for federal lands are not described herein.

4.2.6 Previous Actions Taken Towards Water Quality Protection

There have been numerous actions taken in the region to protect water quality. In addition to wastewater control improvements, the cities participating in the MBNMS Water Quality Protection Program have sought to reduce the impacts of urban runoff pollution through a combination of low impact development, stormwater treatment measures (e.g., bioretention and other measures), and source control programs through the implementation of the Sanctuary’s Urban Runoff Plan, the prior Model Urban Runoff Program (1996), Monterey Regional Storm Water Pollution Prevention Program (2002), and the MRSWMP (2006 to present).

Cities and counties subject to requirements of the ASBS Special Protections were required to submit compliance plans to the SWRCB. Cities within the region that have submitted compliance plans include the City of Carmel by the Sea, the City of Pacific Grove, and the City of Monterey (combined submittal with Pacific Grove), along with the County of Monterey.

These plans outline current and future compliance measures, including projects to reduce dry and wet weather flows to the ASBS. The City of Pacific Grove (with cooperation of City of Monterey and Monterey One Water) has completed two phases of a project to divert a portion of dry season flows away from the Pacific Grove ASBS, and the City of Monterey completed an alternatives analysis in 2006 along with an engineering report and Draft Environmental Impact Report (EIR) in 2013 for ceasing discharges in ASBS from Monterey, Pacific Grove, and Pebble Beach (MPWMD and DD&A, 2014). Additionally, the City of Carmel was awarded a Proposition 84 Grant to plan, design, and construct a Dry Weather Diversion Project to eliminate dry weather flows into the Carmel Bay ASBS, a project that began in 2011 (City of Carmel-By-The-Sea, 2014).

In addition to projects planned to reduce the discharge of untreated urban runoff into the ASBS, in early 2013, the Central Coast ASBS Regional Monitoring Program was established through a Memorandum of Agreement for all dischargers on the Central Coast, covering an area from Big Sur, in Monterey County, to Point Reyes, in Marin County. The Central Coast ASBS Regional Monitoring Program results are intended to inform future ASBS compliance efforts (City of Pacific Grove and City of Monterey, 2014).

MRSWMP agencies have also been engaged in the development of TELR and BMP Rapid Assessment Methodology. TELR is intended to be used to prioritize stormwater actions to improve water quality and support water resource objectives, and to track effectiveness of these actions over time.

These stormwater quality improvements add to wastewater pollutant control measures that have been in place in the region since the 1970s to protect water quality in the Monterey Bay. This includes the creation of the Monterey Regional Water Pollution Control Agency (now Monterey One Water) in 1972, along with the consolidation and modernization of wastewater collection and treatment. These projects included the repurposing of old coastal treatment plants into pump stations and the construction of the Regional Treatment Plan, which began operation in 1990, along with construction of the Salinas Valley Reclamation Plant and Castroville Seawater Intrusion Project in the 1990s. In Carmel and surrounding areas, the construction of the Carmel Area Wastewater District treatment plant in 1994 and creation of reclaimed water distribution services resulted in similar water quality benefits.

4.3 SWRP Water Quality Compliance Strategies

Traditional approaches to stormwater management do not fully address water quality impacts from stormwater discharges or necessarily provide multiple benefits such as water supply augmentation and ecological enhancement of the local watershed. The SWRP used a watershed-based approach to identify multi-benefit projects that can yield water quality benefits by reducing the volume of runoff delivered to receiving waters, thus reducing the pollutants discharged while augmenting needed water supplies. Watershed-based approaches to stormwater management also provide social and community benefits beyond traditional management approaches. Through this watershed-based approach, the SWRP projects will assist the MRSWMP permittees in demonstrating compliance with the Phase II Permit.

In addition, SWRP projects support implementation of the Statewide Trash Provisions. The SWRCB has indicated that the following types of BMPs are considered full capture systems (identified as Multi-Benefit Treatment Systems):

- Bioretention;
- Capture and Use;
- Detention Basin;
- Infiltration Trench;
- Infiltration Basin; and
- Media Filter.

Projects with drainage areas with higher anticipated average annual runoff volumes and right-of-way (ROW) opportunities near bus stops, an identified Priority Land Use for the Trash Provisions, have been identified as part of the project opportunity metrics-based multi-benefit analysis. These potential stormwater capture projects could also serve to meet trash management goals. This is discussed further in Sections 5 and 6.

5. QUANTITATIVE METHODS FOR IDENTIFICATION AND PRIORITIZATION OF STORMWATER AND DRY WEATHER CAPTURE PROJECTS

This section describes the quantitative methodology conducted for integrated identification, prioritization, and analysis of multiple benefit projects and programs. To develop the methodology, an evaluation of hydrologic/hydraulic models, water quality models, and other geographic information systems (GIS) and spreadsheet-based decision support tools and models was conducted. All projects identified in the SWRP were evaluated using the metrics-based multi-benefit approach described in this section to score projects based on the benefits achieved.

This section also introduces additional project identification analysis conducted as part of the match-funded Monterey Peninsula Water Recovery Study. The Water Recovery Study Report is provided in Appendix D.

5.1 Overview of Approach

The methodology conducted included the following steps:

1. **Identify project opportunities** – planned and potential project opportunities were identified through three avenues. Planned future projects were provided by SWRP cooperating entities, interested parties, and stakeholders. Additional project opportunity locations were identified and catalogued by the Project Team using a geospatially-based opportunity analysis. Further project opportunities were identified as part of the Monterey Peninsula Water Recovery Study.
2. **Screen and classify identified projects** – all identified project opportunities were classified by project type, scale, and infiltration feasibility utilizing this approach. Project opportunities were screened for project implementation feasibility and potential performance using geospatial data obtained from the TELR model and cooperating entities (data received summary provided in Appendix C).
3. **Score projects using metrics-based multi-benefit analysis** – using the GIS data compiled for each project opportunity as part of Step 2, a quantitative metrics-based multiple benefit evaluation was conducted to score all identified projects.
4. **Prioritize and rank projects based on input from cooperating entities, interested parties, stakeholders, and the TAC** – using the preliminary project opportunity scores along with other institutional knowledge (such as funding availability, areas of proposed redevelopment, and other factors), cooperating entities, interested parties, stakeholders, and the TAC provided input on project ranking and prioritization. The TAC selected the projects for which project concept designs are developed. See Section 6 for details.

5. **Quantification of benefits** –the volume of runoff captured was quantified for projects selected for development of concept design. See Section 6 for details.

A discussion of the evaluation of tools that were considered to conduct project analysis is described in the following section (Section 5.2), and descriptions of the selected methodology are provided in subsequent sections (Section 5.3 and Section 5.4).

5.2 Evaluation of Models and Tools

This section presents an evaluation of models and tools considered to complete the analyses.

5.2.1 Project Identification and Metrics-Based Analyses

A geospatial tool was needed to identify potential project opportunity locations and to characterize them. There are several proprietary and non-proprietary tools that could perform this analysis, including but not limited to the Structural BMP Prioritization and Analysis Tool (SBPAT)[5], the System for Urban Stormwater Treatment and Analysis Integration (SUSTAIN)[6], TELR, or a customized geospatial approach.

The methodology used for project identification in this SWRP combined data and analyses in TELR with a customized GIS approach. This customized combined GIS and TELR-data approach is described greater detail in Section 5.3.

TELR, which was developed for the Central Coast Region, contains considerable information for the Planning Area that is relevant for stormwater facility siting and makes it suitable for incorporation into the analyses approach. Currently, TELR does not include a mechanism for evaluating multiple potential BMPs in an automated fashion, an important function needed to conduct the metrics-based multi-benefit analyses for the thousands of project opportunities that were identified for the SWRP. While SBPAT and SUSTAIN have these capabilities, SBPAT is currently specific to Southern California and would require considerable effort to be relevant for the Monterey Peninsula region. It is worth noting that the GIS approach used for this project included similar operations to SBPAT and therefore provides similar results. SUSTAIN was not selected, as USEPA has indicated on the website that "EPA can no longer develop or support SUSTAIN" (USEPA, 2017b), and the program currently requires use of an older version of ArcGIS (version 9.3). Given this and the proposed future uses of TELR for the region, investing in model development in SUSTAIN likely would not result in a longer-term sustainable model for the Planning Area.

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[5] Available at http://ladpw.org/wmd/bmpmethod/overview.shtm (Los Angeles Department of Public Works, 2017).
[6] Available at https://www.epa.gov/water-research/system-urban-stormwater-treatment-and-analysis-integration-sustain (USEPA, 2017b).

5.2.2 Project Quantification

For all identified project opportunities, simple quantification was conducted using a combination of geospatial data and utilizing analyses that had already occurred for the region as part of the development of TELR. These include the pollutant loading quantification that had been completed for larger-scale catchments within the Planning Area and are provided in the TELR platform.

More detailed quantification was conducted for the seven projects selected for concept design. The estimated volume of captured runoff can be used to quantitatively estimate the benefit that can be achieved by a project. Several proprietary and non-proprietary hydrologic modeling platforms were considered to quantify runoff draining to a facility at a project location. Commonly used non-proprietary hydrologic models include USEPA and USGS Hydrological Simulation Program (HSPF), the United States Army Corps' Hydrologic Modeling System (HEC-HMS) and Technical Release 55 (TR-55), and USEPA's Stormwater Management Model (SWMM). This project utilized results from modeling conducted in USEPA SWMM, which can perform long-term continuous simulation modeling (HEC-HMS and TR-55 do not have this capability). Concept-level quantification is described in Section 6.4.

5.3 Project Identification and Classification

Planned and potential SWRP project opportunities were identified through three avenues, as mentioned in Section 5.1: (1) projects already planned or considered for future implementation by cooperating entities, interested parties, and stakeholders (see Section 5.3.1); (2) projects identified through an algorithmic GIS-based opportunity analysis, to identify feasible locations where a project could be implemented (see Section 5.3.2); and (3) additional project identification analysis conducted as part of the match-funded Monterey Peninsula Water Recovery Study (see Section 5.3.4). The planned projects and projects identified through the GIS opportunity analysis were classified as described below in Section 5.3.3. The additional projects identified as part of the Monterey Peninsula Water Recovery Study were classified as part of the Monterey Peninsula Water Recovery Study (Geosyntec, 2018; see Appendix D).

The interaction between the identification and classification of projects in the Water Recovery Study and the identification and classification that occurred as part of the general SWRP analyses is provided in the flow chart shown as Figure 4. This figure does not include final project prioritization or selection of projects for concept design (Steps 4 and 5 in Section 5.1; also see Section 6).

5.3.1 Planned Projects in the Planning Area

Planned projects in the Planning Area are those projects that a proponent has considered for implementation. These projects may be in various planning stages – from a preliminary idea to the design stage. Planned projects were identified through a project request sent out to cooperating entities, interested parties, and stakeholders. The request for projects was delivered in September 2017 in the form of a spreadsheet that contained “required” and “optional” information necessary to conduct project analyses. Information requested for each project included the proponent name, project name, location (Assessor Parcel Number [APN], address, or geospatial file), project type, drainage area information (required if a regional facility, optional otherwise), and other details about the project. The project request that was sent to cooperating entities, interested parties, and stakeholders is provided in Appendix E. These details were used to map preliminary project footprints and/or drainage areas for use in the metrics-based multi-benefit evaluation.

5.3.2 Identification of Additional Project Opportunities

In addition to identification of projects submitted by cooperating entities, interested parties, or stakeholders, other opportunities for projects were identified by conducting a geospatial screening of publicly-owned parcels and ROWs. The project opportunity analysis was conducted in a GIS platform. The desktop GIS analysis entailed identification of publicly-owned parcels and ROWs that do not have physical feasibility constraints that could preclude implementation of a stormwater recovery project. The project opportunity analysis consisted of the following steps:[7]

1. Identify publicly-owned parcels through Monterey County land use code.[8]
2. Screen identified publicly-owned parcels to identify parcels that are at least 0.1 acres in size and with average slope less than 10% (estimated using USGS topographic data).
3. The parcels that met these criteria were considered for physical feasibility screening. The parcels that did not meet these criteria were not considered for projects.
4. Identify non-state highway public ROW[9] within urban areas. This was conducted by using public road data provided by Monterey County.
5. Identified parcel-based, regional, and ROW locations were screened to remove sites with the following physical constraint:
   a. Sites significantly outside of urbanized area[10] (i.e., assumed to be dominated by open space) that do not overlie a water supply aquifer or riparian corridor; and

[7] This analysis did not include screening checks that should occur as part of a project design, which include the presence of steep slopes in drainage areas (mostly applicable to regional projects), need for a liner due to proximity to structures, and other feasibility checks. The screening also did not include field checks such as drainage tie-ins, land use checks, or other data verification.

[8] Parcel ownership identified using assessor parcel map data obtained from Association of Monterey Bay Area Governments (AMBAG) (November 2015) along with land use code information from Gary de Amaral at the County of Monterey Assessor’s Office (2017). Land use codes 7A and 7B were considered publicly owned (includes municipal, state, and federal land).

[9] This did not include roads that are not classified (e.g., bike path, trails, etc.) in the Monterey County data.

[10] Identified using a combination of city limits, the United States Census Urbanized Areas, and Designated Places (United States Census Bureau, 2017).

b. Sites significantly within areas that are highly susceptible to landslides.[11]

5.3.3 Project Classification

All projects identified through the request for planned projects (Section 5.3.1) and the GIS opportunity analysis (Section 5.3.2) were classified to identify those that could be included in the Water Recovery Study (see Section 5.3.4), and to compile information for the metrics-based multi-benefit evaluation (see Section 5.4).

Projects were classified by the following information:

1. Project scale (i.e., regional, parcel-based, or ROW project);
2. Infiltration feasibility, or feasibility of direct recharge via treatment through wastewater recycling and groundwater replenishment;
3. Facility type; and
4. Drainage area information.

Project Scale

Potential projects were categorized based on project scale as parcel-based (i.e., self-treating parcel) facilities, regional facilities (potential to treat an area outside of the parcel), and ROW/green street facilities (treating the road and areas that flow to the roadway, including, at a minimum, portions of adjacent parcels).

1. All distributed/street-based projects were identified as ROW projects.
2. Projects located on a parcel were classified as regional if:
    a. The parcel contains at least 0.5 acre of undeveloped or open space area (as identified through land use class);[12] and
    b. The location is sufficiently close to a storm drain (i.e., within 500 feet,[13] where storm drain pipe data is available).
3. All other parcel locations were identified as parcel-based projects.

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[11] Identified using data from the Monterey County Open Data GIS portal.
[12] Undeveloped or open space land use identified through available land use data for urban areas; areas outside of urban areas with limited land use data were assumed to have sufficient space to accommodate a regional project.
[13] Storm drain diversion projects identified as part of the Water Recovery Study used a different distance from the storm drain for screening; Monterey Peninsula Water Recovery Study Report, Appendix D.

Infiltration Feasibility

All project opportunity locations were categorized as feasible, partially feasible, or infeasible for infiltration. Locations that are not feasible for infiltration were still considered for partially infiltrating or non-infiltrating stormwater capture projects. Projects were categorized as follows:

1. Hazardous/infeasible for infiltration (i.e., facilities must be lined) – projects that are located:
   a. Where more than 50% of the site is over liquefaction hazards;
   b. Where the surface elevation is within 10 feet (depth) of a water supply aquifer,[14] as data are available;
   c. Within 100 feet of a site with soil or groundwater contamination (based on proximity to active EnviroStor/GeoTracker[15] sites);
   d. Sites within 100 feet of water supply wells;[16] or
   e. Areas overlying Natural Resources Conservation Service (NRCS) "rock outcrop" texture class or without an identified hydrologic soil group (HSG).
2. Infiltration safe but only partially feasible – this is the case when none of the above constraints exist, but the soil underlying the facility is relatively poorly draining (identified as HSG C or D).
3. Infiltration feasible – the site has none of the infiltration hazards present and the soil underlying the facility is relatively well draining (identified as HSG A or B).

Facility Characteristics

Facility characteristics were identified for each potential project for use in the project metrics-based multi-benefit evaluation, as part of the Performance category group. The facility characteristics that were identified include:

1. Water Recovery Project – planned projects or projects identified through the Water Recovery Study as having potential to augment water supply through capture of stormwater or dry weather runoff. See Section 5.3.4.

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[14] Groundwater depth was assumed to the extent possible using data obtained from the California Statewide Groundwater Elevation Monitoring (CASGEM) program.

[15] GeoTracker is a California SWRCB website which tracks sites with the potential to impact water quality in California, including contaminated sites (https://geotracker.waterboards.ca.gov/). EnviroStor, a California Department of Toxic Substances Control site, is another useful tool for identifying contaminated sites: (https://www.envirostor.dtsc.ca.gov/public/).

[16] Currently available data consists of the point locations of several hundred wells throughout the region, provided by MPWMD.

2. Green Infrastructure[17] (distributed or regional) – these types of facilities are assumed to provide good stormwater pollutant removal; moderately reestablish natural hydrology; moderately develop, restore, or enhance habitat and open space; and provide enhanced community benefit.
3. Non-Green Infrastructure Treatment Control Facilities – these facilities, which do not include vegetation, are assumed to provide moderate stormwater pollutant removal and to moderately reestablish natural water drainage systems. They are sized to MS4 water quality requirements.
4. Flood Control Facilities – these facilities may include components of green infrastructure or (more commonly) non-green infrastructure treatment control. These facilities are identified by sizing to specifically control flood flows (considered to be the 1% or 100-year flood).
5. Hydromodification Control, Stream Restoration, or Habitat Restoration – these facilities or areas are designed specifically to restore areas impacted by erosive stormwater or dry weather flows and/or prevent these areas from impacts caused by future erosive flows. These facility components may be added to one of the stormwater capture facility types listed above, or they may be stand-alone areas.
6. Public Use Area or Public Education Area – in most cases, public use areas or public education areas would not be stand-alone projects but would be supplemental features of one of the facility types listed above.
7. Programmatic Stormwater Management Opportunities – these include sidewalk landscaping and impervious surface removal programs, rainwater harvesting subsidy programs, green roof subsidy programs, residential rain garden and downspout disconnection programs, subsidy or credit programs for stormwater management and/or water quality projects on agricultural lands, and similar opportunities.

For planned projects identified by cooperating entities, interested parties, and stakeholders, the facility description or classification provided by the agency or project proponent was used to identify facility characteristics. Any planned projects classified as water supply augmentation projects or water recovery projects were also screened for inclusion in the Water Recovery Study. Project opportunities identified through GIS analyses were classified using the following project classification criteria:

[17] USEPA (2017a) includes the following definition of green infrastructure: "Green infrastructure uses vegetation, soils, and other elements and practices to restore some of the natural processes required to manage water and create healthier urban environments. At the city or county scale, green infrastructure is a patchwork of natural areas that provides habitat, flood protection, cleaner air, and cleaner water. At the neighborhood or site scale, stormwater management systems that mimic nature soak up and store water."

1. Locations conducive to implementation of one of the identified Water Recovery Study project types were screened for inclusion in the Water Recovery Study (see Section 5.3.4).
2. Locations that are not considered feasible for implementation of identified Water Recovery Study project types were classified as follows:
    a. All identified ROW locations were classified as potential distributed green infrastructure projects (conservatively assumed to be sized for water quality control).
    b. Remaining parcel-based and regional projects were classified as potential green infrastructure projects.

Project Drainage Area

For each identified project, the project drainage area was identified and characterized. For those projects identified as Water Recovery Study projects, this occurred as part of the Water Recovery Study analyses (see Appendix D). For all other projects, the following drainage area characterization occurred:

1. All planned projects with identified drainage areas were characterized as provided.
2. For ROW projects for which drainage area had not been characterized, the roadway and an assumed tributary buffer (50 feet) that extends into the adjacent parcels were considered the project drainage area.
3. For parcel-based projects for which drainage area had not been characterized, the entire parcel was assumed to make up the drainage area.
4. For regional projects for which the drainage area had not been characterized, the TELR catchment associated with the estimated drainage area was identified. For areas outside of TELR, the drainage area was approximated using catchments from the National Hydrography Dataset Plus.
5. For all projects, the runoff rate and pollutant loading associated with the drainage area was identified using geospatial files exported from TELR.

5.3.4 Monterey Peninsula Water Recovery Study Projects

Planned projects that incorporate augmentation of water supply using captured stormwater or dry weather runoff were identified as potential Water Recovery Projects and screened for inclusion in the Water Recovery Study. Screening entailed categorization as one of the identified Water Recovery Study project types, and examination of feasibility.

The identified Water Recovery Study project types included:

1. Lakes and Reservoirs;

2. Storm Drain Diversions to Sanitary Sewer;
3. Infiltration into a Water Supply Aquifer; and
4. Onsite Capture and Use.

The identification and feasibility screening for Lakes and Reservoirs, Storm Drain Diversions to Sanitary Sewer, Infiltration into a Water Supply Aquifer and Onsite Capture and Use projects is provided in the Monterey Peninsula Water Recovery Study Report (Geosyntec, 2018, provided as Appendix D). Lakes and Reservoirs and Storm Drain Diversions to Sanitary Sewer could both be categorized as diversion projects for use by existing water recycling projects.

The identification of Infiltration into a Water Supply Aquifer projects and Onsite Capture and Use projects were partially completed as part of the GIS analysis conducted for the entire Planning Area (described in Sections 5.3.2 and 5.3.3). For identification of these projects, the following GIS analyses steps were completed:

1. Public and private parcels with the following attributes were identified as potential Infiltration into a Water Supply Aquifer projects:
   a. Majority of the parcel overlying a Water Supply Aquifer (the Carmel Valley Alluvial Aquifer or the Seaside Groundwater Basin); and
   b. Land use/land cover that is either vacant, open space, irrigated, or flat impervious cover (e.g., parking lot, tennis court) using aerial imagery in GIS. Buildings, beach, and wooded areas were considered not feasible for infiltration.
2. Public and private parcels with the following attributes were identified as potential Onsite Capture and Use projects:
   a. Not identified as a potential Infiltration into Water Supply Aquifer project, unless a cemetery or golf course;
   b. Irrigated park or recreation area; and
   c. Area to house a capture and use facility that can capture sufficient upstream flows to support irrigation demand onsite.

These project opportunity locations were further screened for inclusion in the Water Recovery Study. Those public parcels that are screened as part of the Water Recovery Study and are found to not be feasible to support a Water Recovery project were included in the general SWRP.

5.3.5 Identified Project Database

Projects identified and classified through the methods described in the preceding sections were compiled into a database that includes all project information provided (for planned projects) as well as information identified as part of the GIS screening process. The resulting comprehensive project database is provided in Appendix E and was used as the basis for applying the project metrics-based multi-benefit evaluation. Details regarding project evaluation are provided in the following section.

5.4 Project Metrics-Based Multi-Benefit Evaluation

Potential project locations were evaluated using a quantitative metrics-based multi-benefit approach. The evaluation and scoring scheme proposed has been adapted from the method used to develop the Ventura Countywide Municipal Stormwater Resource Plan (Ventura Countywide Stormwater Quality Management Program, 2016) and the Stormwater Resource Plan for San Mateo County (San Mateo Countywide Water Pollution Prevention Program [SMCWPPP], 2017) and is consistent with the Storm Water Resource Plan Guidelines (SWRCB, 2015a). The quantitative metrics and qualitative components that are evaluated for each project are associated with the potential to provide the multiple benefits identified in the State's SWRP Guidance (i.e., water quality, water supply, flood control, environmental benefit, and community benefit) (SWRCB, 2015a).

5.4.1 Project Scoring

Based on all the information compiled in the identified project database, each project received a score using the point system provided in Table 10. There are two categories of project characteristics that receive points: Implementation Feasibility metrics and Performance metrics. A description of each scored project metric is provided.

The Implementation Feasibility category group includes scores for project characteristics that relate to the ease of implementation. These categories are assumed to apply to all multiple benefit categories (i.e., water quality, water supply, flood control, environmental, and community benefits). This includes the following scoring components related to project metrics:

- Parcel Area (for Regional/Parcel-Based Projects Only) – this scoring component provides more points for larger parcels, assuming that larger projects that capture more runoff would be more feasible on these parcels.
- Opportunity Location Slope – this scoring component is related to ease of construction and implementation. Flatter locations typically require less grading and hydraulic connection considerations.

The Performance category group includes scores for project components that relate to facility performance. This includes the following components:

- Number of Bus Stops (for ROW Projects Only) – the number of bus stops within a 50-foot buffer of the identified ROW centerline segment was used as an indicator of the potential for the site to also achieve trash management goals, as described in Section 4.3.

- Catchment Runoff Rate Associated with Drainage Area – the catchment runoff rate, provided in TELR, was used as an indicator of how much runoff could be captured at the site. This project component is assumed to apply to all benefit categories.
- Infiltration Feasibility – retention of runoff through percolation or infiltration is known to provide enhanced pollutant reduction, reestablishment of natural drainage, recharge potential, and reduction of runoff rates, among other beneficial outcomes. This project component was assumed to apply to all benefit categories.
- Water Recovery Project – Water Recovery Projects received points specific to water supply benefits.
- Estimated Water Supply Provided – increasing points (specific to water supply) were received based on potential water supply (as estimated through the Water Recovery Study).
- Pollutant Loading Rate Associated with Drainage Area – this scoring component is related to the influent pollutant load. Facilities that are located in catchments estimated to have higher pollutant loading rates (based on land use) have greater potential to reduce loads.
- Captures Runoff Ultimately Draining to ASBS or 303(d) – Listed Waterbodies – this scoring component is related to the ultimate discharge location. Facilities that capture runoff that could impact sensitive or impaired waterbodies received more points related to water quality.
- Removes Pollutants from Stormwater – water quality specific points were awarded to facilities designed as treatment control facilities.
- Provides Flood Control Benefits – flood control facilities received points specific to providing flood control benefits.
- 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 environmental benefits.
- Provides Community Enhancement – projects that specifically provide public use areas or public education components or are in a Disadvantaged Community[18] (DAC, see Figure 5) were given points specific to providing community benefit.

[18] A DAC is a community with an annual median household income that is less than 80 percent of the statewide annual median household income (Water Code §79505.5). The following four census tracts within the SWRP area are considered DACs:

Tract 127 (Monterey);
Tract 136 (Seaside);
Tract 137 (Seaside); and
Tract 140 (Seaside/Sand City).

Public or private land ownership was not used as a scored criterion (only applies to Water Recovery Study projects).

Lake and Reservoir and Storm Drain Diversions to Sanitary Sewer Projects had a maximum possible score of 24 points (slope and parcel area scores did not apply); ROW projects had a maximum score of 26 points (parcel area score did not apply); and all other projects had a maximum score of 28 points (though it is not expected that one project would be able to achieve the maximum score for all project metrics). A normalized project score was calculated for each project to allow for comparison to a 28-point scale. Although all considerations were weighted equally, there are more point categories specific to water supply and water quality to account for priorities in the region.

Table 10: Project Metrics-Based Multi-Benefit Evaluation Matrix

Project Scoring Metric	**Benefit Addressed**	**Points**		
		0	**1**	**2**
Parcel Area (For Regional/Parcel-Based Projects Only)	All	< 1 acre	1 - < 4 acres	> 4 acres
Number of Bus Stops (ROW Projects Only)	Water Quality	0	1	2 or more
Location Slope	All	7-10%	3-7%	0-3%
Catchment Runoff Rate Associated with Drainage Area	All	< 0.15 feet per year (ft/yr) (per TELR) or unavailable in TELR	0.15 ft/yr < runoff < 0.40 ft/year (per TELR)	> 0.40 ft/year (per TELR)
Infiltration Feasibility	All	No	Partial or Not Applicable[1]	Yes
Water Recovery Project	Water Supply	No	--	Yes
Estimated Water Supply Provided	Water Supply	0	> 0 ac-ft/yr to <5 ac-ft/yr	5+ ac-ft/yr 10+ ac-ft/yr (3 total points) 20+ ac-ft/yr (4 total points)
Pollutant Loading Rate[2] Associated with Drainage Area	Water Quality	<0.002 tons per acre-year (ton/ac-yr) (per TELR) or unavailable in TELR	0.002 – 0.02 ton/ac-yr (per TELR)	>0.02 ton/ac-yr (per TELR)
Captures Runoff Ultimately Draining to ASBS or 303(d) Listed Waterbodies	Water Quality	No	--	Yes
Removes Pollutants from Stormwater	Water Quality	--	Non-Green Infrastructure Treatment Control Facilities[3]	Green Infrastructure[4]

Project Scoring Metric	Benefit Addressed	Points		
		0	1	2
Provides Flood Control Benefits	Flood	--	Flood Control Facility sized to control smaller than 100-year event	Flood Control Facility sized to control 100-year event
Re-establishes Natural Water Drainage Systems or Develops, Restores, or Enhances Habitat and Open Space	Environmental	--	--	Stream Restoration, Hydromodification Control, or Habitat Restoration Project
Provides Community Enhancement	Community	--	--	Public Use Area or Public Education Project[5]
Provides Enhancement to DAC	Community	--	--	Project located in DAC

Notes:
1. Partial infiltration refers to project opportunity locations that are not identified as hazardous for infiltration, but when but the soil underlying the facility is relatively poorly draining (assumed to apply when underlying soil HSG is C or D). “Not Applicable” projects include those Water Recovery Study projects that would not be designed to include an infiltration component (e.g., Storm Drain Diversions to Sanitary Sewer), regardless of the underlying infiltration feasibility.
2. This corresponds to particulate loading rate provided in TELR.
3. Non-green infrastructure treatment control includes devices that utilize detention, hydrodynamic separation, or filtration for treatment (without vegetation).
4. Green infrastructure are treatment control measures such as bioretention, rain gardens, planter boxes, or other vegetated facilities; infiltration-based facilities; and rainwater harvest and use measures.
5. This includes improvements or enhancements to public use areas or public education projects or added project features.

All project scores were documented in a project database (see Appendix E), which sorts projects based on their score. Narrative descriptions of community benefits claimed by each applicable project are also provided in Appendix E. Preliminary project lists were developed for cooperating entities, interested parties, and stakeholders for input on ranking and prioritization. Results of the identification, metrics-based multi-benefit analysis, and project prioritization are provided in Section 6. The method for selecting the top seven projects for development of concept designs, along with descriptions of those projects, is also provided in Section 6.

6. IDENTIFICATION AND PRIORITIZATION OF PROJECTS

This section presents the results of the project identification, analysis, prioritization, and selection process. The process included the following steps:

1. Identify project opportunities and perform a metrics-based evaluation to obtain a preliminary project "score."
2. Send project opportunities and preliminary scores to project opportunity location organizations to perform project prioritization and rank projects. Following prioritization by identified organizations, compile revised master project database, incorporating rankings from organizations performing prioritization.
3. Send revised master project database with project rankings to Monterey Peninsula Stakeholder Group to obtain feedback. Document stakeholder feedback in or accompanying master project database, Appendix E, and send to the TAC for selection of the top seven projects for preparation of 10% project concept design.
4. Finalize selection of seven projects for concept designs. Select one of the seven projects for preparation of a 30% design and CEQA Checklist.

These steps are described in further detail in the subsequent sections.

6.1 Identified Projects

6.1.1 Project Opportunities Identified in Existing Plans

Planned projects received from the cooperating entities, interested parties, and stakeholders were in various planning stages, ranging from a preliminary idea to the design stage, and consisted of a variety of project types. A total of 84 planned projects were received from 17 entities. Planned projects were processed to account for duplicates and overlapping projects.

6.1.2 Additional Potential Project Opportunities and Feasibility Analysis

Stormwater capture projects located on publicly- and privately-owned parcels that could provide water supply augmentation were identified through the Monterey Peninsula Water Recovery Study. A total of 241 Water Recovery Study projects were identified (this includes some of the planned projects provided by project proponents).

In addition to those projects identified through the Water Recovery Study, the desktop geospatial opportunity analysis described in Section 5 identified a total of 377 parcel-based, 61 regional, and 1,609 ROW projects in the Monterey Peninsula region.

6.1.3 List of Potential Project Opportunities

The Final Project Database is provided in Appendix E. All projects identified would detain (i.e., provide "peak shaving" of the urban hydrograph) or retain (through infiltration or capture and reuse) urban stormwater and dry weather flows that drain towards the Pacific Ocean, thereby partially restoring natural drainage patterns. Approximately 26 projects help to re-establish natural water drainage systems or develop, restore, or enhance habitat and open space by specifically including stream restoration, hydromodification control, or habitat restoration. Approximately 2,205 projects (97% of the total number of projects) are associated with publicly owned lands to capture, clean, store, or use stormwater and dry weather runoff. No new or redevelopment projects were identified as part of this plan, although these projects could be amended to the SWRP in the future. MRSWMP has a Stormwater Technical Guide for Low Impact Development (MRSWMP, 2015) that provides additional resources for new or redevelopment projects that must implement LID measures per the CCRWQCB PCRs. This Stormwater Technical Guide provides design criteria and types of BMPs to be used for such projects (MRSWMP, 2015).

6.2 Results of Integrated Metrics-Based Multi-Benefit Analysis and Prioritized List of Potential Projects

Following completion of the metrics-based multi-benefit evaluation, as detailed in Section 5.4, the projects were compiled into one master database (in Excel format) as well as agency-specific databases. The master and agency-specific databases included information about the project location and scoring, along with the final 'scores' resulting from the metrics-based multi-benefit evaluation. These agency-specific databases were sent to the following entities for prioritization:

Table 11: Agencies Performing Project Prioritization

Cooperating Entities	Other Agencies
City of Monterey	Monterey Peninsula Airport District
City of Seaside	Carmel Area Wastewater District
City of Sand City	Fort Ord Reuse Authority
City of Carmel-By-The-Sea	Monterey Peninsula Regional Park District
City of Pacific Grove	California State University Monterey Bay (state/federal)
City of Del Rey Oaks	State of CA Department of Parks and Recreation (state/federal)
County of Monterey	United States Army Garrison / Presidio of Monterey

All cooperating entities, including those listed in Table 11 as well as Monterey One Water and the Monterey Peninsula Water Management District, also received the full compiled preliminary project database. The full compiled project database is included as a tab in the Final Project Database, provided as Appendix E.

The agencies were asked to consider multiple criteria when ranking their projects, such as cost considerations, opportunity considerations, labor/staff considerations, multiple benefit assessments, safety and security considerations, and implementation considerations. Entities were requested to provide their project ranking along with the reasoning for the ranking. Rankings provided by each of the organizations performing prioritization were compiled into a Stakeholder Project Database with the full compiled preliminary project database. The prioritization feedback received from each agency is also provided in the Final Project Database included as Appendix E.

The Stakeholder Project Database also contained a tab of top ranked projects, which included the top-ranked 2% (rounding up) of projects from all the agencies. For agencies that did not provide prioritization feedback, only the preliminary project scores were considered. A total of 53 projects were identified for inclusion in the top ranked projects. The Stakeholder Project Database was provided to the Monterey Peninsula Stakeholder Group on February 6, 2018 and discussed at the Stakeholder Group meeting on February 8, 2018, with an emphasis on receiving input from the stakeholders on selecting projects for concept design. The top ranked projects tab provided to the Stakeholder Group is included in the Final Project Database included as Appendix E.

6.3 Selected Project Concept Designs and Quantitative Analysis of Project Benefits

The TAC selected seven projects for concept design during the third TAC meeting, held on February 22, 2018, by considering the preliminary project scores, the agency rankings, input from the Monterey Peninsula Stakeholder Group, and other local and institutional knowledge. Based on Stakeholder Group and TAC input and comments, the primary factor in project selection was to capture as much usable water as possible to help meet dry weather recycled water demands and augment water supply at other time with prior authorization from Monterey One Water. The project selection for 10% concept and 30% design was finalized through email communication with the TAC over the four weeks following the meeting.

The seven selected projects for concept design are briefly described below and are also included in the “Selected Projects” tab of the Final Project Database, provided as Appendix E. The descriptions below include how each project or program will contribute to the preservation, restoration, or enhancement of watershed processes. Concept designs and additional information about each project, including multi-benefit descriptions, are provided in Appendix F. The top project selected, Hartnell Gulch, was also developed into a 30% design and a preliminary CEQA checklist was completed for it. Hartnell Gulch project description, including multi-benefit descriptions, concept designs and preliminary CEQA checklist are provided as Appendix G. Coastal areas of Monterey are areas of high sensitivity for archaeological, cultural, historical, and Native American resources and the projects will evaluate these resources in future phases of project development.

6.3.1 Hartnell Gulch Restoration and Runoff Diversion

The Hartnell Gulch Restoration and Runoff Diversion project, a proposed diversion to sanitary sewer and creek restoration project, is in the City of Monterey. The project would install a pump to divert underground seepage and dry weather flows into the sanitary sewer. The restoration component would consist of removal of invasive plants, revegetation with native plants, and stabilization of the existing eroded channel. A portion of the approximately 1,100-acre tributary drainage area is in a DAC tract. The project is estimated to achieve between 20 to 100 ac-ft/yr of water supply. Project concept design and preliminary CEQA checklist is provided in Appendix G. This project was also developed into a 30% design, which is provided in Appendix G. The project claims the community benefit "Provides Enhancement to DAC", as the project is located in a DAC.

6.3.2 Lake El Estero Diversion to Sanitary Sewer

The Lake El Estero Diversion to Sanitary Sewer project is in the City of Monterey. This is a lake project that would augment water supply via a diversion to sanitary sewer and remove urban stormwater and dry weather flows that are currently discharged to Monterey Bay, thereby partially restoring natural drainage patterns and treating any urban pollutants that are associated with the diverted flows. The project would install a diversion valve from the box culvert on the north side of the lake to divert flows into the sanitary sewer system, instead of discharging into Monterey Bay. The project is estimated to achieve over 100 ac-ft/yr of water supply from the approximately 3,670-acre tributary drainage area. The project does not claim a direct environmental or community benefit, but will provide ancillary benefits to the community as it provides a source of alternative water supply.

6.3.3 Monterey Tunnel Stormwater Diversion

The Monterey Tunnel Stormwater Diversion project is in the City of Monterey. The project would divert flows from the downtown Tunnel and Oliver Street storm drain gravity pipe to the sanitary sewer instead of discharging it into Monterey Bay. This would remove dry weather flows that are currently discharged to Monterey Bay, thereby partially restoring natural drainage patterns and treating any urban pollutants that are associated with the diverted flows. The project is estimated to achieve from 10 to 20 ac-ft/yr of water supply from the approximately 150-acre tributary drainage area. The project does not claim a direct environmental or community benefit, but will provide ancillary benefits to the community as it provides a source of alternative water supply.

6.3.4 Carmel-by-the-Sea Stormwater Diversion

Located in the City of Carmel-by-the-Sea, the Stormwater Diversion project would divert dry weather runoff and wet weather first flush flows from the inland storm drain network to the sanitary sewer along San Antonio Avenue for treatment and reuse for golf course irrigation. This would remove urban stormwater and dry weather flows that are currently discharged to the Carmel Bay

ASBS region, thereby partially restoring natural drainage patterns (providing some environmental benefit) and treating any urban pollutants that are associated with the diverted flows. The project is estimated to achieve between 10 to 20 ac-ft/yr of water supply from its approximately 310-acre tributary drainage area. The project does not claim a direct community benefit, but will provide ancillary benefits to the community as it provides a source of alternative water supply.

6.3.5 Pacific Grove-Monterey ASBS Watershed – David Avenue Stormwater Storage and Diversion

The Pacific Grove-Monterey ASBS Watershed – David Avenue Stormwater Storage and Diversion project is in the City of Pacific Grove. This project would store wet weather and dry weather flows for diversion to the Pacific Grove storm drain network instead of discharging runoff into Monterey Bay and the Pacific Grove ASBS region, thereby partially restoring natural drainage patterns in this tributary area and treating any urban pollutants that are associated with the diverted flows. This project is estimated to achieve from 10 to 20 ac-ft/yr of water supply from its approximately 100-acre tributary drainage area. The project does not claim a direct environmental or community benefit, but will provide ancillary benefits to the community as it provides a source of alternative water supply.

6.3.6 Del Monte Manor Park Infiltration

The Del Monte Manor Park Infiltration Project in the City of Seaside is a regional infiltration project. The project includes open space park improvements and flood management to infiltrate runoff from the surrounding ROW. This would remove urban stormwater and dry weather flows that are currently discharged to the Pacific Ocean through infiltration, thereby partially restoring natural drainage patterns, providing an environmental benefit, and removing any urban pollutants that are associated with the infiltrated flows. The project will provide indirect benefits of infiltrating 5 to 10 ac-ft/yr of urban runoff above a potable water supply aquifer from its approximately 25-acre tributary drainage area that contains a DAC. The project claims the community benefits "Provides Community Enhancement", as it includes open space park improvements, along with "Provides Enhancement to DAC", as the project is located in a DAC.

6.3.7 Drywell Aquifer Recharge Program

The Drywell Aquifer Recharge Program in the City of Seaside, with support from regional partners, would focus on using drywells to recharge urban runoff to a primary water supply aquifer. The program would recommend potential locations where flows could be diverted from surface ditches or within the storm drain network to a water quality pretreatment system that will discharge to a drywell above the domestic supply aquifers in the Seaside Groundwater Basin. This would remove urban stormwater and dry weather flows that are currently discharged to the Pacific Ocean through infiltration, thereby partially restoring natural drainage patterns and removing any urban pollutants that are associated with the infiltrated flows. The project is estimated to achieve between

20 to 100 ac-ft/yr of water supply. The project claims the community benefit “Provides Enhancement to DAC” as the project is located in a DAC.

6.4 Development of Project Concept Designs

Project concept designs include the following components:

1. Project location;
2. Project drainage area;
3. Project facility type;
4. Project inlet/outlet locations;
5. The proposed location of conveyance associated with the project; and
6. Quantification of project benefits, including water supply and pollutant load reduced.

Quantification of project benefits utilized a conceptual-level modeling approach. Both wet and dry weather runoff were considered. For projects capturing dry weather runoff, estimated benefits were quantified by extrapolating dry weather yield results from previously implemented and evaluated projects, including the Pacific Grove ASBS project and checked with ranges from other studies in southern California (IRWD, 2004 and County of Orange, 2017).

For projects capturing stormwater runoff, estimated benefits were quantified by utilizing previous technical studies available and calculations of wet weather runoff recovery. To obtain an estimate of average annual wet weather volume captured and recovered, the range of potential capture was modeled as a function of catchment hydrology, facility configuration, and drawdown rate. Results from hydrologic models were displayed in a nomograph, developed using continuous hydrologic simulation with USEPA’s SWMM. Nomographs were developed for catchments with impervious percent of 25%, 50%, 75%, and 100%; catchment soils comprised of HSG A and HSG B/C/D; and drawdown times of 12 hours, 1 day, 2 days, 3 days, 1 week, 1 month, 6 months, and 1 year. An example nomograph and modeling details are provided in Appendix D.

Using the nomographs developed, the net average annual wet weather volume captured and recovered was then estimated using the following steps for each relevant facility:

1. Calculate facility drawdown time (days) by dividing the live storage volume available (i.e., storage volume above a permanent pool) by the sum of the facility’s discharge rates (i.e., percolation, capture and use, and diversion).
2. Calculate the unit stormwater runoff depth (acre-feet per acre per year) and percent capture using the nomographs for the four points surrounding the project’s imperviousness and drawdown time and apply four-point linear interpolation.

3. Multiply the annual stormwater runoff depth (acre-feet per acre) by the tributary area (acres) to calculate annual wet weather runoff captured (ac-ft/yr). For comparison, annual stormwater capture was also estimated by multiplying the calculated percent capture by the average annual stormwater runoff using the simplified runoff equation referenced in the Central Coast Joint Effort[19] (CCRWQCB, 2013).
4. Subtract the proposed annual wet weather runoff captured and recovered by that of the existing condition (if applicable) to calculate the net annual wet weather runoff recovered.

The runoff produced from the first flush stormwater event was assumed to be equivalent to the runoff generated from the 85th percentile rainfall event. The runoff corresponding to this first flush/ 85th percentile rain event was calculated in accordance with numeric sizing criteria in the Phase II Permit.

Water quality benefits were estimated for wet season runoff using TELR, where total suspended solids (TSS) is used as a surrogate for several water quality constituents (i.e., reductions in TSS concentrations or loads are often proportional to reductions in other particulate-associated water quality constituents). Estimated TSS load reduced for projects was calculated based on an area-weighted TSS loading rate for TELR catchments in the drainage area.

Projects are not part of new/re-development and thus are not required to meet Phase II Permit volumetric capture requirements. Projects were sized to maximize capture for water recovery within the area available for facility construction. The projects are anticipated to be analyzed as part of CCRWQCB PEAIP requirements. The watershed-based outcomes calculated through the runoff and water quality estimates described above are included on the concept designs provided in Appendix F (Hartnell Gulch provided in Appendix G).

[19] Average annual wet weather runoff was calculated based on multiplying a runoff coefficient (per Attachment 1 of Central Coast Regional Water Board's Resolution No. R3-2013-0032) by a conservatively low mean annual precipitation (12.8 inches), and the tributary area.

7. IMPLEMENTATION STRATEGY AND SCHEDULE

7.1 Resources for Plan and Project Implementation

7.1.1 Resources for Plan Adoption and Adaptive Management

Monterey One Water was the lead entity in the preparation of this SWRP on behalf of MRSWMP, including Monterey County and six incorporated cities within the County: Carmel-by-the-Sea, Del Rey Oaks, Monterey, Pacific Grove, Sand City and Seaside. It is anticipated that Monterey One Water and MRSWMP will facilitate future SWRP updates and ongoing adaptive management. The MRSWMP agencies regularly meet to discuss stormwater management, water quality concerns, and other regulatory matters within the Monterey Peninsula region. As part of ongoing management, these regular meetings may include a SWRP meeting agenda item as needed to discuss potential updates to the SWRP and how to prepare and fund the updates.

7.1.2 Resources for Project Implementation

Funding for implementation of projects included in this SWRP will be obtained by the municipal agency, partnership of agencies, or other stakeholder project sponsors capable of implementing the identified projects. Projects identified in this SWRP may be implemented as funding opportunities become available and funds are awarded or allocated to the project.

Sources of project funding may include grants, bond measures, local capital improvement program (CIP) budgets, local revenue streams such as utility rates or fees, and/or other funding mechanisms. Currently projected sources of grant funding include:

- Round 2 of Proposition 1 stormwater implementation grant funding (solicitation expected in early 2020);
- Round 1 of Proposition 1 IRWM implementation grant funding
- Other state bond-funded grants as they become available.

Another potential funding mechanism is through partnerships with Caltrans to fund regional projects that include Caltrans drainage areas.

7.2 Plan Implementation

7.2.1 Timeline for Incorporating the SWRP into the IRWMP

As discussed in Section 2, this SWRP is being prepared in close collaboration with the Monterey Peninsula, Carmel Bay, and South Monterey Bay RWMG. The RWMG is the entity tasked with developing and implementing the IRWMP, reviewing projects submitted to the plan, and choosing which projects to put forward for funding. The RWMG includes many of the same agencies that are cooperating entities or interested parties in the development of this SWRP. The RWMG lead is the MPWMD.

Monterey One Water coordinated with the RWMG on incorporation of this SWRP into the Monterey Peninsula IRWMP. The SWRP was introduced to the RWMG at a meeting on November 1, 2018 and the SWRP was unanimously accepted for inclusion in the IRWMP as an appendix. As IRWMP project solicitation processes occur (in response to timelines for available IRWMP grant funding), projects listed in the final SWRP may be proposed by sponsoring entities, vetted and scored through the IRWMP project prioritization process, and included as part of the IRWMP project list as appropriate. The IRWMP decision support tools, including a description of the project review process and weighting of compliance factors, the project application, and the project solicitation schedule, are provided in Appendix I to this plan.

7.2.2 Actions, Projects, and Studies for SWRP Implementation

This SWRP identifies seven project concepts and additional project opportunities for which concepts can be developed prior to seeking funding. Identified project opportunities and project concepts are described in Section 6. As funding becomes available, sponsoring entities will take the necessary actions to design and construct the projects. While these project opportunities can provide multiple benefits that support their implementation, integrated regional water management planning and the water supply needs of the region will likely drive decision-making analyses for funding, in addition to the stormwater management and permit compliance needs of the MRSWMP agencies.

The Monterey Peninsula Water Recovery Study, developed concurrently with the SWRP, evaluated the feasibility of establishing a Peninsula-wide water recovery and reclamation system, and identified and evaluated potential projects to capture wet weather and dry weather runoff within the Planning Area. The study provided several potential projects for consideration in the SWRP. Due to the inherent water supply benefits of these potential projects, the projects scored well on the SWRP prioritized projects list and were ranked highly by the participating entities. As a result, all the projects selected for concept design and quantification of benefits in the SWRP are water recovery projects and will be considered for implementation when funding is available.

7.2.3 Entities Responsible for Project Implementation

The primary entity responsible for project implementation, should funding become available, is listed with each of the priority projects included in the SWRP list of projects. However, if other jurisdictions or agencies are located within a project drainage area, partnerships may be developed to support project funding and implementation.

7.2.4 Community Participation Strategy for SWRP Implementation

The inclusive stakeholder participation strategy that supported development of the Monterey Peninsula SWRP, described in SWMP Section 8, will provide a strong basis for continued community participation during SWRP implementation. The SWRP has been made available to the public on the MRSWMP[20], and IRWMP[21] websites, and a mechanism is provided for community members to submit new project ideas as they are developed. It is also anticipated that outreach and solicitation for new stakeholder projects would occur routinely with SWRP updates.

Community participation will also occur during individual project implementation, which will focus on the community where the project is located. Each project will include its own public participation process to address the concerns of affected residents and businesses and adjust project designs as appropriate and feasible.

SWRP projects will provide an ideal opportunity to showcase the many benefits of green infrastructure, particularly regarding stormwater capture, reduced local flooding, urban greening, and other features and functionality that will serve the community. With proper educational tools such as interpretive signage, the public can also gain a better understanding of how the project provides opportunities to capture, treat, and conserve water. As a result, constructed projects will provide a mechanism for community participation and education that will help garner support for additional projects implemented over time.

7.2.5 Procedures to Track the Status of SWRP Implementation

As discussed in Section 7.3 below, this SWRP will be updated over time by MRSWMP, in coordination with updates to the IRWMP and at intervals that are aligned with stormwater regulatory requirements, grant program solicitations, and community interests. The status of project implementation will be tracked by the lead agency for the project and will be incorporated into the SWRP when it is updated.

7.2.6 Potential Timelines and Cost Estimates for Implementing Identified Project Opportunities

As described in section 6.1, the SWRP project identification and prioritization process resulted in a total of 2,289 potential and planned project opportunities, included in Appendix E. Of these, seven projects were identified as top priority projects and developed into concept designs; one of the seven was developed into a 30% design and a CEQA checklist was completed. Section 6 and Appendix H include descriptions of the seven top prioritized projects. As funding sources are identified, project concepts will be incorporated into the responsible jurisdiction's CIP for detailed

[20] http://montereysea.org/stormwater-resource-plan/.
[21] http://www.mpirwm.org/Pages/default.aspx

design and construction. Project management documents for these CIP projects will identify project-specific implementation schedules. Table 12 below provides the status and potential timeline for each top prioritized project for which a concept was developed.

Table 12: Project Concept Status and Potential Timeline

Permittee	Project Name	Project Status	Total Estimated Cost	Anticipated Funding Timeline	Anticipated Design Completion Timeline	Anticipated Constructio n Timeline
Monterey	1. Hartnell Gulch Restoration and Runoff Diversion	30% Design/ CEQA Checklist Complete	$1,300,000	2020/21	2021/22	2022/23
Monterey	2. Lake El Estero Diversion to Sanitary Sewer	10% Concept Design	$320,000	2022/23	2023/24	2024/25
Monterey	3. Monterey Tunnel Stormwater Diversion	10% Concept Design	$190,000	2022/23	2023/24	2024/25
Carmel-by-the-Sea	4. Carmel-by-the-Sea Stormwater Diversion	10% Concept Design	$750,000	2020/21	2021/22	2022/23
Pacific Grove and Monterey	5. Pacific Grove Monterey ASBS Watershed – David Avenue Stormwater Storage and Diversion	10% Concept Design	$9,800,000	2022/23	2023/24	2024/25
Seaside	6. Del Monte Manor Park Infiltration	10% Concept Design	$330,000	2019/20	2020/21	2021/22
Seaside (with regional partners)	7. Dry Well Aquifer Recharge Program[1]	10% Concept Design	$4,300,000	2022/23	2023/24	2024/25

[1] For the Seaside and regional partner Dry Well Aquifer Recharge Program, the estimated full program cost is provided; however, a smaller portion of the program may be implemented by the proposed timeline. The portion of the project that may be implemented is dependent on coordination with regional partners, outcomes of technical feasibility studies, stakeholder input, potential permits needed, and other project investigations.

Appendix E includes additional project opportunities for which concepts can be developed prior to seeking funding. The estimated costs of implementing these additional project opportunities depends on a number of factors, including location, site conditions, project size, administrative costs, project scale, infrastructure upgrades, and other components. For the purpose of estimating the cost of implementation, it was assumed that approximately 1% of the project opportunities identified as part of the SWRP will be implemented over the next 20 years (i.e., the top 23 prioritized projects of the 2,289 projects identified), and will therefore have a need for grant funding assistance. These 23 projects include the top seven projects for which concepts were developed as part of this SWRP, as well as 16 additional projects identified based on project proponent ranking and project metrics-based multi-benefit analysis score. The additional 16 projects included in the cost analysis require additional feasibility analysis (including physical, permitting, administrative, and stakeholder input -based feasibility, among other project analyses) prior to developing concepts, and may or may not ultimately be found to be feasible for implementation. However, the combined top 23 projects used for the cost analysis should be considered representative of the potential composition of projects that could be implemented within the next 20 years, should funding be available and secured.

The 23 projects identified for the implementation costs analysis, along with the estimated costs associated with each, are provided in a tab titled "Top 1% Projects – Costs" in the Appendix E Project Database. Preliminary planning level cost estimates for implementing these 23 projects were developed according to three project categorizations:

- Top prioritized projects, for which concept costs were developed (i.e., the top seven projects, see Appendices F and G for project descriptions and detailed costs);
- Water recovery projects, for which a range of capital costs were developed as described in Appendix D, the Water Recovery Study; and
- Green Infrastructure projects, for which cost range was developed based on a statistical analyses of green infrastructure project costs compiled from Caltrans, nine northern and southern California cities, and Bay Area Stormwater Management Agencies Association pilot projects, and Southern California Enhanced Watershed Management Plan summaries.

A summary of the cost ranges associated with each category are provided in Table 13.

Table 13: Project Concept Status and Potential Timeline

Project Type	Number of Projects	Estimated Net Recovered Water Volume (acre-feet/year)	Assumed Drainage Area (Acres)[1]	Total Estimated Capital Cost (Low)	Total Estimated Capital Cost (High)
Top Prioritized Projects[2]	7	290	6,221	$16,990,000	$16,990,000
Water Recovery Projects[3]	8	1,047	19,124	$23,300,000	$93,000,000
Green Infrastructure[4]	8	--	184	$9,282,000	$32,658,000
Total	**23**	**1,337**	**25,529**	**$49,572,000**	**$142,648,000**

[1] Drainage area represents the tributary area from which runoff is assumed to be captured; however, for water recovery study projects, only a small percentage of total runoff may be estimated to be captured, depending on the assumed project design. The anticipated runoff capture for these projects is described in Appendices F and G for the top prioritized projects, and in the Water Recovery Study (Appendix D) for other water recovery projects. Green infrastructure projects are assumed to be sized to meet MS4 water quality requirements.
[2] Preliminary cost estimates have been developed for these projects, so a range is not provided.
[3] Costs developed based on the range of capital costs provided in Appendix D, the Water Recovery Study.
[4] Costs developed based on a statistical analysis of available green infrastructure projects; the low costs represent the 25th percentile unit (i.e., per acre) cost values, the high costs represent the 75th percentile unit costs.

The top 1% of projects for which costs were developed are assumed to be implemented at an approximately equal rate for each five-year period over the next 20 years. To develop anticipated funding needs for the five year periods between 2020 and 2040, the top seven prioritized projects are assumed to be implemented first, and the remaining sixteen projects are distributed thereafter. The anticipated funding needed to meet this project implementation rate for each five year period is provided in Table 14 below.

Table 14: Estimated Funding Needs for Five-Year Increments 2020 - 2040

Five-year Period	2020-2024	2025-2029	2030-2034	2035-2039
Number of Projects	6	5	7	5
Estimated Cost (Low)	$12,690,000	$15,618,000	$7,824,000	$13,440,000
Estimated Cost (High)	$12,690,000	$45,306,000	$45,838,000	$38,815,000

Project proponents will be responsible for tracking the implementation status of their projects and documenting performance measures for completed projects as described in Section 7.4. The cost to implement all 2,289 SWRP projects included in this plan, should detailed project investigation find feasibility favorable and funding secured, is estimated to range from $670,000,000 to $3,020,000,000 (see Appendix E for cost ranges for each project). Feasible and funded SWRP projects would be anticipated to be implemented by 2120.

7.2.7 Strategy and Timeline for Obtaining Necessary Federal, State, and Local Permits

As funding is identified for projects, the initial task for project implementation will involve a planning phase that will identify necessary permits. All necessary federal, state, and local permits will be obtained by project proponents as needed for project implementation.

7.3 Adaptive Management – Maintaining a Living Document

This SWRP will be updated over time to incorporate additional multi-benefit projects that may be identified after completion of the SWRP. MRSWMP will be responsible for maintaining and updating the SWRP, in coordination with updates to the IRWMP, and at intervals that are aligned with stormwater regulatory requirements, grant program solicitations, and community interests.

This SWRP will be posted on the MRSWMP[22] and IRWMP[23] websites, along with clear procedures for updating or adding future projects. A form has been provided on the websites for agencies and community members to submit project ideas. It is also anticipated that outreach and solicitation for new stakeholder projects would occur routinely with SWRP updates.

In addition to updating the project list, the SWRP may also be revised to reflect changing conditions in local watersheds and knowledge gained through stormwater program implementation, including programs to address TMDL and ASBS requirements. Ongoing adaptations to the SWRP may include and/or be influenced by:

- Re-characterization of water quality priorities;
- Source assessment re-evaluations;
- Project effectiveness assessments;
- An updated metrics-based, quantitative analysis;
- Deleted or new projects;
- Identification of completed projects; and/or
- Modified statutory/stormwater permit requirements (e.g., a new TMDL).

As projects are implemented and lessons learned through wider scale integration of stormwater capture projects within traditional infrastructure, this SWRP will be periodically updated to provide revisions to the project implementation plan. This is expected to occur approximately once

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[22] http://montereysea.org/stormwater-resource-plan/.
[23] http://www.mpirwm.org/Pages/default.aspx

every five years, coinciding with the five-year cycle for updates to the Small MS4 (Phase II) General Permit.

Data related to implemented projects will be stored and made available through the TELR project tracking tool, which will be used to track all projects relevant to MS4 compliance (currently in development). All implementation and monitoring data collected for MRSWMP, including those data related to identified SWRP projects, is reported in MRSWMP Annual Reports, which are available publicly at http://montereysea.org/program-documents/.

Any future projects that may be required to meet new or redevelopment requirements will refer to the Stormwater Technical Guide for Low Impact Development, which provides design criteria and types of BMPs to be used for new or redevelopment (MRSWMP, 2015).

7.4 Implementation Performance Measures

The project concepts and the analyses performed for the Water Recovery Study and the SWRP estimated expected outcomes, or benefits, of the projects included in this SWRP. These outcomes include water supply augmentation and water quality benefits, in addition to the other benefit categories of flood management, community, and environmental benefits. For example, this SWRP provides quantitative estimates for each of the seven concept projects of the volume of water supply that may be provided and the load of a pollutant that may be removed from the receiving water. In addition, for all project opportunities identified in this SWRP, an estimated range of expected water supply benefits (in ac-ft/yr) is provided and a qualitative yes/no assessment for pollutant load reduced.

Extensive surface water and groundwater monitoring is currently being conducted throughout the Planning Area, and this ongoing monitoring will continue. The significant monitoring efforts currently being conducted are intended to assess the quantity and quality of groundwater used for water supply purposes, the overall health of receiving water quality, the quality of stormwater discharges, the impacts of MS4 discharges on receiving waters, and compliance with TMDLs and water quality objectives. Ongoing monitoring results will be analyzed as needed to evaluate how actual project specific performance compares with the expected outcomes of the SWRP. If needed, SWRP implementation may be adjusted based on performance data collected, such that project types with monitoring data showing effective performance are prioritized. The need for additional project specific performance evaluation monitoring will be determined during the project design phase. Grant funded projects may be expected to implement performance monitoring if required by the grant agreement.

8. EDUCATION, OUTREACH, AND PUBLIC PARTICIPATION

8.1 Goals of Outreach, Education, and Public Participation

Meaningful public participation goals, objectives, and strategies are critical to involving the public in the process of recommending and pursuing projects and programs in their communities. A SWRP Stakeholder Outreach, Education, and Engagement Plan (Stakeholder Plan) was prepared to coordinate and guide outreach activities to involve stakeholders in the development of the SWRP and obtain input on water resource issues that are important to them. Stakeholders include the general public, federal agencies, state agencies, local municipalities, water retailers, water/wastewater districts, community groups, business associations, and disadvantaged communities. The Stakeholder Plan identified the goals of stakeholder involvement and described the tasks that would be implemented to conduct outreach to stakeholders.

Stakeholder outreach for the SWRP was conducted to meet the following goals:

1. Inform stakeholders on the SWRP process and the need for stormwater capture and treatment projects.
2. Obtain stakeholder input in identifying locations and types of stormwater capture and treatment projects.
3. Obtain feedback on the initial prioritized list of potential projects.
4. Obtain comments on and support for the SWRP.
5. Obtain feedback on environmental justice needs and concerns associated with SWRP implementation.

8.2 Key Messages

The following key messages were conveyed to stakeholders:

- Benefits of using stormwater as a resource;
- Purpose and content of the SWRP;
- Need for stormwater capture and treatment projects; and
- Process for identifying, assessing, and prioritizing stormwater capture and treatment projects.

8.3 Stakeholder Outreach, Education, and Engagement Tasks

This section describes the tasks that were implemented to meet the goals of stakeholder outreach.

8.3.1 Stakeholder Group Formation

Stakeholder outreach was built upon the work done by the Monterey Peninsula RWMG[24] to develop the Monterey Peninsula IRWMP. As part of developing the Monterey Peninsula IRWMP, the RWMG identified and contacted 130 stakeholders, representing public agencies, local municipalities and special districts, environmental non-profits, community groups, academic educational institutions, private companies, landowners, and individuals. The SWRP project team obtained the IRWMP stakeholder contact list and updated it based on feedback from TAC members to develop the potential Stakeholder List included in Appendix H.

To ensure that DACs were well-represented on the Stakeholder Group, lists of potential DAC stakeholders were obtained from the City of Seaside, and included in the potential SWRP Stakeholder List. The following four census tracts within the SWRP area are considered DACs:

- Tract 127 (Monterey);
- Tract 136 (Seaside);
- Tract 137 (Seaside); and
- Tract 140 (Seaside/Sand City).

In addition to the above, participants on the Technical Stakeholder Group for the Water Recovery Study were also invited to participate on the SWRP Stakeholder Group. The Stakeholder List was updated, as needed, throughout the SWRP process.

8.3.2 Stakeholder Group Information Requests and Meetings

All individuals on the Stakeholder List were informed about the SWRP via multiple emails and invited to attend the Stakeholder Group meetings. Stakeholders representing DACs were also mailed postcards with information on the first meeting. Two Stakeholder Group meetings were held to share information and solicit input on the SWRP:

- The first meeting, held on October 17, 2017, introduced the Stakeholder Group to the SWRP planning process, provided information on the metrics and methodology for identifying, assessing, and prioritizing potential projects, presented preliminary findings from the Water Recovery Project Feasibility Study, and provided opportunities for stakeholders to submit project ideas. After the first meeting, the stakeholders were emailed a spreadsheet for submitting information regarding stakeholder-planned projects relevant

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[24] The RWMG includes Big Sur Land Trust, City of Monterey, Monterey Peninsula Water Management District, Monterey County Water Resources Agency, Monterey One Water, Marina Coast Water District, and Resource Conservation District of Monterey County.

to the SWRP. Stakeholders were also encouraged to provide comments on the methodology for prioritizing projects.

- The second meeting, held on February 8, 2018, presented the prioritized list of multi-benefit stormwater capture projects to stakeholders, and requested their feedback on the top ranked projects. Stakeholders were also requested to provide input on project characteristics that should be considered for identifying top projects.

8.3.3 Public Outreach Meeting

One public meeting was held on June 27, 2018 to present the Public Draft SWRP to stakeholders and the public to obtain their feedback. All individuals on the Stakeholder List were invited to attend the meeting. A bilingual flyer (English and Spanish) advertising the public outreach meeting was developed and distributed via email and community center postings. In addition, a public meeting notice was published in the Monterey County Weekly newspaper. The public outreach meeting materials are provided in Appendix H.

8.3.4 Public Involvement in the Implementation of the SWRP and Completion of Projects

Following completion of the final SWRP, further input will be sought from residents and businesses in affected communities as individual projects are planned, designed, and constructed. As described in Section 7.2.4, each project will include its own public participation process to address the concerns of affected residents and businesses and adjust project designs as appropriate and feasible. This step will increase stakeholder involvement in the project design and develop partnerships needed for implementation and operation and maintenance. Mechanisms for public engagement may include the following:

- Posting project information on local agency websites.
- Including articles on individual projects in local agency newsletters.
- Distributing project information via direct mailings, and/or posting information on social media sites (Facebook, Next Door, etc.).
- Presenting project information at neighborhood meetings.
- If needed, conducting bilingual outreach on specific projects to engage residents and businesses located in Disadvantaged Communities (DACs).

Stakeholder involvement will also be included as part of the process for future updates to the SWRP.

8.4 Summary of Tasks and Schedule

Table 15 summarizes the stakeholder outreach, education, and engagement tasks and the schedule for implementation.

Table 15: Summary of Tasks and Schedule

Task	Description	Schedule
1	Stakeholder Group Formation	• Contacted potential stakeholders – September 2017 • Established Stakeholder Group – October 2017
2	Stakeholder Group Information Requests and Meetings	• First meeting and Project Solicitation Request – October 17, 2017 • Second meeting – February 8, 2018 • Project Prioritization Input Request – February 8, 2018
3	Public Outreach Meeting	• June 27, 2018
4	Stakeholder Involvement in Implementation of SWRP and Completion of Projects	• Involvement in SWRP updates as described in Section 7 Implementation Strategy • Involvement in specific project implementation (schedule to be developed as part of each project schedule)

8.5 Summary of Completed Stakeholder Meetings

The two stakeholder meetings were well-attended and provided a good insight into issues that are important to stakeholders. Feedback received from stakeholders at the meetings and via emails was useful in guiding the SWRP development. Overall, stakeholders were satisfied with the SWRP process. Many stakeholders noted that the SWRP should focus on projects that augment water supply, which was consistent with the focus of the TAC members as well. Stakeholders also expressed support for regional projects and emphasized the need for agencies to collaborate on identifying and implementing regional projects.

Stakeholder meeting summary packages are also provided in Appendix H.

9. REFERENCES

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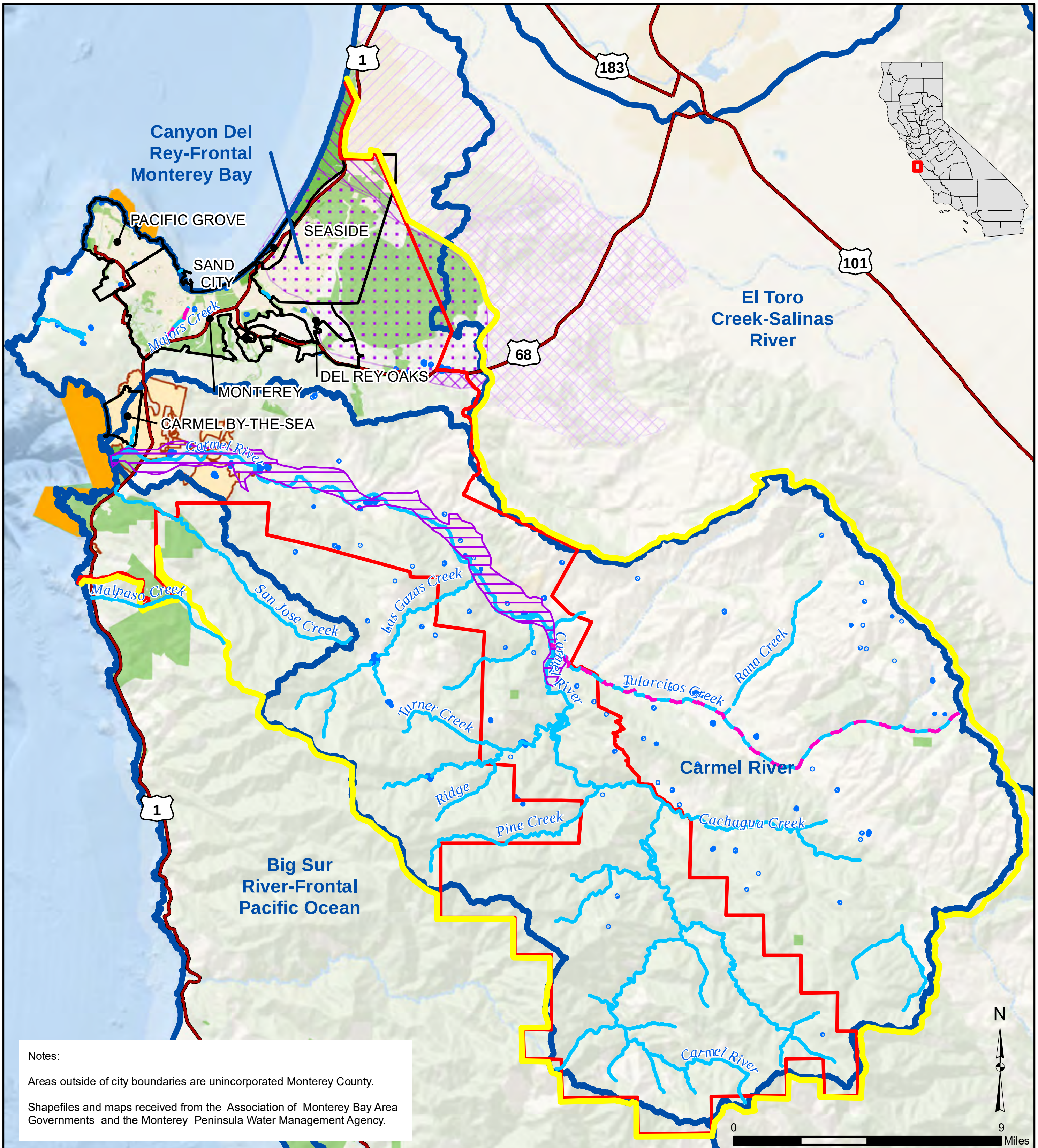
FIGURES



Legend

- Integrated Regional Water Management Plan Area
- Monterey Peninsula Water Management District Boundary
- Carmel Area Waste Water District
- USGS / DWR Watershed
- City Limit

Groundwater Basins

- Adjucated Seaside Groundwater Basin
- Salinas Valley Corral De Tierra Area
- Salinas Valley Marina
- Carmel Valley Groundwater Basin

- 303(d) Listed River/Stream
- River/Stream
- Highway
- Waterbody
- Federal, State, and Regional Parks, and Other Open Lands
- Area of Special Biological Significance

Map of Monterey Peninsula Region Stormwater Resource Plan Planning Area

Monterey Peninsula Stormwater Resource Plan

Geosyntec consultants | Monterey One Water Providing Cooperative Water Solutions

Oakland, CA | September 2018

Figure 1

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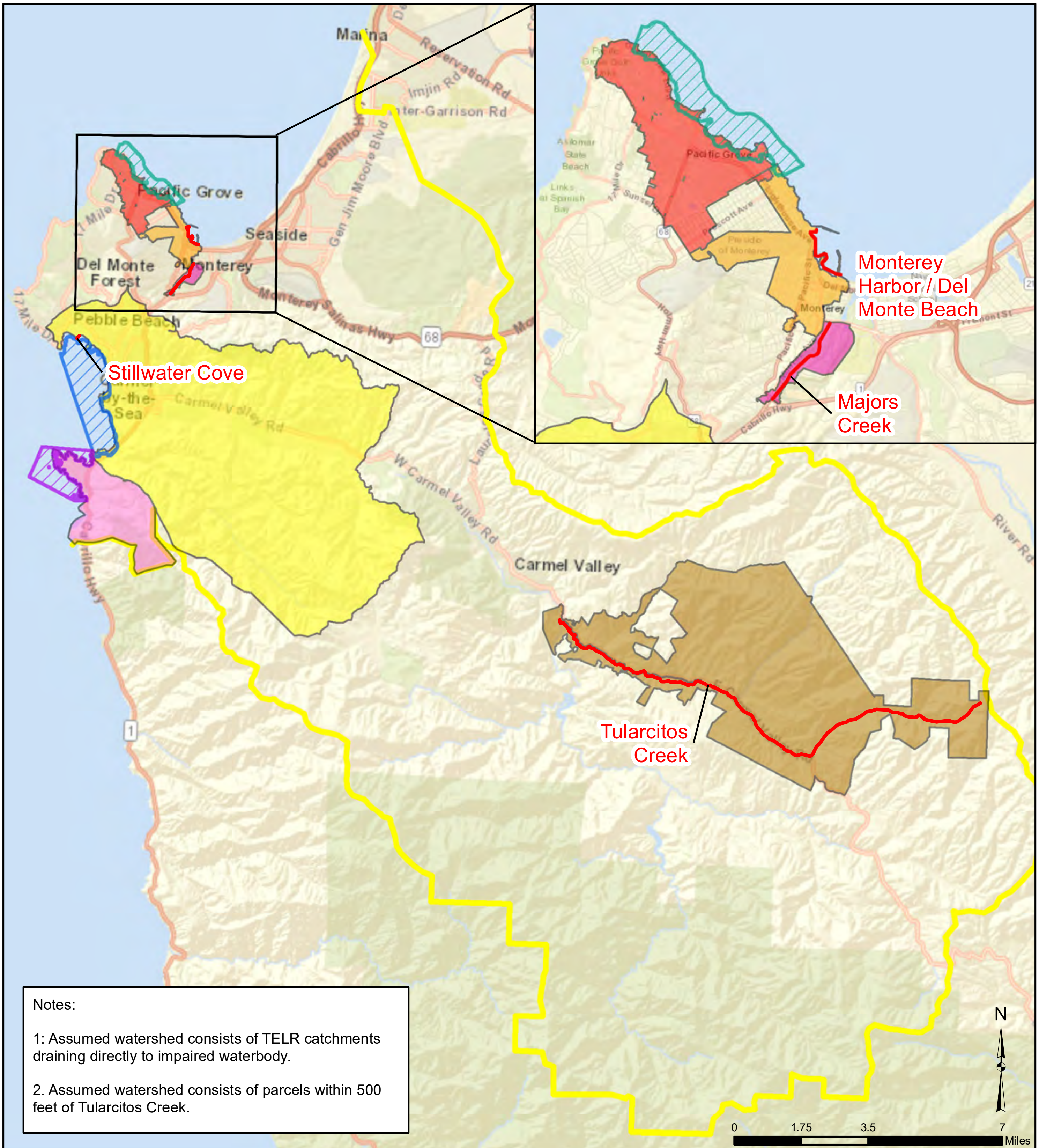

Notes:

1: Assumed watershed consists of TELR catchments draining directly to impaired waterbody.

2. Assumed watershed consists of parcels within 500 feet of Tularcitos Creek.

Legend

Monterey Peninsula IRWMP / SWRP Boundary

303(d) Listed Waterbody

Areas of Special Biological Significance (ASBS)

- Pacific Grove
- Carmel Bay
- Point Lobos

ASBS / 303(d) Watersheds

- Pacific Grove
- Carmel ASBS / Stillwater Cove
- Point Lobos
- Monterey Harbor / Del Monte Beach 303(d) [1]
- Majors Creek 303(d)[1]
- Tularcitos Creek 303(d)[2]

Monterey Peninsula Region
ASBS and 303(d)-Listed Waterbodies
And Associated Watersheds

Monterey Peninsula Stormwater Resource Plan

Geosyntec consultants

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Figure 2

Oakland, CA

September 2018

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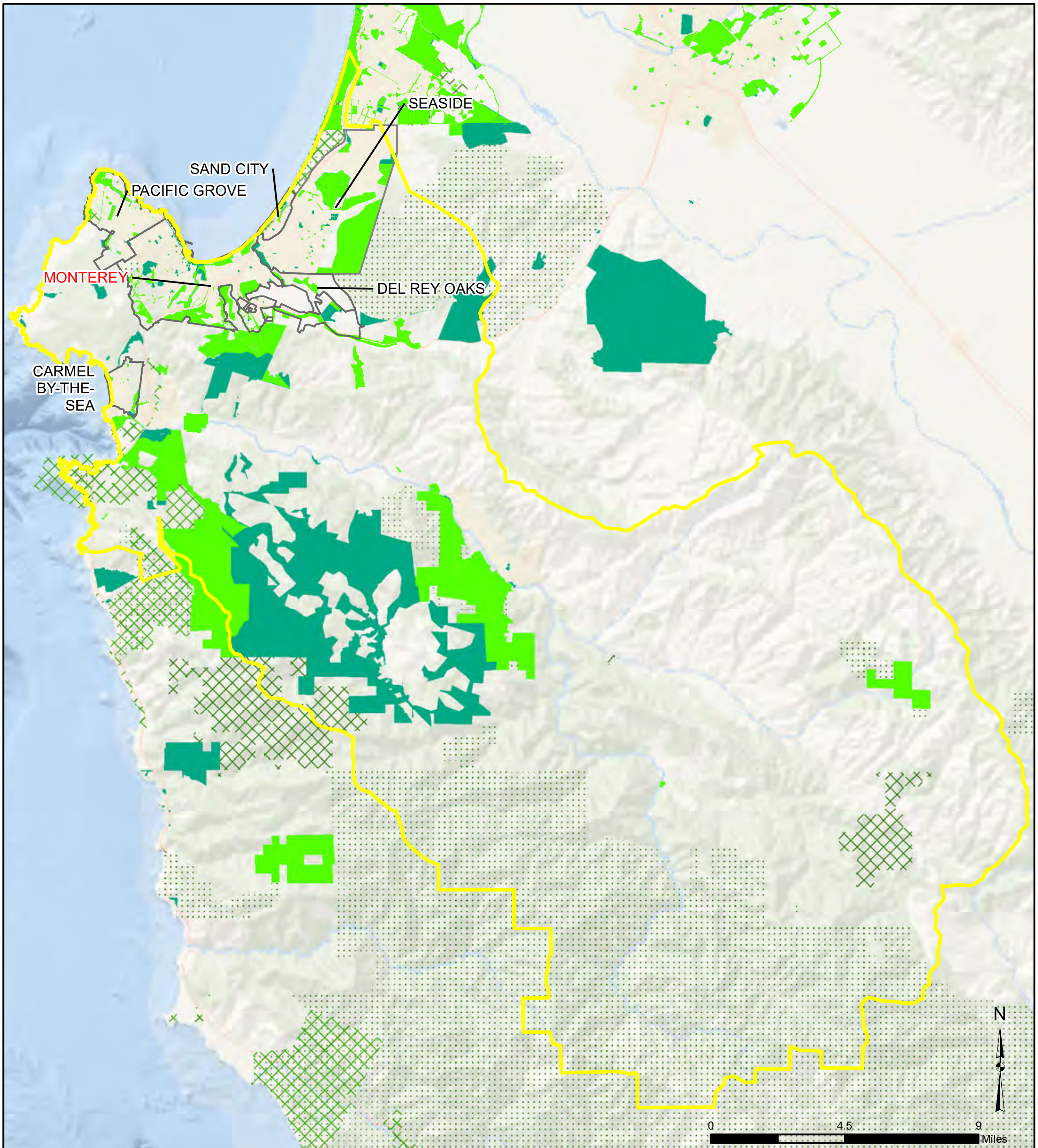

Legend

- Monterey Peninsula IRWMP/SWRP Boundary
- City Limit
- US Federal Land / Park
- State Park
- Regional Park
- Other Parks and Protected Open Space (Local / County / Special District / Private)

Map of Monterey Peninsula Region Received Parks & Protected Open Space Data

Monterey Peninsula Stormwater Resource Plan

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Figure 3

Oakland, CA

September 2018

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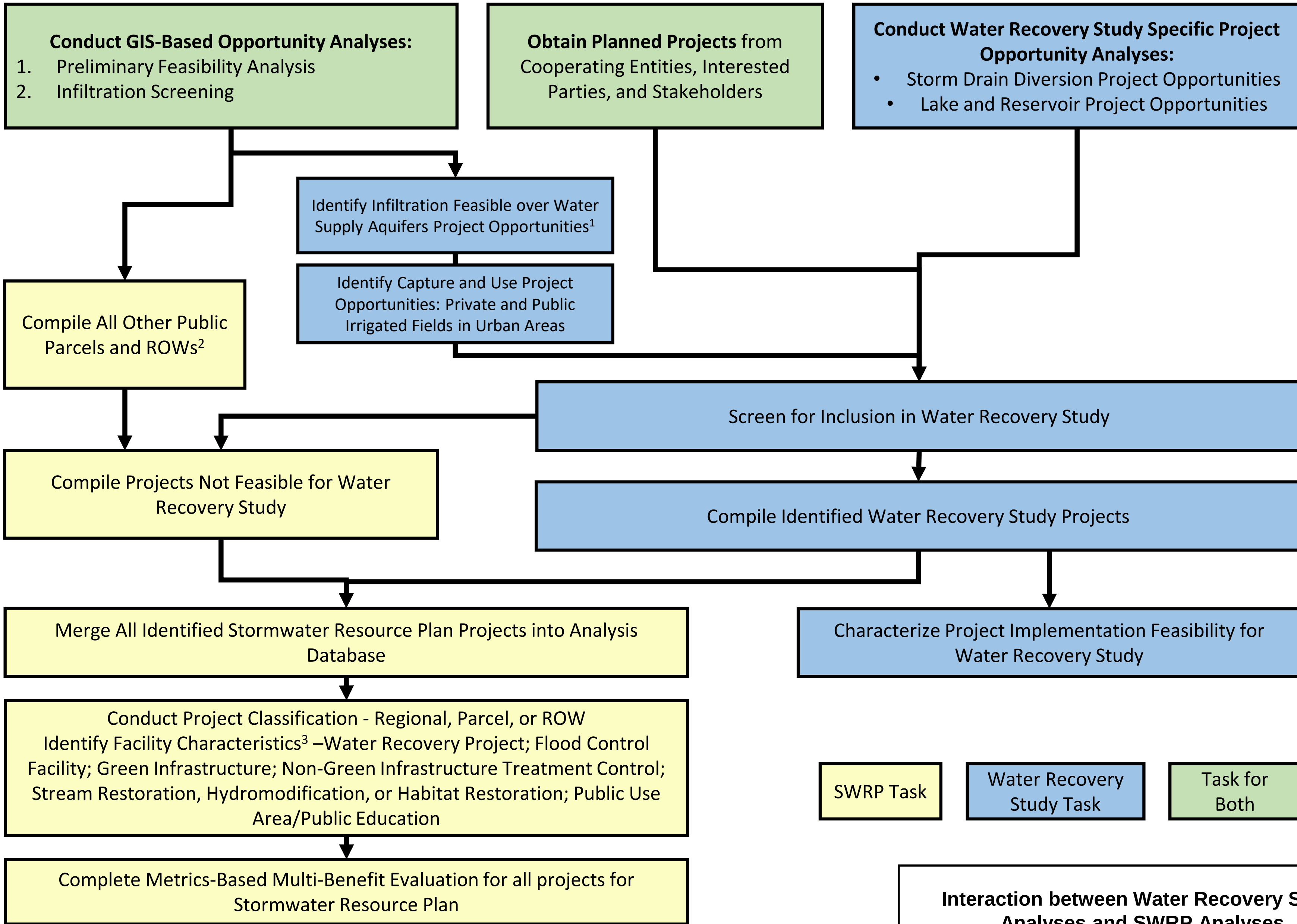


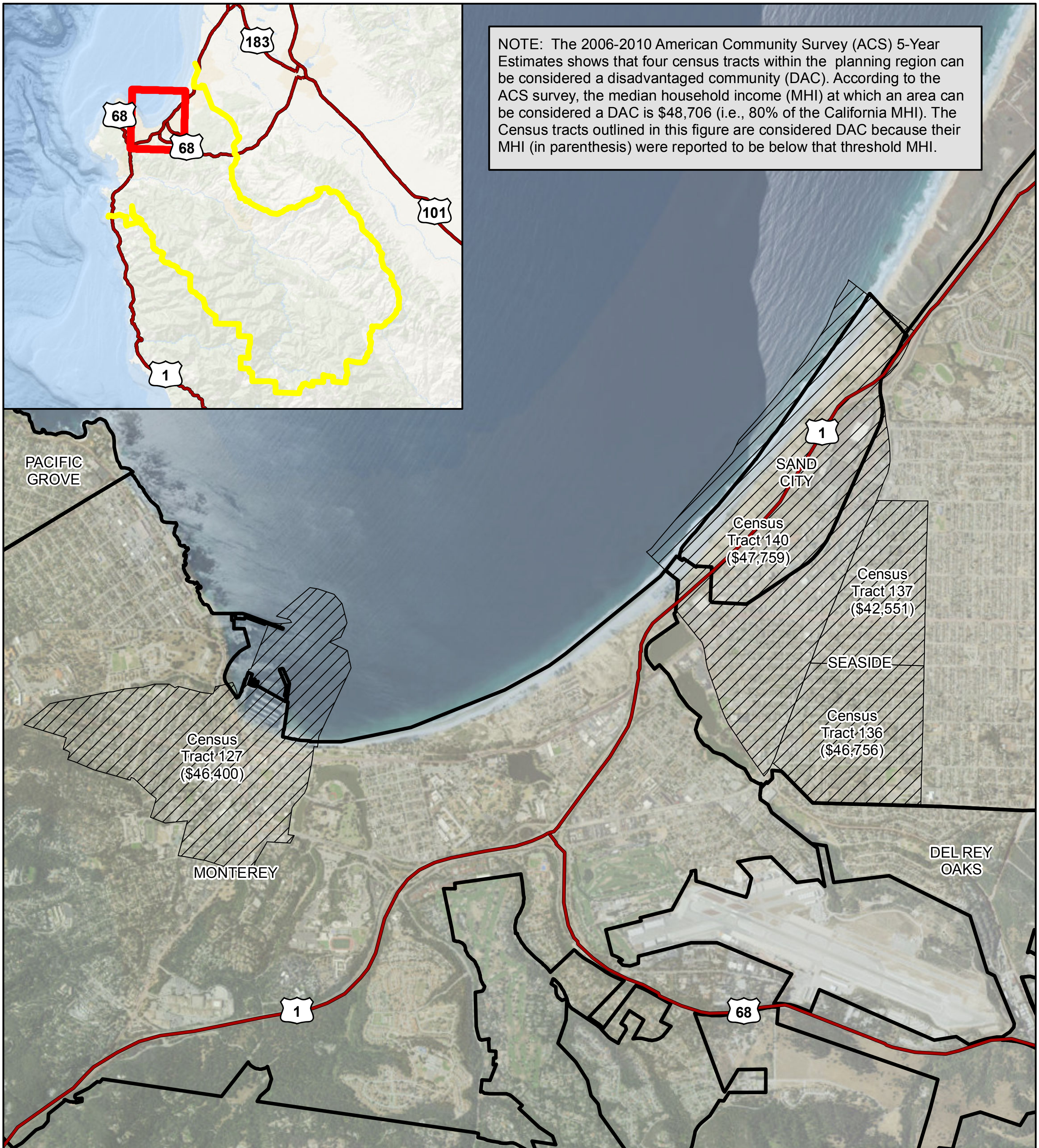
Notes:
1. Public Parcels/ ROWs and Private Undeveloped Parcels
2. Not identified as potential Water Recovery Study Project
3. In some cases, a project may have multiple facility characteristics

Interaction between Water Recovery Study Analyses and SWRP Analyses

Monterey Peninsula Stormwater Resource Plan

WW2405 | September 2018

Figure 4



Legend

Integrated Regional Water Management Plan Area

Highways

DAC Census Tracts

City Limits

Notes:

Shapefiles and maps received from the Association of Monterey Bay Area Governments and the Monterey Peninsula Water Management Agency.

N

0 0.75 Miles

Disadvantaged Communities in Monterey Peninsula Region Stormwater Resource Plan Area

Monterey Peninsula Stormwater Resources Plan

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Figure 5

Oakland, CA | August 2019

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APPENDIX A
SWRP Self-Certification Checklist

Storm Water Resource Plan Checklist and Self-Certification

The following should be completed and submitted to the State Water Resources Control Board Division of Financial Assistance in support of a storm water resource plan /functionally equivalent plan. The documents submitted, including this checklist, will be used to determine State Water Board concurrence with the Storm Water Resource Plan Guidelines and statutory water code requirements.

When combining multiple documents to form a functionally equivalent Storm Water Resource Plan, submit a cover letter explaining the approach used to arrive at the functionally equivalent document. The cover letter should explain how the documents work together to address the Storm Water Resource Plan Guidelines.

STORM WATER RESOURCE PLAN GENERAL CONTACT INFORMATION	
Contact Info: **Name** **Phone Number** **Email**	**Jeff Condit, Monterey One Water and** **Monterey Regional Stormwater Management Program** **831-645-4621** **jeff@my1water.org**
Date Submitted to State Water Resource Control Board:	**September 28, 2018; December 20, 2018; April 12, 2019; Final: July 31, 2019**
Regional Water Quality Control Board:	**Central Coast Regional Water Quality Control Board**
Title of attached documents (expand list as needed):	**1. Monterey Peninsula Region Stormwater Resource Plan, Figures, Map Package, and Appendices A-I.**

STORM WATER RESOURCE PLAN INFORMATION	
Storm Water Resource Plan Title:	**Monterey Peninsula Region Stormwater Resource Plan**
Date Plan Completed/Adopted:	**September 28, 2018**
Public Agency Preparer:	**Monterey One Water, on behalf of the** **Monterey Regional Stormwater Management Program**
IRWM Submission:	**November 1, 2018**
Plan Description:	**The Stormwater Resource Plan was developed to assist with the development and implementation of stormwater and dry weather runoff projects that provide multiple benefits in the Monterey Peninsula region.**

Checklist Instructions:

For **each element** listed below, review the applicable section in the Storm Water Resource Plan Guidelines and enter ALL of the following information**.** Be sure to provide a clear and thorough justification if a recommended element (non shaded) is not addressed by the Storm Water Resource Plan.

A. Mark the box if the Storm Water Resource Plan meets the provision

B. In the provided space labeled **References**, enter:
   1. Title of document(s) that contain the information (or the number of the document listed in the General Information table above);
   2. The chapter/section, **and page number(s)** where the information is located within the document(s);
   3. The entity(ies) that prepared the document(s) if different from plan preparer;
   4. The date the document(s) was prepared, and subsequent updates; and
   5. Where each document can be accessed[1] (website address or attached).

STORM WATER RESOURCE PLAN CHECKLIST AND SELF-CERTIFICATION		
Mandatory Required Elements per California Water Code are Shaded and Text is **Bold**		
Y/N	**Plan Element**	**Water Code Section**
WATERSHED IDENTIFICATION (GUIDELINES SECTION VI.A)		
Y	**1. Plan identifies watershed and subwatershed(s) for storm water resource planning.**	**10565(c) 10562(b)(1) 10565(c)**
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 3 (page 14).		
Y	2. Plan is developed on a watershed basis, using boundaries as delineated by USGS, CalWater, USGS Hydrologic Unit designations, or an applicable integrated regional water management group, and includes a description and boundary map of each watershed and sub-watershed applicable to the Plan.	
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 3 (pages 14-25), and in Figure 1.		

[1] All documents referenced must include a website address. If a document is not accessible to the public electronically, the document must be attached in the form of an electronic file (e.g. pdf or Word 2013) on a compact disk or other electronic transmittal tool.

WATERSHED IDENTIFICATION (GUIDELINES SECTION VI.A)	
Y	3. Plan includes an explanation of why the watershed(s) and sub-watershed(s) are appropriate for storm water management with a multiple-benefit watershed approach;
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 1.3 (page 2), and Section 3.1 (pages 14-15).	
Y	4. Plan describes the internal boundaries within the watershed (boundaries of municipalities; service areas of individual water, wastewater, and land use agencies, including those not involved in the Plan; groundwater basin boundaries, etc.; preferably provided in a geographic information system shape file);
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 3 (pages 14-25), and in Figure 1 and attached map package of Figure 1 shapefiles.	
Y	5. Plan describes the water quality priorities within the watershed based on, at a minimum, applicable TMDLs and consideration of water body-pollutant combinations listed on the State's Clean Water Act Section 303(d) list of water quality limited segments (a.k.a impaired waters list);
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Sections 3.2.1 (page 18), Section 3.3.1 (page 22), Section 3.4 (page 24), and Section 3.5 (page 25), impaired waters lists in Table 7 (page 18) and Table 8 (page 22).	
Y	6. Plan describes the general quality and identification of surface and ground water resources within the watershed (preferably provided in a geographic information system shape file);
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 3.1 (pages 14-15), and in detail in Sections 3.2-3.5 (pages 15, 16, and 20-24) and in Figure 1 and attached map package of Figure 1 shapefiles.	
Y	7. Plan describes the local entity or entities that provide potable water supplies and the estimated volume of potable water provided by the water suppliers;
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 3.2 (pages 15-19), and Table 6 (page 17), and Section 3.3 (pages 20-22).	
Y	8. Plan includes map(s) showing location of native habitats, creeks, lakes, rivers, parks, and other natural or open space within the sub-watershed boundaries; and
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Figure 3.	

WATERSHED IDENTIFICATION
(GUIDELINES SECTION VI.A)

Y	9. Plan identifies (quantitative, if possible) the natural watershed processes that occur within the sub-watershed and a description of how those natural watershed processes have been disrupted within the sub-watershed (e.g., high levels of imperviousness convert the watershed processes of infiltration and interflow to surface runoff increasing runoff volumes; development commonly covers natural surfaces and often introduces non-native vegetation, preventing the natural supply of sediment from reaching receiving waters).
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 3.2.2 (page 19), Section 3.3.2 (page 23), Section 3.4 (page 24), Section 3.5 (page 25).	

WATER QUALITY COMPLIANCE
(GUIDELINES SECTION V)

Y	**10. Plan identifies activities that generate or contribute to the pollution of storm water or dry weather runoff, or that impair the effective beneficial use of storm water or dry weather runoff.**	**10562(d)(7)**
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 4.1		
Y	**11. Plan describes how it is consistent with and assists in, compliance with total maximum daily load implementation plans and applicable national pollutant discharge elimination system permits.**	**10562(b)(5)**
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 4.2		
Y	**12. Plan identifies applicable permits and describes how it meets all applicable waste discharge permit requirements.**	**10562(b)(6)**
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 4.2 (pages 27-31), and Section 4.3 (pages 31-32).		

ORGANIZATION, COORDINATION, COLLABORATION
(GUIDELINES SECTION VI.B)

Y	**13. Local agencies and nongovernmental organizations were consulted in Plan development.**	**10565(a)**
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 2.1 (pages 5-6), Section 2.3 (pages 8-9), Section 2.5 (page 12).		
Y	**14. Community participation was provided for in Plan development.**	**10562(b)(4)**
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 2.3 (pages 8-9)		

<table>
<tr><th colspan="2">ORGANIZATION, COORDINATION, COLLABORATION
(GUIDELINES SECTION VI.B)</th></tr>
<tr><td>Y</td><td>15. Plan includes description of the existing integrated regional water management group(s) implementing an integrated regional water management plan (IRWMP).</td></tr>
<tr><td colspan="2"><u>References:</u>
Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 2.4 (pages 12-13)</td></tr>
<tr><td>Y</td><td>16. Plan includes identification of and coordination with agencies and organizations (including, but not limited to public agencies, nonprofit organizations, and privately-owned water utilities) that need to participate and implement their own authorities and mandates in order to address the storm water and dry weather runoff management objectives of the Plan for the targeted watershed.</td></tr>
<tr><td colspan="2"><u>References:</u>
Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 2.3 (pages 8-9), also in Section 8 (pages 57-60).</td></tr>
<tr><td>Y</td><td>17. Plan includes identification of nonprofit organizations working on storm water and dry weather resource planning or management in the watershed.</td></tr>
<tr><td colspan="2"><u>References:</u>
Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 2.3 (pages 8-9)</td></tr>
<tr><td>Y</td><td>18. Plan includes identification and discussion of public engagement efforts and community participation in Plan development.</td></tr>
<tr><td colspan="2"><u>References:</u>
Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 2.3 (pages 8-9), also in Section 8 (pages 58-61).</td></tr>
<tr><td>Y</td><td>19. Plan includes identification of required decisions that must be made by local, state or federal regulatory agencies for Plan implementation and coordinated watershed-based or regional monitoring and visualization</td></tr>
<tr><td colspan="2"><u>References:</u>
Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; described in Section 2.5 (page 12), decisions identified in Section 2.1 (page 5) and Section 2.2 (page 6).</td></tr>
<tr><td>Y</td><td>20. Plan describes planning and coordination of existing local governmental agencies, including where necessary new or altered governance structures to support collaboration among two or more lead local agencies responsible for plan implementation.</td></tr>
<tr><td colspan="2"><u>References:</u>
Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; described in Section 2.5 (page 12), decisions identified in Section 2.1 (page 5) and Section 2.2 (pages 6-7). Local governmental agencies are coordinated through the Monterey Regional Stormwater Management Program (MRSWMP), described in Section 1.1 (page 1) and Section 2.1 (page 5).</td></tr>
<tr><td>Y</td><td>21. Plan describes the relationship of the Plan to other existing planning documents, ordinances, and programs established by local agencies.</td></tr>
<tr><td colspan="2"><u>References:</u>
Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 2.6 (page 13), details of plan interaction provided in Appendix C.</td></tr>
</table>

ORGANIZATION, COORDINATION, COLLABORATION (GUIDELINES SECTION VI.B)	
N/A	22. (If applicable)Plan explains why individual agency participation in various isolated efforts is appropriate.
References: Not applicable.	

QUANTITATIVE METHODS (GUIDELINES SECTION VI.C)	
Y	**23. For all analyses:** Plan includes an integrated metrics-based analysis to demonstrate that the Plan’s proposed storm water and dry weather capture projects and programs will satisfy the Plan’s identified water management objectives and multiple benefits.
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 5 [illegible]	
Y	**24. For water quality project analysis (section VI.C.2.a)** Plan includes an analysis of how each project and program complies with or is consistent with an applicable NPDES permit. The analysis should simulate the proposed watershed-based outcomes using modeling, calculations, pollutant mass balances, water volume balances, and/or other methods of analysis. Describes how each project or program will contribute to the preservation, restoration, or enhancement of watershed processes (as described in Guidelines section VI.C.2.a)
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 5.3 (pages 35-42) and Section 5.4 (pages 42-45) describe how potential projects were identified and analyzed for various scoring metrics associated with the target multiple benefits.	
Y	**25. For storm water capture and use project analysis (section VI.C.2.b):** Plan includes an analysis of how collectively the projects and programs in the watershed will capture and use the proposed amount of storm water and dry weather runoff.
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 5.3.3. (pages 37-40) and Section 5.4 (page 42-45) describe the project analysis conducted. Project stormwater or dry weather runoff magnitude was estimated using previous calculations conducted for the regional Tool to Estimate Load Reductions (TELR). Appendix D (the Water Recovery Study) describes how the amount of stormwater or dry weather runoff was calculated for water supply augmentation projects. Full project database provided as Appendix E.	
Y	**26. For water supply and flood management project analysis (section VI.C.2.c):** Plan includes an analysis of how each project and program will maximize and/or augment water supply.
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 5.3.3. (pages 37-40) and Section 5.4 (pages 42-45) describe the project analysis conducted. Project stormwater or dry weather runoff magnitude was estimated using previous calculations conducted for the regional TELR. Appendix D (the Water Recovery Study) describes how water supply augmentation projects were identified. Full project database provided as Appendix E.	

QUANTITATIVE METHODS (GUIDELINES SECTION VI.C)	
Y	**27. For environmental and community benefit analysis (section VI.C.2.d):** Plan includes a narrative of how each project and program will benefit the environment and/or community, with some type of quantitative measurement.
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 5.3 (pages 35-42) and Section 5.4 (pages 42-45) describe how potential projects were identified and analyzed for various scoring metrics associated with the target multiple benefits, including environmental and community benefits. Specifically, as summarized on pages 43-44 and in Table 10, project opportunities that “re-establish natural water drainage systems or develop, restore, or enhance habitat and open space” received a score of 2 for providing environmental benefits; and project opportunities that provide “community enhancement” or “enhancement to DAC”, i.e., projects that specifically provide public use areas or public education components, or are located in a DAC (see section 5.4.1, page 43), received a score of 2 (each) for providing community benefits. A narrative explaining benefits is included for top projects in section 6.3 (pages 48-51). Full project database, including environmental and community scores and descriptions, as applicable for certain projects, provided as Appendix E.	
Y	**28. Data management (section VI.C.3):** Plan describes data collection and management, including: a) mechanisms by which data will be managed and stored; b) how data will be accessed by stakeholders and the public; c) how existing water quality and water quality monitoring will be assessed; d) frequency at which data will be updated; and e) how data gaps will be identified.
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; data collection described in Section 5.1 (page 33), and Appendix C includes data received. Project database provided as Appendix E. Section 7.3 (pages 59-60) and Section 7.4 (pages 60) describe how data will be updated as well as current and ongoing monitoring. The SWRP will be posted on the MRSWMP and IRWMP websites for access to the public, as described in Section 7.3 (pages 59-60).	

IDENTIFICATION AND PRIORITIZATION OF PROJECTS (GUIDELINES SECTION VI.D)		
Y	**29. Plan identifies opportunities to augment local water supply through groundwater recharge or storage for beneficial use of storm water and dry weather runoff.**	**10562(d)(1)**
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 6.2 (pages 47-48) describes project identification and Appendix E contains project opportunities for water supply augmentation. Specific projects to augment water supply also included in the Water Recovery Study, provided as Appendix D.		
Y	**30. Plan identifies opportunities for source control for both pollution and dry weather runoff volume, onsite and local infiltration, and use of storm water and dry weather runoff.**	**10562(d)(2)**

References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 6.2 (pages 47-48) describes project identification and Appendix E contains project opportunities for source control, infiltration, and use for pollution and dry weather runoff volume. Stormwater and dry weather runoff use project opportunities also included in the Water Recovery Study, provided as Appendix D.		
IDENTIFICATION AND PRIORITIZATION OF PROJECTS (GUIDELINES SECTION VI.D)		
Y	**31. Plan identifies projects that reestablish natural water drainage treatment and infiltration systems, or mimic natural system functions to the maximum extent feasible.**	**10562(d)(3)**
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 6.2 (pages 47-48) describes project identification and Appendix E contains project opportunities for reestablishing natural water drainage treatment and infiltration systems or mimicking natural system functions to the		
Y	**32. Plan identifies opportunities to develop, restore, or enhance habitat and open space through storm water and dry weather runoff management, including wetlands, riverside habitats, parkways, and parks.**	**10562(d)(4)**
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 6.2 (pages 47-48) describes project identification and Appendix E contains project opportunities for developing, restoring, or enhancing habitat and open space through stormwater and dry weather runoff management.		
Y	**33. Plan identifies opportunities to use existing publicly owned lands and easements, including, but not limited to, parks, public open space, community gardens, farm and agricultural preserves, school sites, and government office buildings and complexes, to capture, clean, store, and use storm water and dry weather runoff either onsite or offsite.**	**10562(d)(5), 10562(b)(8)**
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 5.3.2 (pages 36-37) describes how publicly owned project opportunity locations were identified. Section 6.2 (pages 47-48) describes project identification, and Appendix E contains project opportunities for utilizing publicly owned lands and easements to capture, clean, store, and use stormwater and dry weather runoff.		
Y	**34. For new development and redevelopments (if applicable):** **Plan identifies design criteria and best management practices to prevent storm water and dry weather runoff pollution and increase effective storm water and dry weather runoff management for new and upgraded infrastructure and residential, commercial, industrial, and public development.**	**10562(d)(6)**
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 4.2.1 (pages 27-28) describes required design criteria for best management practices. Section 6.2 (pages 47-48) describes project identification. The MRSWMP Stormwater Technical Guide for Low Impact Development (MRSWMP, 2015) provides design criteria for new and redevelopment best management practices. References to the Technical Guide are provided in Sections 4.2.1 (page 30) , 6.1.3 (page 47), and 7.4 (page 60).		

Y	**35. Plan uses appropriate quantitative methods for prioritization of projects.** **(This should be accomplished by using a metrics-based and integrated evaluation and analysis of multiple benefits to maximize water supply, water quality, flood management, environmental, and other community**	**10562(b)(2)**
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 5.4 (pages 42-45) describes metrics-based multi-benefit evaluation, Section 6.2 (pages 47-48) describes project prioritization. Results are provided in Appendix E.		

IDENTIFICATION AND PRIORITIZATION OF PROJECTS
(GUIDELINES SECTION VI.D)

Y	36. *Overall:* Plan prioritizes projects and programs using a metric-driven approach and a geospatial analysis of multiple benefits to maximize water supply, water quality, flood management, environmental, and community benefits within the watershed.
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 5.2 (pages 34-35) describes models and tools evaluated for approach, Section 5.3 (pages 35-42) describes geospatial project identification and classification method, Section 5.4 (pages 42-45) describes metrics-based multi-benefit evaluation, and Section 6.2 (pages 47-48) describes project prioritization. Results are provided	
Y	37*. Multiple benefits:* Each project in accordance with the Plan contributes to at least two or more **Main Benefits** and the maximum number of **Additional Benefits** as listed in Table 4 of the Guidelines. (Benefits are not counted twice if they apply to more than one category.)
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; multiple benefits provided by each project opportunity are identified and/or scored in Appendix E.	

IMPLEMENTATION STRATEGY AND SCHEDULE
(GUIDELINES SECTION VI.E)

Y	38. Plan identifies resources for Plan implementation, including: 1) projection of additional funding needs and sources for administration and implementation needs; and 2) schedule for arranging and securing Plan implementation financing.	
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 7.1 (page 53), summarizing resources for implementation; and Section 7.2.6 (pages 55 -57), which describes the projected funding needs and schedule for prioiritized proejcts.		
Y	**39. Plan projects and programs are identified to ensure the effective implementation of the storm water resource plan pursuant to this part and achieve multiple benefits.**	**10562(d)(8)**
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 7.2 (pages 53-58).		

Y	**40. The Plan identifies the development of appropriate decision support tools and the data necessary to use the decision support tools.**	**10562(d)(8)**
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 7.1.2 (page 53) describes that funding for implementation of the seven projects included in this SWRP will be obtained by the project sponsor. As included in Section 7.2.1 (pages 53-54), projects and/or project opportunities listed in the final SWRP may be included as part of IRWMP project lists for project implementation, as appropriate. Decision support tools are available through the IRWMP project prioritization process, and have been included in Appendix I of the Monterey Peninsula Region Stormwater Resource Plan. Additional considerations for project implementation are included in Section 7.2.2 (page 54).		

IMPLEMENTATION STRATEGY AND SCHEDULE
(GUIDELINES SECTION VI.E)

Y	41. Plan describes implementation strategy, including: a) Timeline for submitting Plan into existing plans, as applicable; b) Specific actions by which Plan will be implemented; c) All entities responsible for project implementation; d) Description of community participation strategy; e) Procedures to track status of each project; f) Timelines for all active or planned projects; g) Procedures for ongoing review, updates, and adaptive management of the Plan; and h) A strategy and timeline for obtaining necessary federal, state, and local permits.
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 7.2 (pages 53-58).	

Y	**42. Applicable IRWM plan:** **The Plan will be submitted, upon development, to the applicable integrated regional water management (IRWM) group for incorporation into the IRWM plan.**	**10562(b)(7)**
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 7.2.1 (pages 53-54).		

Y	43. Plan describes how implementation performance measures will be tracked.
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 7.2.5 (page 55), Section 7.3 (pages 59-60), Section 7.4 (page 60).	

EDUCATION, OUTREACH, PUBLIC PARTICIPATION
(GUIDELINES SECTION VI.F)

Y	**44. Outreach and Scoping:** **Community participation is provided for in Plan implementation.**	**10562(b)(4)**
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 8 (pages 61-64) and Appendix H.		

Y	45. Plan describes public education and public participation opportunities to engage the public when considering major technical and policy issues related to the development and implementation.
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 8.3 (pages 61-63) and Table 15 (page 64).	
Y	46. Plan describes mechanisms, processes, and milestones that have been or will be used to facilitate public participation and communication during development and implementation of the Plan.
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 8.3 (pages 61-63) and Table 15 (page 64).	

EDUCATION, OUTREACH, PUBLIC PARTICIPATION
(GUIDELINES SECTION VI.F)

Y	47. Plan describes mechanisms to engage communities in project design and implementation.
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 8.3 (pages 61-63) and Table 15 (page 64).	
Y	48. Plan identifies specific audiences including local ratepayers, developers, locally regulated commercial and industrial stakeholders, nonprofit organizations, and the general public.
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 8.3.1 (page 62) and Appendix H.	
Y	49. Plan describes strategies to engage disadvantaged and climate vulnerable communities within the Plan boundaries and ongoing tracking of their involvement in the planning process.
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 8.3.1 (page 62) and Appendix H.	
Y	50. Plan describes efforts to identify and address environmental injustice needs and issues within the watershed.
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 8.3.1 (page 62), and Section 8.3.4 (page 63). Projects that provide enhancement to DACs were identified and scored utilizing the metrics based multi-benefit evaluation described in Section 5.4.1 (pages 42-45) and Table 10 (pages 44-45).	
Y	51. Plan includes a schedule for initial public engagement and education.
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018, revised final July 30, 2019; Section 8.4 (page 64) and Table 15 (page 64).	

A screenshot of the electronically signed SWRP Self-Certification is provided below. The electronically signed SWRP Self-Certification is provided in a separate file titled "SWRP Self Certification FINAL (09-21-18) PS Electronic Signature.pdf" attached to this compiled SWRP package.

EDUCATION, OUTREACH, PUBLIC PARTICIPATION
(GUIDELINES SECTION VI.F)

Y	47. Plan describes mechanisms to engage communities in project design and implementation.
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018; Section 8.3 (pages 58-60) and Table 12 (page 61).	
Y	48. Plan identifies specific audiences including local ratepayers, developers, locally regulated commercial and industrial stakeholders, nonprofit organizations, and the general public.
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018; Section 8.3.1 (page 59) and Appendix H.	
Y	49. Plan describes strategies to engage disadvantaged and climate vulnerable communities within the Plan boundaries and ongoing tracking of their involvement in the planning process.
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018; Section 8.3.1 (page 59) and Appendix H.	
Y	50. Plan describes efforts to identify and address environmental injustice needs and issues within the watershed.
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018; Section 8.3.1 (page 59), and Section 8.3.4 (page 60). Projects that provide enhancement to DACs were identified and scored utilizing the metrics based multi-benefit evaluation described in Section 5.4.1 (pages 42-45) and Table 10 (pages 44-45).	
Y	51. Plan includes a schedule for initial public engagement and education.
References: Located in the Monterey Peninsula Region Stormwater Resource Plan, prepared by Geosyntec Consultants, EOA, Inc., and Denise Duffy & Associates, September 28, 2018; Section 8.4 (page 61) and Table 12 (page 61).	

DECLARATION AND SIGNATURE

I declare under penalty of perjury that all information provided is true and correct to the best of my knowledge and belief.

Paul A. Sciuto Digitally signed by Paul A. Sciuto DN: cn=Paul A. Sciuto, o, ou, email=paul@my1water.org, c=US Date: 2018.09.27 10:30:44 -07'00'	General Manager	9/27/18
Authorized Signature	Title	Date
Authorized Signature	Title	Date

Monterey One Water

Public Agency

The Monterey Peninsula Stormwater Resource Plan (SWRP) was edited from the September 28, 2018 version to address comments received from the State Water Board on December 4, 2018 (see "State Water Board Comment" column) and February 26, 2019 (see "DFA [State Board] Comment #2"). The State Water Board provided final comment via e-mail on June 11, 2019 (see final page of this section). A summary of all revisions is provided in the table below. The final SWRP (dated July 30, 2019) is posted to: http://montereysea.org/stormwater-resource-plan/. Minor final changes to the final SWRP were completed in response to final comments from the State Water Board on August 27, 2019. This resulted in replacement of five pages of the SWRP and a new project database on August 27, 2019.

SWRP Section	State Water Board Comment	Project Team Response to Comment – Round 1	DFA [State Board] Comment #2	Project Team Response to Comment – Round 2
Section 5.3.2, Page 36	Provide a summary for each project identified as publicly-owned parcels.	Monterey Peninsula Stormwater Resource Plan (SWRP) Section 5.3.2 describes the methodology to identify opportunities for potential projects. The opportunities identified are included in Attachment E (Project Database). These are opportunities (not developed projects) and as such, additional information and project design has not been developed beyond what is provided in Attachment E. The seven projects identified as part of the SWRP (i.e., those for which project concepts were developed), which are located on publicly-owned parcels, do have summary descriptions in the SWRP; these are provided in SWRP Section 6.3. *No Revision Made.*	Noted. In addition, in Attachment E, please add a column to identify which projects are "source control" projects, i.e., treat and infiltrate storm water locally (LID).	Attachment E (excel spreadsheet) has been edited to include a column that identifies which projects treat or infiltrate stormwater locally (see Appendix E - MontereyPeninsulaSWRP ProjectDatabase (3-18-19).xlsx, column AF of "COMBINED DB" tab).

SWRP Section	State Water Board Comment	Project Team Response to Comment – Round 1	DFA [State Board] Comment #2	Project Team Response to Comment – Round 2
Section 7.2.6, Page 55	The description of the implementation strategy is weak. You should provide estimated timelines depending on each agency's priorities, funding availabilities, status of project (i.e., how far along the concepts are).	A table indicating the status and potential timeline for each project concept has been added to SWRP Section 7.2.6.	The table needs to show proposed timelines for each project: timeline for funding, design, and construction.	Table 12 has been edited to include proposed timelines for funding, design completion, and construction.
Section 7.3, Page 56	Have the website and clear procedures been setup? If so, provide a link.	Footnotes that link to the MRSWMP website (i.e. http://montereysea.org/stormwater-resource-plan/) and the IRWMP website (http://www.mpirwm.org/Pages/default.aspx) have been added to SWRP Section 7.3. Clear procedures for adding projects have been provided on the MRSWMP website.	Noted.	No additional edit needed.
Appendix E	All benefits must be quantified, and the estimated quantity must be provided (not just the range that was used for the scoring matrix) as well as the method used to obtain the number.	All benefits have been quantified in Appendix E, database "Appendix E – Monterey PeninsulaSWRP ProjectDatabase (12-18-18).xlsx". These are provided in columns Q through AD. The method is described in SWRP Section 5.4.1 and Table 10.	Noted.	No additional edit needed.

SWRP Checklist	State Water Board Comment	Project Team Response to Comment – Round 1	DFA [State Board] Comment #2	Project Team Response to Comment – Round 2
Item #27, Page A-7	Plan must include a narrative of how each project and program will benefit the environment and/or community, with some type of quantitative measurement.	The following statement (in *italics* below) was added to Item #27, Page A-7 of the SWRP Checklist (Appendix A): "…including environmental and community benefits. *Specifically, as summarized on pages 43-44 and in Table 10, project opportunities that "re-establish natural water drainage systems or develop, restore, or enhance habitat and open space" received a score of 2 for providing environmental benefits; and project opportunities that provide "community enhancement" or "enhancement to DAC" received a score of 2 (each) for providing community benefits.* Full project database,…"	A narrative (specifically explaining the benefits to the environment and community, with some type of quantitative measurement) must be provided at least for each selected project that has claimed an environmental or community benefit. Without this, we cannot provide concurrence for the SWRP. This could be done by expanding the project descriptions in Section 6.3.	Narrative has been provided in the project descriptions in Section 6.3 regarding whether the project claims an environmental or community benefit per the metrics-based multi-benefit assessment, and explaining the benefit assessment. The following statement (in *italics* below) was added to Item #27, Page A-7 of the SWRP Checklist (Appendix A): *"A narrative explaining benefits is included for top projects in section 6.3 (pages 50-52)."*

SWRP Checklist	State Water Board Comment	Project Team Response to Comment – Round 1	DFA [State Board] Comment #2	Project Team Response to Comment – Round 2
Item #34, Page A-8	Plan says that no new development or re-development projects have been identified. This does not mean one won't be submitted later.	The following statement (in *italics* below) was added to the last sentence of SWRP Section 6.1.3 on Page 47: "No new or redevelopment projects were identified as part of this plan, *although these projects could be amended to the SWRP in the future*."	Unless it is impossible for any new development or re-development projects to be ever implemented in the SRWP area (and in this case you would need to explain why), there needs to be a section about design criteria and types of BMPs to be used for such projects, as recommended by local guidelines, ordinances. Providing references to such documents is acceptable. Please see the attached example from another SWRP. Again, without this, we cannot concur with the SWRP.	A reference to the MRSWMP Stormwater Technical Guide for Low Impact Development (MRSWMP, 2015), which provides design criteria and types of BMPs to be used for new development or re-development projects, has been added to Sections 4.2.1, 6.1.3, and 7.4. The following statement (in *italics* below) was added to Item #34, Page A-8 of the SWRP Checklist (Appendix A): *"The MRSWMP Stormwater Technical Guide for Low Impact Development (MRSWMP, 2015) provides design criteria for new and redevelopment best management practices. References to the Technical Guide are provided in Sections 4.2.1 (page 30) , 6.1.3 (page 49), and 7.4 (page 60)."*

SWRP Checklist	State Water Board Comment	Project Team Response to Comment – Round 1	DFA [State Board] Comment #2	Project Team Response to Comment – Round 2
Item #40, Page A-9	We cannot see decision support tools identified to implement the projects within the plan. These references are pointing to the vague implementation strategy.	The statement in Item #40, Page A-9 of the SWRP Checklist (Appendix A), "Section 7.2 (pages 53-56), Section 7.3 (pages 56-57), and Section 7.4 (page 57)" was replaced with the following: "Section 7.1.2 (page 53) describes that funding for implementation of the seven projects included in this SWRP will be obtained by the project sponsor. As included in Section 7.2.1 (pages 53-54), projects and/or project opportunities listed in the final SWRP may be included as part of IRWMP project lists for project implementation, as appropriate. Decision support tools are available through the IRWMP project prioritization process. Additional considerations for project implementation are included in Section 7.2.2 (page 54)."	The decision support tools mentioned (from IRWMP) must be inserted into this section. The tools we are looking for are those that can be used to size BMPs, quantify benefits, measure performance, project tracking, models developed, etc. (i.e., assess projects that are candidate for insertion into the SWRP).	The decision support tools mentioned (from the IRWMP process) have been inserted into Appendix I and are referenced in section 7.2. Additionally, references to the incorporation of the SWRP into the IRWMP and the IRWMP goals and objectives have been updated throughout the text. The following statement (in *italics* below) was added to Item #40, Page A-9 of the SWRP Checklist (Appendix A): "Decision support tools are available through the IRWMP project prioritization process, *and have been included in Appendix I of the Monterey Peninsula Region Stormwater Resource Plan.*"

Comments received June 11, 2019, with clarifying comments received June 20, 2019, and responses to comments:

SWRP/ Checklist Section	State Water Board Comment (June 11, 2019)	State Water Board Clarifying Instructions (June 20, 2019)	Project Team Response to Comment
Section 7.2	"Regarding the first comment (section 5.3.2, page 36): the SWRP should include language that clarifies that the seven projects are part of the SWRP, and more importantly, that the rest of the opportunities (listed in Appendix E) would need to be further developed prior to inclusion into the SWRP."	"On page 31 of the SWRP guidelines (Section VI, E, 1 and 2), it says: "A Storm Water Resource Plan should identify the resources that the participating entities are committing for implementation of the Plan. The Plan should include the following items to ensure its effective implementation. (Wat. Code, § 10562, subd. (d)(8).): a. Projection of additional funding needs and sources for administration and project implementation needs, above and beyond the needs of the existing storm water management plans and/or integrated regional water management plans; and b. Schedule for arranging and securing Plan financing for project implementation, including identification of phased Plan and/or project implementation." One page 32, it says The Storm Water Resource Plan should identify the following implementation and scheduling components: - Timelines for all active or planned project components and identification of the institutional structure that will ensure Plan implementation;"	Through clarifying comment from the State Water Board, the comment is referring to the requirement to provide funding and schedule estimates for identified SWRP projects and project opportunities. Section 7.2.6 of the SWRP is now titled "Potential Timelines and Cost Estimates for Implementing Identified Project Opportunities," and includes estimates of project cost and schedule for the projects (or representative projects) anticipated to be implemented between 2020 – 2040, should funding be available and secured. All project opportunities identified in Appendix E are considered included in and part of the SWRP; cost ranges and timeline have been provided for each project.
Checklist Item #27, page A-7	Regarding Item #27, page A-7: for the selected projects (section 6.3), you need to explain what exact community benefit is provided for each project. For example, what does "enhancement to DAC" mean? You need to provide a description for each benefit.	n/a	The description is provided on page 43 of the SWRP. A reference to section 5.4.1, page 43, has been provided in the Checklist. The description has been added to each project in Appendix E. DACs in the planning area are shown in the new Figure 5.

APPENDIX B
TAC Meeting Summaries

Stormwater Resource Plan for the Monterey Peninsula, Carmel Bay, and South Monterey Bay Integrated Regional Water Management Planning Region

Technical Advisory Committee (TAC) Kick-off Meeting

Tuesday, September 12, 2017
1 pm – 3 pm

Conference Call
Phone: 1-855-266-3436 / Access Code: 954784

AGENDA

MEETING OBJECTIVES:

- *Brief TAC members on the project purpose, background, approach, and schedule.*
- *Review and approve TAC member list.*
- *Solicit TAC input on specific upcoming project submittals (Detailed Project Schedule, Stormwater Resource Plan Outline, Stormwater Resource Planning Area Description Memo, Approach to Addressing Water Quality, and Stakeholder Outreach Plan).*

1:00 pm	1. Welcome/Introductions	Jeff Condit (Monterey One Water)
1:10 pm	2. Review of TAC member list, roles and responsibilities *Action: Approve List of TAC Members*	Jill Bicknell (EOA)
1:20 pm	3. Overview of Project Purpose and Background • Purpose of Stormwater Resource Plan • Description of Project Area Watersheds • Previous and Current Planning Efforts • Water Recovery Study	Jeff Condit/ Kelly Havens (Geosyntec)
1:45 pm	4. Project Approach • Scope of Work • Schedule *Action: Provide input on project approach. Review Project Detailed Schedule.*	Kelly Havens
2:15 pm	5. Stormwater Resource Plan (SWRP) Contents *Action: Review Draft SWRP Outline, Planning Area Description, and Approach to Addressing Water Quality*	Kelly Havens

2:35 pm	6.	Stakeholder Involvement *Action: Review Draft Stakeholder Outreach Plan*	Vishakha Atre (EOA)
2:50 pm	7.	Review Action Items	Jill Bicknell
3:00 pm	8.	Adjourn	

Stormwater Resource Plan for the Monterey Peninsula, Carmel Bay, and South Monterey Bay Integrated Regional Water Management Planning Region

Technical Advisory Committee (TAC)
Kick-off Meeting

Tuesday, September 12, 2017
1 pm – 3 pm

MEETING SUMMARY (Grant Task 2.3)

Participants – Attendance list attached.

1. Welcome/Introductions

   Jeff Condit (Monterey One Water) informed attendees that the purpose of today's meeting is to provide an overview of the Stormwater Resource Plan (SRP) process, approach, and schedule, and obtain initial feedback for several key deliverables. Attendees introduced themselves.

2. Review of TAC Member List, Roles and Responsibilities

   Jill Bicknell (EOA) reviewed the draft TAC Member List with the TAC. Attendees had no comments on the list and approved it for submittal to the Grant Manager.

3. Overview of Project Purpose and Background

   Jeff and Kelly Havens (Geosyntec) provided an overview of the grant, SRP development process, and information on the project boundaries and watershed areas. The MRWPCA (now called Monterey One Water), facilitator of the Monterey Regional Stormwater Management Program (MRSWMP), received a Prop 1 Grant to prepare a SRP for the Monterey Peninsula Region. The total grant amount received is $358,716. The City of Monterey's Neighborhood Improvement Program (NIP), the Monterey Peninsula Water Management District, and MRSWMP program are providing the required 50% match. Grant deliverables include the following:

   - Monterey Regional Water Recovery Study which will examine the feasibility of establishing a Peninsula-wide water recovery and reclamation system
   - SRP for the Monterey Peninsula IRWMP
   - GIS-based screening analysis to identify and prioritize potential projects
   - Approximately 30% design for the top prioritized project. The goal is to apply for Prop 1 Implementation Funding in 2018
   - 10% Conceptual Designs for the next seven prioritized projects

   The MRSWMP Subcommittee will provide oversight of the SRP, and input will be provided by the TAC and a stakeholder group. Next week, Geosyntec will send out a data request to these groups to collect information on planned projects. Generally, private regulated projects will not be included in the prioritized projects list; however, public-private partnership projects may be included.

4. Project Approach

Kelly described the grant tasks and schedule for completion, including the timeline for TAC meetings, key deliverables, and anticipated review periods.

5. SRP Contents

The project team has prepared a draft SRP Outline for submittal to the Grant Manager. It was e-mailed to the TAC prior to today's meeting. Kelly described the SRP contents and provided an overview of the Water Recovery Study. She asked attendees which acronym they prefer using: SRP or SWRP. TAC members did not express a strong preference; however, the same acronym should be used throughout the process and all documents.

Draft technical memos on the SRP Planning Area Description and the Approach to Addressing Water Quality were also sent to the TAC for review. Comments are due by September 25.

6. Stakeholder Outreach and Engagement Plan

Vishakha Atre (EOA) provided an overview of the Stakeholder Outreach and Engagement Plan. Stakeholders will be solicited from Monterey Peninsula Integrated Regional Water Management Plan (IRWMP) stakeholders list. The TAC reviewed the Stakeholder Outreach and Engagement Plan and provided the following feedback:

- Include additional outreach for engaging disadvantaged communities (DACs). Jill Bicknell (EOA) said that while efforts will be made to involve DACs in the Stakeholder Group, it is likely that they will be more involved if projects are identified within their communities. Additional efforts will be made to engage DACs after the potential projects are identified. Jeff Krebs (City of Monterey) and Scott Ottmar (City of Seaside) said that they will provide contact information for DACs within their jurisdictions.
- Involve stakeholders from the Monterey Regional Water Recovery Study with the SRP Stakeholder Group. Add a paragraph about the interaction between the SRP Stakeholder Group and the Water Recovery Stakeholder Group to the Stakeholder Outreach and Engagement Plan.
- Include a paragraph about coordination with the Monterey Regional Water Recovery Study.
- Jeff Condit noted that he will review the stakeholder contact list and provide updates.

7. Action Items:

Action items are summarized in the following table:

Action Item	Description	Responsibility	Due Date
1	Prepare Draft TAC meeting summary for TAC review	Consultant team	9/19/17
2	Issue request for projects and data to stakeholders	Consultant team	9/22/17
3	Schedule and prepare for first stakeholder meeting	Consultant team	10/17/17
4	Add a paragraph about coordinating with the Monterey Regional Water Recovery Study Stakeholders to the SRP Stakeholder Outreach Plan	Consultant Team	9/25/17
5	Provide comments on the following documents: • Draft Detailed Schedule • Draft Detailed SRP Outline • Draft Stakeholder Outreach Plan • Draft Memo on Planning Area Description, Map, and Boundaries • Draft Memo on Description of Approach for Addressing Water Quality	TAC	9/25/17
5	Review and update the IRWMP Stakeholder List	Jeff Condit	9/30/17
6	Send DAC contacts for the City of Seaside	Scott Ottmar	9/30/17
7	Send DAC contacts for the City of Monterey	Jeff Krebs	9/30/17
8	Send Figure 1 of the Planning Area Description to the TAC	Jill Bicknell	9/13/17

Next Meeting:

November 2, 2017, 12:30-2:30 pm, at Monterey One Water Conference Room

Technical Advisory Committee (TAC) Kick-off Conference Call
September 12, 2017

Attendance List

Name	Organization
Scott Ottmar	City of Seaside
Jeff Krebs	City of Monterey
Tom Harty	County of Monterey Resource Management Agency
Jeff Condit	Monterey One Water
Alison Imamura	Monterey One Water
Larry Hampson	Monterey Peninsula Water Management District
Dominic Roques	Regional Water Quality Control Board, Central Coast Region
Sarah Hardgrave	Big Sur Land Trust
Jill Bicknell	EOA, Inc. (consultant to Monterey One Water)
Vishakha Atre	EOA, Inc. (consultant to Monterey One Water)
Kelly Havens	Geosyntec (consultant to Monterey One Water)
Denise Duffy	Denise Duffy & Assoc. (consultant to Monterey One Water)
Diana Staines	Denise Duffy & Assoc. (consultant to Monterey One Water)
Rachid Ait-Lasri	State Water Resources Control Board, Div. of Financial Assistance

Monterey Peninsula Stormwater Resource Plan TAC Kick-Off Call

Jeff Condit, EOA, Inc., and Geosyntec Consultants

9/12/2017
1 – 3 PM

TAC Kick-Off Call Agenda

MEETING OBJECTIVES:

- *Brief TAC members on the project purpose, background, approach, and schedule.*
- *Review and approve TAC member list.*
- *Solicit TAC input on specific upcoming project submittals (Detailed Project Schedule, Stormwater Resource Plan Outline, Stormwater Resource Planning Area Description Memo, Approach to Addressing Water Quality, and Stakeholder Outreach Plan).*

1:00 pm	1.	Welcome/Introductions	Jeff Condit (Monterey One Water)
1:10 pm	2.	Review of TAC member list, roles and responsibilities *Action: Approve List of TAC Members*	Jill Bicknell (EOA)
1:20 pm	3.	Overview of Project Purpose and Background • Purpose of Stormwater Resource Plan • Description of Project Area Watersheds • Previous and Current Planning Efforts • Water Recovery Study	Jeff Condit/ Kelly Havens (Geosyntec)
1:45 pm	4.	Project Approach • Scope of Work • Schedule *Action: Provide input on project approach. Review Project Detailed Schedule.*	Kelly Havens
2:15 pm	5.	Stormwater Resource Plan (SWRP) Contents *Action: Review Draft SWRP Outline, Planning Area Description, and Approach to Addressing Water Quality*	Kelly Havens
2:35 pm	6.	Stakeholder Involvement *Action: Review Draft Stakeholder Outreach Plan*	Vishakha Atre (EOA)
2:50 pm	7.	Review Action Items	Jill Bicknell
3:00 pm	8.	Adjourn	

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Welcome and Introductions

Today's Presenters:

❖ Jeff Condit – Stormwater Program Manager, MRSWMP; SRP Project Manager

❖ Jill Bicknell – Managing Engineer, EOA, Inc.; TAC Facilitator/Technical Advisor

❖ Kelly Havens – Senior Engineer, Geosyntec Consultants; Project Manger/ Technical Lead

❖ Vishakha Atre – Senior Engineer, EOA, Inc.; Stakeholder Outreach Lead (with Denise Duffy & Associates)

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TAC Member Roles and List

Actions for Today:

- Review and Approve TAC Member List
- Review TAC Member Responsibilities:
  - Provide technical guidance to Monterey One Water and its consultants on the development of the Stormwater Resource Plan
  - Review, provide technical input to, and approve specific grant deliverables

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Stormwater Resource Plan for the Monterey Peninsula, Carmel Bay, and South Monterey Bay Integrated Regional Water Management Planning Region

Jeff Condit, Program Manager
Monterey Regional Stormwater Management Program

SB985 (2014)

- Requires a Stormwater Resource Plan (SRP) as a condition of receiving funds for stormwater and dry weather runoff capture projects from any bond approved by voters after January 2014.
- An SRP represents a collaborative watershed-based planning document that views stormwater and dry weather runoff as a resource, prioritizing projects based on regional multi-benefit objectives, while promoting water quality protection consistent with individual MS4 NPDES permits.

Prop 1 Planning Grant

- The State Water Resources Control Board allocated $20m of the $200m Prop 1 Stormwater Grant Program toward planning grants intended for the development of SRPs.
- The MRWPCA, facilitator of the Monterey Regional Stormwater Management Program, was requested to serve as Lead Agency toward the Prop 1 Grant
- The MRWPCA was awarded $358,716 Prop 1 Planning Grant toward pursuit of a regional SRP.

Prop 1 Planning Grant

- Due to a Prop 1 Planning Grant 50% match requirement, the $358,716 grant is part of a $717,432 effort. Local match includes:
  - The City of Monterey's Neighborhood Improvement Program (NIP) allocated $85,000 to analyze opportunities and constraints of stormwater capture regionally
  - The Monterey Peninsula Water Management District awarded an $85,000 match toward this study of regional capacity
  - The MRSWMP program spent considerable staff time toward the development of a quantitative modeling program that will assist with Planning Grant requirements
  - The MRSWMP Program Manager and partner Staff time

Partner Engagement

- MRSWMP Subcommittee
- Technical Advisory Committee (TAC)
- Stakeholder Outreach
  - Build on IRWMP stakeholder process
  - Include outreach to DACs
- Public Outreach

SRP Objectives

From SRP Guidelines (p. 17):

- "Stormwater management on a watershed basis provides for a combination of stormwater management objectives and multiple benefits throughout the watershed or sub-watershed"
- "The Plan must discuss how its objectives and projects fit into the broader water management goals of the applicable IRWM Plan."

SRP Objectives

- Water Quality
- Water Supply
- Flood Management
- Environmental
- Community

Grant Deliverables

- Monterey Regional Water Recovery Study
  - Examine the feasibility of establishing a Peninsula-wide water recovery and reclamation system
- Stormwater Resource Plan for the Monterey Peninsula IRWMP
- GIS-based Screening Analysis to identify and prioritize potential projects
- For the top prioritized project, an approximately 30% design, a CEQA Initial Study, and a Project Implementation Plan
  - Goal of Prop 1 Implementation Funding in 2018
- 10% Conceptual Designs for the next seven prioritized projects

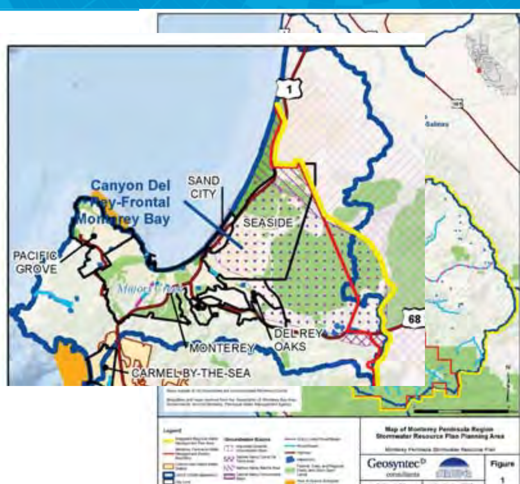
Incorporation into the IRWMP

- Upon development, [a Storm Water Resource Plan must] be submitted to any applicable integrated regional water management group. Upon receipt, the Integrated Regional Water Management group shall incorporate the [Storm Water Resource Plan] into its integrated regional water management plan. (Wat. Code, § 10562, subd. (b)(7).)

Incorporation into the IRWMP

- The SRP must discuss how its objectives and projects fit into the broader water management goals of the applicable IRWM plan.
- For the purposes of receiving project implementation funding, submittal of a Storm Water Resource Plan to the applicable IRWM group (for further incorporation into an existing IRWM plan) fulfills the public agency's requirement for "incorporation."

Planning Region Watersheds



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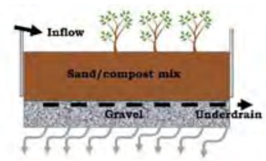
Identification of Planned Projects

- E-mail request to cooperating entities, interested parties, and stakeholders
- Planned projects:
  - Location
  - Drainage Area
  - Facility Type



Stormwater Technical Guide for Low Impact Development
MRSWMP

Figure 1-1. Bioretention facilities infiltrate most runoff (above) and can be an attractive landscape amenity (below).

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Scope of Work

- Grant Task 1: Project Administration/Management
- Grant Task 2: Technical Advisory Committee
- Grant Task 3: Data Collection and Watershed Identification
- Grant Task 4: Stormwater Resource Plan Development
  - Includes project identification and prioritization
  - Includes conducting Water Recovery Study
- Grant Task 5: Planning and Design
- Grant Task 6: Stakeholder Outreach

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Project Schedule

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Water Recovery Study

- Examine the feasibility of Peninsula-wide recovery and reclamation system along with:
  – Possibilities for sources
  – Water transport, treatment, storage
- Identify the Monterey Peninsula Water Recovery Study Stakeholders
- Select a preferred project and alternate project
- Prepare CEQA Initial Study Checklist for the preferred project
- Develop a Project Implementation Plan

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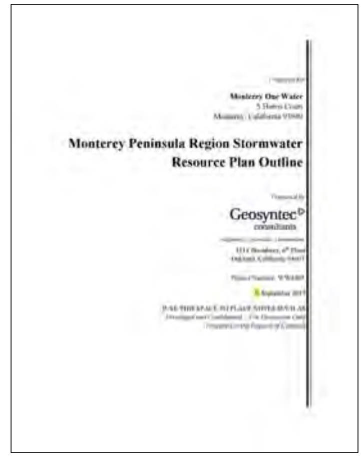
Stormwater Resource Plan Contents

- *SWRP vs. SRP*
- Draft SWRP Outline
- Planning Area Description
- Approach to Addressing Water Quality



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Stakeholder Involvement

- **Goals**
  - Provide information on SRP process and need for stormwater capture and treatment projects
  - Obtain input in identifying locations and types of projects
  - Obtain feedback on initial prioritized list of potential projects
  - Obtain comments on, and support for SRP
  - Obtain feedback on environmental justice needs and concerns associated with SRP implementation
- **Key Messages**
  - Benefits of using stormwater as a resource
  - Need for stormwater capture and treatment projects
  - Purpose and content of the SRP
  - Process for identifying, assessing, and prioritizing stormwater capture and treatment projects

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Stakeholder Involvement

Stakeholder Outreach Tasks

- Task 1 - Stakeholder Group Formation - September 2017
- Task 2 - Quarterly Updates - Beginning November 2017
- Task 3 - Stakeholder Group Information Requests and Meetings
  - Data request (plans, reports, data, & solicitation of projects) – September 2017
  - First meeting (feedback on prioritization methodology, potential projects ideas) - October 2017
  - Second meeting (feedback on Prioritized Project List) - January 2018
  - Feedback on draft SRP – May 2018
- Task 4 - Public Workshop – June 2018
- Task 5 - Stakeholder Involvement in Implementation of SRP and Completion of Projects

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Review Action Items

- TAC: Review and comment by 9/25/17
  – Detailed Schedule
  – Detailed SRP Outline
  – Stakeholder Outreach Plan
  – Planning Area Description, Map, and Boundaries
  – Description of Approach for Addressing Water Quality
- Consultant Team:
  – Prepare Draft TAC Meeting Summary for TAC Review
  – Issue Request for Projects and Data
  – Schedule and Prepare for First Stakeholder Meeting
- Other Actions from the Meeting?

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Stormwater Resource Plan for the Monterey Peninsula, Carmel Bay, and South Monterey Bay Integrated Regional Water Management Planning Region

Technical Advisory Committee (TAC)
Meeting #2

Thursday, November 2, 2017
12:30 pm – 2:30 pm

Monterey One Water Conference Room
5 Harris Court, Building D, Monterey, CA

Call-in Option
Phone: 855-266-3436/ Access Code: 274784

AGENDA

MEETING OBJECTIVES:

- *Update TAC members on SWRP task activity since the last TAC meeting, including Stakeholder Meeting #1.*
- *Discuss the relationship between the SWRP and the IRWMP.*
- *Solicit TAC input on specific upcoming project submittals related to data review and project metrics-based analysis and quantification.*
- *Solicit TAC input on the Technical Memo on Water Recovery Study Methodology.*

12:30 pm	1.	Welcome/Introductions	Jeff Condit (Monterey One Water)
12:35 pm	2.	Additions or Revisions to the Agenda	Jill Bicknell (EOA)
12:40 pm	3.	Update on SWRP Task Activity: • Summary of Stakeholder Meeting #1 • Summary of deliverables submitted, under review, and in progress *Action: Receive update on activity during Sept-Oct 2017.*	Jill Bicknell / Kelly Havens (Geosyntec)
12:55 pm	4.	Discussion Topic – How does the SWRP fit into the IRWMP?	Jeff Condit
1:10 pm	5.	SWRP Task 3 – Data Review • Annotated list of reviewed plans and reports • Summary of data received (i.e., GIS data) • Summary of planned projects received *Action: Provide input prior to review period for these products.*	Kelly Havens

1:30 pm	6.	SWRP Task 4 - Technical Memo on Project Feasibility, Identification, and Modeling Tools and Methodologies (Project Metrics-Based Analysis and Quantification Technical Memo) *Action: Receive information on the technical memo and provide input prior to the review period for this product.*	Kelly Havens
2:00 pm	7.	Discussion of Water Recovery Study Methodology *Action: Provide input on draft Water Recovery Study Methodology memo.*	Kelly Havens
2:20 pm	8.	Review Action Items	Jill Bicknell
2:30 pm	9.	Adjourn	

Stormwater Resource Plan for the Monterey Peninsula, Carmel Bay, and South Monterey Bay Integrated Regional Water Management Planning Region

Technical Advisory Committee (TAC)
Meeting #2

November 2, 2017
12:30 pm – 2:30 pm

MEETING SUMMARY

Participants – Attendance list attached.

1. Welcome/Introductions

   Jeff Condit (Monterey One Water) welcomed TAC participants and informed them that the purposes of today's meeting are to update the TAC on recent Stormwater Resource Plan (SWRP) activities; discuss the relationship between the SWRP and the Integrated Regional Water Management Plan (IRWMP); and solicit TAC input on upcoming SWRP submittals and the Water Recovery Study methodology. Attendees introduced themselves.

2. Additions/Revisions to the Agenda

   Jill Bicknell (EOA) reported that there was one stakeholder comment on the SWRP that she would like to discuss with the TAC, under Agenda Item 3. There were no other additions or revisions to the agenda.

3. Update on SWRP Task Activity

   a. Summary of Stakeholder Meeting #1 -- Jill reported that the first stakeholder meeting was well attended and that a lot of good input on the SWRP approach was received. Attendees were asked to provide information on potential projects and comments on the project prioritization methodology presentation by October 31.

      Jill described a letter received from the Ohlone/Costanoan-Esselen Nation (OCEN), requesting consultation on projects affecting their aboriginal homelands. Jeff Krebs (City of Monterey) said that he can provide a GIS map of archeologically sensitive areas, but others pointed out that many burial sites are unknown, and consultations are typically required on major construction projects. Sarah Hardgrave (Big Sur Land Trust) said she has been looking at integrating a consultation process into the IRWMP, and she will reach out to the OCEN representative.

   b. Summary of deliverables submitted, under review, and in progress -- Kelly Havens (Geosyntec) provided a summary of the status of the grant deliverables and due dates for comments (see attached presentation).

4. Discussion Topic – How does the SWRP fit into the IRWMP?

   There is a requirement in the State Water Board's SWRP Guidelines that the final SWRP be incorporated into the local IRWMP. This does not have to be a complicated process, but there will be two separate lists of prioritized projects (prioritized using different criteria) and it is unclear how they would be integrated. Sarah mentioned that she is involved with a planning process for updating the IRWMP prior to the next IRWM implementation grant solicitation. It was suggested that members of the TAC involved with the IRWM group look at the scoring and prioritization criteria and consider whether any IRWM criteria should be added to the SWRP methodology.

5. SWRP Task 3 – Data Review

   a. Annotated list of reviewed plans and reports – Kelly reported that a draft of this list will be provided to the TAC by November 10 and comments will be due on November 17. She would like input on any relevant reports that may be missing.

   b. Summary of data received – Kelly provided an overview of the Excel spreadsheet sent to the TAC which summarizes data received/collected and reviewed. The following questions/comments were raised/provided:

      - Are pollutant load estimate data included?
        - Project Team is planning to use TELR load estimates. Will add this to the table.
      - Water District has aerial photos of the entire study area.
        - Project Team will request from AMBAG (Gina Schmidt)/ Monterey Peninsula Water Management District (MPWMD).
      - New Carmel Area Wastewater District (CAWD) Boundary is needed.
        - Project Team will request from Drew Lander (CAWD).
      - Project Team will request pump station locations from the cities.
      - Monterey County Resource Agency should have a map of known flood hazard areas.
      - Water quality monitoring data for MRSWMP and ASBS areas suggested to be added.
        - Project Team will try to obtain this data.
      - Project Team asked if additional flow monitoring data available?
        - There may be data from Monterey County. Project Team will request.
      - Open space layer does not include County parks, regional parks, and conservation areas. Sarah to provide an updated layer.

      Kelly asked that any other comments be provided by November 10. The data deliverable will be submitted to the State on November 27.

   c. Summary of planned projects received – Kelly reported that she has received projects from 15-20 entities so far. She will review them for potential overlap and missing data and then send to the TAC for review by November 10. Comments are due by November 17.

6. SWRP Task 4 – Technical Memo on Project Feasibility, Identification, and Modeling Tools and Methodologies

Kelly reviewed the technical memo that was provided to the TAC on November 1. The discussion focused on Section 4, Project Identification and Classification, and Section 5, Project Metrics-Based Multi-benefit Evaluation. The following comments were provided:

Section 4:

- Decision to include Federal and State-owned parcels in project opportunity screening, such as the Presidio of Monterey and Fort Ord.
- There was a suggestion to look at undeveloped (vacant) private parcels as well.
    - Project team will look at private parcels that overlie water supply aquifers and/or could be used for capture and use water supply projects.
- What is the definition of "urbanized areas"? Decision was to use census designation.

Section 5:

- Decided to remove the scoring based on level of traffic (e.g., do not rank by street classification).
- Decided to lower the points given for projects based on quantity of water supply provided (e.g., 0 points for < 5 af/yr, 1 point for 5-10 af/yr, and 2 points for 10-20 af/yr, etc.).
- There was a question regarding the ability to evaluate cost effectiveness at this stage.
    - No, but will evaluate this when selecting projects for conceptual design.
- Suggestion to consider how projects that drain to ASBS will be ranked.
- Consider whether flood control projects should be ranked by size of storm controlled (i.e., provide 1 point for projects that control the 5 or 10 year storm) or size of project.

7. Discussion of Water Recovery Study Methodology

Kelly reviewed the Water Recovery Study Approach Memorandum. The following comments were provided:

- The Pacific Grove dry weather diversion project is not permitted to divert wet weather flows. The memo should describe the section of the ASBS that it covers. The amount of diversion is limited by pump capacity. Upgrades are planned to increase capacity.
- There may be an issue with charging for diversion to sanitary sewer.
- Complexity of permitting should be considered, e.g., DSOD permit for David Ave. reservoir.
- Comment that we don't want to exclude "dirty water" from recharge.

8. Review Action Items:

In addition to the summary of deliverables and reviews, the following actions will be completed by the consultant team prior to TAC Meeting #3:

- Conduct analyses for both the SWRP and the Water Recovery Study
- Produce list of ranked SWRP projects
- Produce list of potential water recovery projects
- Hold Stakeholder Meeting #2

Next Meeting: To be scheduled (during the February 2018 timeframe)

Technical Advisory Committee (TAC) Meeting #2
November 2, 2017

Attendance List

Name	Organization
Scott Ottmar	City of Seaside
Jeff Krebs	City of Monterey
Tom Harty	County of Monterey Resource Management Agency
Jeff Condit	Monterey One Water
Alison Imamura	Monterey One Water
Larry Hampson	Monterey Peninsula Water Management District
Dominic Roques	Regional Water Quality Control Board, Central Coast Region
Sarah Hardgrave	Big Sur Land Trust
Jill Bicknell	EOA, Inc. (consultant to Monterey One Water)
Kelly Havens	Geosyntec (consultant to Monterey One Water)
Lisa Austin	Geosyntec (consultant to Monterey One Water)
Diana Staines	Denise Duffy & Assoc. (consultant to Monterey One Water)

Monterey One Water
Providing Cooperative Water Solutions

Water Boards

Geosyntec consultants
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EOA inc.

DD&A

Monterey Peninsula Stormwater Resource Plan

TAC Meeting #2

2 November 2017

TAC Meeting #2 Agenda

- Update on SWRP Task Activity
- Discussion Topic – How does the SWRP fit into the IRWMP?
- SWRP Task 3 – Data Review
- SWRP Task 4 – SWRP Technical Memo
- Discussion of Water Recovery Study Methodology Memo
- Review Action Items

Overview of Stakeholder Meeting #1


Summary of Grant Deliverables

Grant Item #	Description / Submittal	Final Draft to State	Submittal Status
1.3	Final Detailed Project Schedule	9/29/2017	Submitted
2.1	List of TAC Member, Roles, and Responsibilities	9/29/2017	Submitted
2.2	Agenda, Notes for TAC Kick-Off Meeting	10/7/2017	Submitted
2.2	Agenda, Notes for 2nd TAC Meeting	11/27/2017	In progress
3.1	Annotated List of Plans and Reports	11/27/2017	In progress
3.1	Database of Planned Projects	*Discussion*	In progress
3.1	Summary of Data Received	11/27/2017	In progress
3.2	Planning Area Description, Map, and Boundaries	10/14/2017	Submitted
4.1, 4.2	Detailed SRP Outline	9/29/2017	Submitted
4.3	Description of Approach for Addressing Water Quality	10/7/2017	Submitted
4.4.1	Technical Memo on Water Recovery Study Approach	*Discussion*	In progress
4.4.1/2	Technical Memo on Modeling Tools and Methodologies	11/27/2017	In progress
6.1.1	Stakeholder Outreach Plan	10/7/2017	Submitted
6.1.2	Stakeholder Meeting 1 Notes	2017 Q4 Report	In progress
6.1	Public Education Goals	10/7/2017	Submitted

Discussion Topic

- How does the SWRP fit into the IRWMP?

Grant Task 3.1 – Data Review

- Annotated List of Plans and Reports (Deliverable)
  - In Progress (Geosyntec/ DD&A) – TAC draft on 11/10, comments due back 11/17
- Summary of Data Received (Deliverable)
  - TAC draft sent out 10/30, comments due back 11/10
- Database of Planned Projects – Discussion
  - TAC draft sent 11/10, comments due back 11/17

Grant Task 4.1.1/4.1.1 – SWRP Methodology Memo

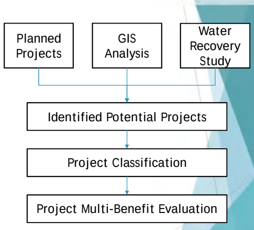
- Draft sent to TAC 11/1
- Outline:
  - Overview of Approach
  - Evaluation of Models and Tools
  - Project Identification and Classification
  - Project Metrics-Based Evaluation
  - Development of Project Concept Designs

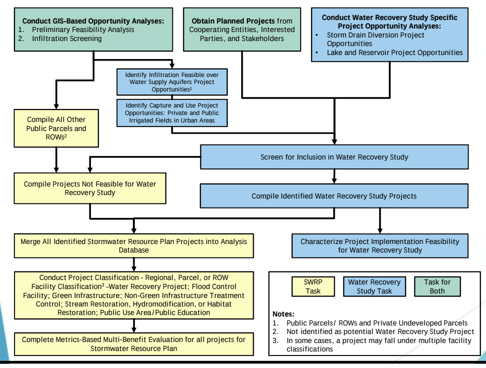
Overview of Approach

- Identify Projects
- Screen and Classify Projects
- Score Projects using Metrics-Based Evaluation
- Prioritize Projects
- Detailed Quantification of Benefits for Concept Designs

Project Identification

- Planned Projects
  - Through project request spreadsheet
- GIS Project Opportunity Analysis
- Water Recovery Study – specific project types





Interaction between Stormwater Resource Plan and Water Recovery Study

GIS Opportunity Analysis

- Publicly-owned parcels at least 0.1 acre, slope < 10% and Public ROWs
  - Screened for physical constraints
- Classified based on
  - Project Size: Parcel-based, Regional, ROW
  - Infiltration Feasibility: Hazardous, Partial, Full Infiltration
  - Facility type
  - Drainage Area

Facility Types

- Water Recovery Project
- Green Infrastructure
- Non-GI Treatment Control
- Flood Control Facilities
- Hydromodification Control, Stream/Habitat Restoration
- Public Use Area or Public Education Area
- Programmatic Stormwater Management Opportunity

Project Component	Benefit Addressed	Points		
		0	1	2
Parcel area (For Regional/Parcel-Based Projects Only)	All	< 1 acre	1 - < 4 acres	> 4 acres
Street type (for ROW Projects Only)	All	High Traffic	Medium Traffic	Low Traffic
Location Slope	All	7-10%	3-7%	0-3%
Catchment Runoff Rate	All	< 0.15 ft/yr (per TELR) or unavailable in TELR	0.15 ft/yr < runoff < 0.40 ft/year (per TELR)	> 0.40 ft/year (per TELR)
Infiltration feasible	All	No	Partial or Not Applicable[2]	Yes
Water Recovery Project	Water Supply	No	--	Yes
Estimated Water Supply Provided	Water Supply	0	0 – 50 ac-ft/yr	50+ ac-ft/yr 100+ ac-ft/yr (+1 point) 200+ ac-ft/yr (+2 points)
Pollutant Loading Rate[1]	Water Quality	<0.002 ton/ac-yr (per TELR) or unavailable in TELR	0.002 – 0.02 ton/ac-yr (per TELR)	>0.02 ton/ac-yr (per TELR)
Captures Runoff Ultimately Draining to ASBS or 303(d) listed waterbodies	Water Quality	No	Partial	Yes
Removes pollutants from stormwater	Water Quality	--	Non-Green Infrastructure Treatment Control Facilities	Green Infrastructure[3]
Provides Flood Control Benefits	Flood	--	--	Flood Control Facility
Re-establishes drainage, develops, restores, or enhances habitat	Environmental	--	--	Stream Restoration, Hydromodification Control, or Habitat Restoration Project
Provides community				Public Use Area or Public

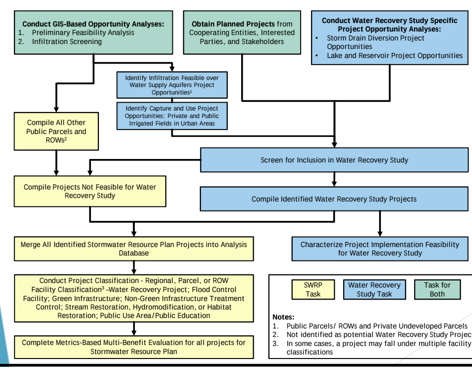
Project Prioritization, Selection, Concepts

- Prioritize Projects
  - Cooperating entities, interested parties, and stakeholders will have the option to review their scores and re-rank
- Detailed Quantification of Benefits for Concept Designs
  - Planning level hydrologic models anticipated to be developed for selected projects for concept design

Monterey Peninsula SWRP TAC Meeting #2 11/28/2017 14

Water Recovery Study Methodology Discussion

Monterey Peninsula SWRP TAC Meeting #2 11/28/2017 15



Interaction between Stormwater Resource Plan and Water Recovery Study

10/17/2017 16

Project Identification – Lakes and Reservoirs

- Planned Projects →
- Opportunity Analysis
  - Other lakes fed by:
    - NHDplus stream, or
    - Storm drain
  - Potential to recover additional runoff via:
    - Percolation to a water supply aquifer
    - Capture and use
    - Diversion to sanitary sewer
    - Optimization
  - In-channel obstructions (e.g., rubber dams) not considered

Project Identification – Storm Drain Diversions to Sanitary Sewer

- Planned Projects
  - M1W
    - New Monterey urban diversion to Reeside pump station
    - Del Monte Blvd and Bay Ave outfall diversion to Seaside pump station
  - CAWD
    - Carmel Bay ASBS Project
- Opportunity Analysis
  - Storm drains near sanitary sewer pump stations

3

Project Identification – Infiltration to Aquifers

- GIS analysis to identify public/private parcels (and ROW) feasible for infiltration into water supply aquifers
  - Aquifer locations
  - Underlying soil type
  - Infiltration hazards
  - Depth to Groundwater
  - Set-backs
  - Undeveloped Parcels
- Other considerations
  - Hydrogeological
  - Riparian connectivity

Project Identification – Capture and Use

- Planned projects
  - Cistern water tank rebates
- GIS analysis to identify public and private parks/fields
  - Irrigated with potable water
  - Proximity to storm drain
  - Drainage area size, and
  - Space/physical considerations; onsite storage capacity

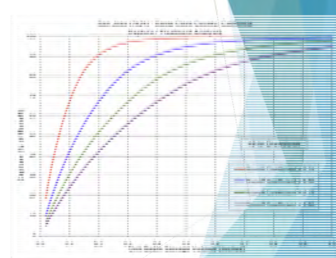
Photo Credit: LADWP

Project Feasibility Characteristics

- Water supply
- Planning level cost
- Ease of implementation

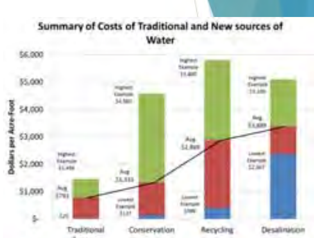
Project Feasibility – Water Supply

- Categories: 10s, 100s, or 1,000s AFY
- Wet weather runoff
  - Catchment hydrology
  - Facility configuration and drawdown
  - % Capture = f (runoff coefficient, DD time, unit basin storage)
  - Potential water supply = % Capture * Annual volume
- Dry weather runoff
  - Extrapolate from available studies and Pacific Grove ASBS project data



Project Feasibility – Planning Level Cost

- Categories ($/AF)
- Analogy from previously implemented and evaluated projects
- Rough conceptual screening cost estimates for subset of projects



Project Feasibility – Ease of Implementation

- Financing
  - Project cost: $10Ks, $100Ks, $1Ms, $10Ms
- Seasonality vs. Demand
  - Diversion to sanitary sewer during wet season? (Yes, Partially, No)
- Complexity of Permitting

Summary of Work to be Completed Prior to TAC #3

- SWRP Project Identification, Metrics-Based Evaluation, and Prioritization
  - List of SWRP Projects - Scored and Ranked (Grant Task 4.5)
- Water Recovery Study Project Identification, Evaluation
  - Matrix of WRS Project Evaluation Findings
- Stakeholder Meeting #2 (Grant Task 6.1.2)

Goals for TAC Meeting #3

- Review identified projects
- Select seven projects for 10% concept design (2 of which must be Water Recovery Study projects)
- Select one project for 30% design (Water Recovery Study project)
- Discuss Implementation Strategy

Stormwater Resource Plan for the Monterey Peninsula, Carmel Bay, and South Monterey Bay Integrated Regional Water Management Planning Region

Technical Advisory Committee (TAC) Meeting #3

Thursday, February 22, 2018
10:00 am – 1:00 pm

Monterey One Water Conference Room
5 Harris Court, Building D, Monterey, CA

Call-in Option/GoToMeeting Link:
Phone: 855-266-3436/ Access Code: 81350
https://global.gotomeeting.com/join/774335109

AGENDA

MEETING OBJECTIVES:

- *Update TAC members on SWRP task activity since the last TAC meeting.*
- *Receive TAC input on the implementation strategy for the SWRP.*
- *Provide TAC members with an overview of the Water Recovery Study findings.*
- *Update TAC members on the preliminary SWRP project list and prioritization results.*
- *Solicit TAC input on and approval of the selected projects for conceptual design.*

10:00 am	1.	Welcome/Introductions	Jeff Condit (Monterey One Water)
10:05 am	2.	Additions or Revisions to the Agenda	Jill Bicknell (EOA)
10:10 am	3.	Update on SWRP Task Activity • Update on activity during Nov. 2017 – Jan. 2018 • Summary of deliverables submitted, under review, and in progress	Lisa Welsh (Geosyntec)
10:25 am	4.	Implementation Strategy Memo Discussion • Review of outline and input from TAC	Jill Bicknell
10:45 am	5.	Overview of Water Recovery Study Findings	Lisa Welsh
11:05 am	6.	Task 4 - Project Identification, Prioritization and Analysis • Summary of preliminary project list and prioritization results • Outcomes from Stakeholder meeting	Lisa Austin / Lisa Welsh (Geosyntec)

11:30 am	BREAK		
11:45 am	7.	Selection of Projects for Concept Design • Selection process and recommendations • TAC input and approval of final selection	Lisa Austin/ Lisa Welsh
12:45 pm	8.	Review Action Items	Jill Bicknell
1:00 pm	9.	Adjourn	

Stormwater Resource Plan for the Monterey Peninsula, Carmel Bay, and South Monterey Bay Integrated Regional Water Management Planning Region

Technical Advisory Committee (TAC)
Meeting #3

Thursday, February 22, 2018
10:00 am – 1:00 pm

MEETING SUMMARY

Participants – Attendance list attached.

1. Welcome/Introductions

   Jeff Condit (Monterey One Water) welcomed TAC participants and informed them that the purposes of today's meeting are to: update TAC members on SWRP task activity since the last TAC meeting; receive TAC input on the implementation strategy for the SWRP; provide TAC members with an overview of the Water Recovery Study findings; update TAC members on the preliminary SWRP project list and prioritization results; and solicit TAC input on and approval of the selected projects for conceptual design. Attendees introduced themselves.

2. Additions or Revisions to the Agenda

   There were no additions or revisions to the agenda. Jill Bicknell (EOA) reviewed the handout materials, all of which had been sent to the TAC prior to the meeting.

3. Update on SWRP Task Activity

   Lisa Welsh (Geosyntec) reviewed the consultant team's task activity during November 2017 through January 2018, and the summary of grant deliverables (Slide 4 of the TAC PowerPoint presentation, attached). Larry Hampson asked if there was a place to find all the deliverables that had been submitted. Lisa said Geosyntec would set up a dropbox folder or equivalent containing all deliverables produced to date, that could be accessed by TAC and MRSWMP members. The draft SWRP will be posted on the MRSWMP website for public review in May.

4. Implementation Strategy Memo Discussion

   Jill reviewed a proposed outline of the Implementation Strategy section of the SWRP, which addresses the requirements in the State Board's SWRP Guidelines (Slides 6-10), and explained that the purpose of this agenda item is to obtain TAC input on the content of the Strategy. Although the Strategy is a chapter of the SWRP, a memo on the draft Implementation Strategy is a separate grant deliverable. TAC comments included the following:

   - Incorporation into the IRWMP -- The consultant team should coordinate with the Regional Water Management Group (RWMG) to define the process for incorporation of the SWRP into the Monterey Peninsula IRWMP. The RWMG is the entity tasked with developing and implementing the IRWMP, reviewing projects submitted to the plan, and choosing which projects to put forward for funding. The public draft of the SWRP should be introduced to the RWMG at an August meeting and the process for incorporation confirmed. The final SWRP will be completed by September 30, 2018, and should be incorporated into the IRWMP by December. SWRP projects can be submitted for IRWM scoring through the IRWM solicitation process.

- Maintaining and Updating the SWRP -- The TAC discussed whether the RWMG or MRSWMP should be responsible for maintaining and updating the SWRP. As part of the IRWMP, the SWRP could be updated on the same schedule as the IRWMP, using the same public process. However, it may make more sense for a stormwater-focused organization like MRSWMP to maintain and update the SWRP separately (in coordination with the IRWMP), in a way that is more responsive to stormwater regulatory requirements and issues/interests.
- Performance Measure Tracking – The TAC discussed the potential use of TELR, possibly supplemented with other spreadsheet tools, to track implementation of projects and benefits achieved. Current Water Management District tracking tools for water supply well locations and monitoring could also be considered. Larry mentioned the need to coordinate with the Seaside Water Master for approval to extract recharged water. The TAC discussed the need for having a way to monitor and get credit for either stormwater diversion to sanitary or recharge to the aquifer.
- Other Comments -- Rachid Ait-Lasri informed the TAC that the solicitation for grant proposals for Round 2 of the Prop 1 Stormwater Grants is expected to be released in the first half of 2019, and no revisions to the guidelines are expected. Dominic Roques commented that the next version of the Phase II permit will likely mention the importance of public involvement and integration of stormwater program efforts with SWRPs and IRWMPs and their public processes. Sarah Hardgrave mentioned that DWR met with the Central Coast IRWMs yesterday and suggested having a workshop in late spring on the topic of integrated water management planning and public involvement.

5. Overview of Water Recovery Study (WRS) Findings

The draft WRS was provided to the TAC for review on February 16 and comments are due on March 2. Lisa Welsh provided an overview of WRS findings, including graphics displaying identified opportunities by jurisdiction and by net recovered water volume (Slides 12-14). Lisa explained that the WRS looked only at water supply project opportunities (capture and use, infiltration to a water supply aquifer, diversion to sanitary sewer, and lake/reservoir storage), whereas the SWRP identified opportunities for infiltration for water quality benefits as well. She noted that the diversion projects were limited by sanitary sewer capacity, and it was assumed that diversions would be primarily dry weather flow, unless there was an opportunity for storage upstream. Larry commented that in winter months, nearly 7 MGD of treated water is being discharged to the Bay due to lack of demand for recycled water during the winter. There is also a need to expand the recycled water project as a potential means of developing additional replacement supplies for the Monterey Peninsula to satisfy the requirements of the SWRCB CDO concerning Carmel River diversions and the requirement by the Superior Court adjudication of the Seaside Groundwater Basin to reduce pumping of native groundwater to the Physical Safe Yield. Judd added that the WRS distinguished wet weather supply from dry weather supply benefits.

6. Task 4 - Project Identification, Prioritization and Analysis

   a. Summary of preliminary project list and prioritization results

      Lisa Welsh provided a summary of the progress to date on the database of project opportunities, preliminary scoring, ranking by the MRSWMP jurisdictions, and the resulting total metrics-based scores (Slides 16-19). A Google Earth file was also developed to show project opportunity locations. Lisa Austin asked the TAC if any project opportunities should be deleted from the database (which will be appended to the SWRP), and the TAC agreed that none should be deleted unless a specific request to delete had been provided by a jurisdiction.

   b. Outcomes from Stakeholder meeting

      Lisa Welsh described Stakeholder Meeting #2, which was held on February 8, 2018 to present the prioritized list of project opportunities and get stakeholder input for identifying projects for conceptual design. The meeting summary and a table of stakeholder comments were distributed to the TAC. The top project characteristics important to stakeholders were: 1) water supply benefits; 2) synergy of project with upcoming projects; 3) project was part of larger restoration or watershed improvement plans; and 4) water quality benefits. The key comments from stakeholders were: 1) develop a more user-friendly version of the project opportunities table; and 2) ensure that project implementation is a collaborative effort and that identified projects compliment and not conflict with each other. Additional information was also received on several Carmel project opportunities, which was used to update the project database.

7. Selection of Projects for Concept Design

   a. Selection process and recommendations

      Lisa Welsh explained that the SWRP scope of work includes development of seven projects at 10% conceptual design, and development of one of the seven projects at 30% conceptual design. The consultant team developed a list of the suggested top seven projects, as well as nine alternative projects, that represent jurisdiction and project type diversity (Slides 24 and 25). The selection of the top and alternative projects was based on the list of the top 2% of projects in each jurisdiction (based on scores and ranks), stakeholder comments, and largest water supply benefits.

b. TAC input and approval of final selection

Each suggested top project and alternative project and its associated benefits were discussed with the TAC in detail. From the original list of seven top projects, the TAC agreed to eliminate the Del Rey Oaks Capture and Use Project at City Hall and the Sand City Contra Costa Street Green Street Project because they did not provide water supply benefits (the TAC's and stakeholders' highest priority). These were replaced with two alternative projects: City of Seaside Del Monte Blvd Diversion Project and the City of Monterey Hartnell Gulch Diversion Project. These are consistent with the TAC's expressed priority to divert more dry weather flows to sanitary to help meet dry weather recycled water demands. The Carmel diversion project was modified based on comments from the City of Carmel-by-the-Sea (Agnes Topp) prior to the meeting. In addition, the TAC agreed to limit the Dry Well Catch Basin Retrofit Program to areas with infiltration above the Seaside groundwater basin. Jeffrey Albrecht clarified that programmatic projects like the Dry Well Catch Basin Retrofit Program can be included in the SWRP, although they may need a different method of scoring for multiple benefits.

The final list of top projects for 10% design is attached. The TAC agreed that the El Estero Lake Reservoir Project was the #1 project for 30% design because it offered a large amount of potential storage capacity (>100 AF/yr) and proximity to a sanitary sewer for diversion.

8. Review Action Items

As described in the summary of deliverables and reviews, the following products will be completed by the consultant team prior to TAC Meeting #4 (see Slides 4 and 27):

- Draft SWRP Implementation Strategy
- Prioritized Projects Technical Memorandum
- Administrative Draft SWRP and Self-Certification Checklist
- Draft 10% level designs of top seven projects

Technical Advisory Committee (TAC) Meeting #3

February 22, 2018

Attendance List

Name	Organization
Scott Ottmar	City of Seaside
Jeff Krebs	City of Monterey
Tom Harty	County of Monterey Resource Management Agency
Jeff Condit	Monterey One Water
Larry Hampson	Monterey Peninsula Water Management District
Jill Bicknell	EOA, Inc. (consultant to Monterey One Water)
Lisa Welsh	Geosyntec (consultant to Monterey One Water)
Lisa Austin	Geosyntec (consultant to Monterey One Water)
Diana Staines	Denise Duffy & Assoc. (consultant to Monterey One Water)
Sarah Hardgrave (phone)	Big Sur Land Trust
Dominic Roques (phone)	Regional Water Quality Control Board, Central Coast Region
Jeffrey Albrecht (phone)	State Water Resources Control Board
Rachid Ait-Lasri (phone)	State Water Resources Control Board
Judd Goodman (phone)	Geosyntec (consultant to Monterey One Water)
Denise Duffy (phone)	Denise Duffy & Assoc. (consultant to Monterey One Water)

Top 7 Projects for Conceptual Design

Project ID	Project Name	Proponent	Rank	Score	Project Category	Estimated Water Volume Recovered, AFY
LR_04	**El Estero Lake**	**Monterey**	**1**	**12**	**Lake or Reservoir**	**100+**
Modified DSS_08 (Scenic and 8th)	South Carmel and 4th Avenue Dry Weather Diversion with CAWD holding tank	Carmel-By-The-Sea, CAWD	1	10 and 11	Diversion to Sanitary Sewer	20-100
LR_02	David Ave Reservoir	Pacific Grove	1	15	Lake or Reservoir	10-20
planned_51	Hartnell Gulch	Monterey	3	21	Diversion to Sanitary Sewer	100+
planned_19	Del Monte Manor	Seaside	1	22	Infiltration to a Water Supply Aquifer	10-20
DSS_06 (Seaside Pump Station #23)	Del Monte Blvd Storm Drain Diversion	Seaside	2	12	Diversion to Sanitary Sewer	100+
INF_DW_SEA	Dry Well Catch Basin Retrofit Program	Seaside	Programmatic Project (total numeric score and rank not applicable at this time)		Infiltration to a Water Supply Aquifer	20-100

Monterey Peninsula Stormwater Resource Plan

TAC Meeting #3

22 February 2018

TAC Meeting #3 Agenda

- 1. Welcome/Introductions
- 2. Additions or Revisions to the Agenda
- 3. Update on SWRP Task Activity
- 4. Implementation Strategy Memo Discussion
- 5. Overview of Water Recovery Study Findings
- 6. Project Identification, Prioritization and Analysis
- 7. Selection of Projects for Concept Design
- 8. Review Action Items

3. Update on SWRP Task Activity

Summary of Grant Deliverables

Grant Item #	Description / Submittal	Final Draft to State	Submittal Status
2.2	Agenda, Notes for 2nd TAC Meeting	11/24/2017	Submitted
2.2	Agenda, Notes for 3rd TAC Meeting	03/30/2018	In progress
3.1	Annotated List of Plans and Reports	11/24/2017	Submitted
3.1	Database of Planned Projects	Discussion	Completed
3.1	Summary of Data Received	11/24/2017	Submitted
4.4.1	Technical Memo on Water Recovery Study Approach	11/27/2017*	Completed
4.4.1/2	Technical Memo on Modeling Tools and Methodologies	11/24/2017	Submitted
4.5	Results of Analysis, Prioritization, and Project Selection (Prioritized Projects Technical Memorandum)	3/30/2018	In progress
4.5	Water Recovery Study Results (Report)	3/16/2018*	Draft Completed
4.6.3	Technical Memo on Draft Implementation Strategy	3/30/2018	In progress
4.7	Administrative Draft SWRP and Self-Certification Checklist	4/30/2018	In progress
6.1.2	Stakeholder Meeting 1 Notes	2017 Q4 Report	Submitted
6.1.2	Stakeholder Meeting 2 Notes	2018 Q1 Report	In progress

*not a grant deliverable

4. Implementation Strategy Memo Discussion

SWRP Implementation Strategy Topics*

- Resources for Plan Implementation
- Plan Implementation (Projects and Programs)
- Adaptive Management (Maintaining a Living Document)
- Implementation Performance Measures

*Per SWRCB SWRP Guidelines (2015)

Resources for Plan Implementation

- Projected additional funding needs and sources
  - Estimated costs of concept-designed projects
  - Costs/funding for Water Recovery Study projects
  - Sources: grants, CIP budgets, water rates? Other?
- Schedule for securing "Plan financing for project implementation"?

Project-specific

Plan Implementation

- Timeline for incorporating SWRP into IRWMP
- Identification of specific actions, projects and studies
- Entities responsible for project implementation
- Institutional structure to ensure implementation
- Procedure to track status of each Plan element
- Community participation strategy
- Timelines for active/planned project components
- Strategy for obtaining needed federal, state, and local permits

Project-specific

Adaptive Management

- Living document – ongoing, adaptive program
  - Need clear procedures for updating/adding future projects
  - Reflect current understanding of the watershed and address changing conditions
  - Example updates that may be needed:
    - Re-characterization of water quality priorities
    - Source assessment re-evaluation
    - Effectiveness assessment of projects
    - Updated metrics-based, quantitative analysis of benefits
    - Deleted or new projects
    - Identification of completed projects

Implementation Performance Measures

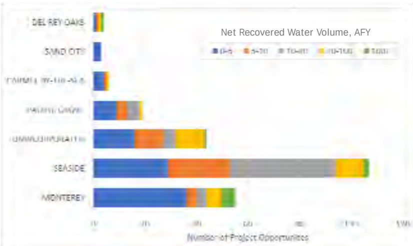
- Document how identified projects will achieve multiple benefits
- Discuss required data, technical analyses and performance measures for the following:
  - Evaluation of expected and actual Plan outcomes
  - Quantification of multiple benefits and environmental outcomes
  - Monitoring/data management systems needed for performance data
  - Mechanisms to adapt Plan and project operations
  - Mechanisms to share performance data with stakeholders

5. Overview of Water Recovery Study Findings

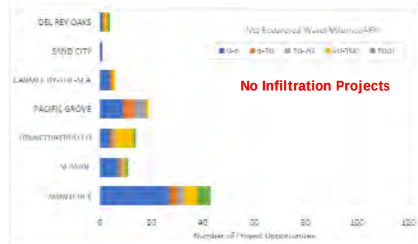
Water Recovery Study Findings Overview

- Draft Report sent to City of Monterey, TAC, and Technical Stakeholders
- 240 potential projects evaluated for water volume recovered and project feasibility
- 4 Project Categories:
  1. Capture and use
  2. Infiltration to a water supply aquifer
  3. Diversion to sanitary sewer
  4. Lake/reservoir
- Resources for project consideration:
  - List of projects with the highest water volume recovered and lowest project cost
  - List of two projects with greatest water volume recovered in each jurisdiction
  - Map of water volume recovered by catchment

Identified Opportunities by Jurisdiction and by Net Recovered Water Volume



Identified Opportunities by Jurisdiction and by Net Recovered Water Volume

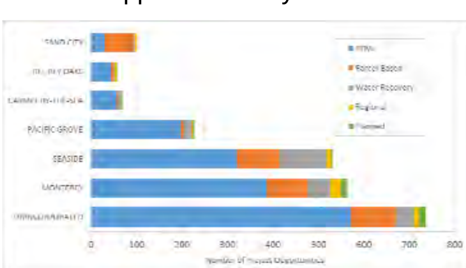


6. Task 4 – Project Identification, Prioritization and Analysis

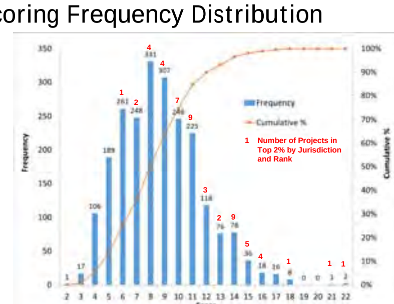
Summary of Deliverables

- Project Database
  - Excel workbook with preliminary scoring of project opportunities
  - Unique db_index code for each project opportunity
  - Editable Fields
    - Project Rank
    - Rank Reasoning
  - Total Score
  - Metric-based multi-benefit scores
- Prioritization instructions memo for Permittees
- Google Earth files of GIS-identified project opportunities and stakeholder projects
  - Identifies locations of Water Recovery Study, Planned, ROW, and Parcel-based, and Regional project opportunities
  - Project opportunities are searchable

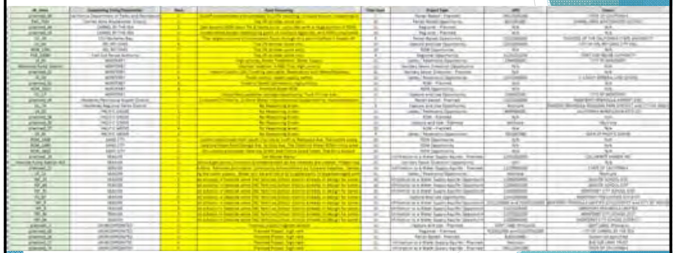
Identified Opportunities by Jurisdiction



Scoring Frequency Distribution



Grant Task 4.5 – Project Identification, Prioritization, and Analysis



Grant Task 6.1.2 – Outcomes from Stakeholder Meeting #2

- Results from sticker voting activity – top project characteristics
  1) Water supply benefits
  2) Synergy of project with upcoming projects
  3) Project part of larger restoration or watershed improvement plans
  4) Water quality benefits
- Stakeholder feedback documented in comment matrix

7. Selection of Projects for Concept Design

Selection of Projects for Concept Design

- Seven projects developed at 10% conceptual design
- One of the seven projects developed at 30% conceptual design
- Resources for project consideration
  - Feedback from Stakeholder Meeting #2
  - List of the top 2% of projects
  - List of projects with the highest water volume recovered and lowest project cost
  - List of two projects with most water volume recovered in each jurisdiction
  - Map of water volume recovered by catchment

Suggested Top 7 Projects

Objective: Jurisdictional and project type diversity among top ranked projects

1. Carmel-By-The-Sea → planned_43 and planned_44 (Carmel, Dry Weather Diversion)
2. Pacific Grove → LR_02 (David Avenue Reservoir)
3. Monterey → LR_04 (El Estero Lake)
4. Del Rey Oaks → CU_84 (Del Rey Oaks City Hall)
5. Seaside → planned_19 (Del Monte Manor Infiltration Project)
6. Sand City → ROW_1658 (Contra Costa Street)
7. County of Monterey → INF_DW_CV (Dry Well Catch Basin Retrofit Program)

Alternative Projects

Objective: Most Water Volume Recovered (100+ AFY)

Monterey
- a) *LR_04 (El Estero Lake) – listed on previous slide*
- b) LR_03 (Del Monte Lake)
- c) LR_12 (Laguna Grande)
- d) DSS_planned_51 (Hartnell Gulch)
- e) DSS_04 (City of Monterey Tunnel & Calle Principal diversion into sanitary sewer)

Seaside
- a) DSS_06 (Del Monte Blvd diversion into sanitary sewer)
- b) INF_DW_SEA (Dry Well Catch Basin Retrofit Program)

Monterey County
- a) DSS_14 (Los Padres Reservoir)

Del Rey Oaks
- a) LR_08 (Monterey Peninsula Regional)

Monterey Peninsula SWRP TAC Meeting #3 3/2/2018 25

8. Review Action Items and Next Steps

Monterey Peninsula SWRP TAC Meeting #3 3/2/2018 26

TAC #4 Discussion Topics

- Prioritized Projects Tech Memo (Grant Task 4.5)
  - Included in 3/30 State Submittal
- Draft Implementation Strategy Tech Memo (Grant Task 4.6.3)
  - Included in 3/30 State Submittal
- Draft Administrative Draft SWRP (Grant Task 4.7)
  - Send to TAC for review by 4/9
- Draft 10% Level Designs (Grant Task 5.1)
  - Send to TAC for review by 4/9

Monterey Peninsula SWRP TAC Meeting #3 3/2/2018 27

Stormwater Resource Plan for the Monterey Peninsula, Carmel Bay, and South Monterey Bay Integrated Regional Water Management Planning Region

Technical Advisory Committee (TAC)
Meeting #4

Thursday, April 12, 2018
10:00 am – 12:00 noon

Monterey One Water Conference Room
5 Harris Court, Building D, Monterey, CA

Call-in Number: 605-475-6711; Access Code: 675-7310
https://global.gotomeeting.com/join/745754045

FINAL AGENDA

MEETING OBJECTIVES:

- *Update TAC members on SWRP task activity since the last TAC meeting.*
- *Receive TAC input on the DRAFT Administrative Draft Stormwater Resource Plan (SWRP).*
- *Update TAC members on the status of preparation of 10% and 30% concept designs of selected projects and receive TAC input on example 10% concept designs.*
- *Solicit TAC input on plans for the public workshop for presentation of the Public Draft SWRP.*

10:00 am	1.	Welcome/Introductions	Jeff Condit (Monterey One Water)
10:05 am	2.	Additions or Revisions to the Agenda	Jill Bicknell (EOA)
10:10 am	3.	Update on SWRP Task Activity • Update on activity during February – April 2018 • Summary of deliverables submitted, under review, and in progress	Lisa Welsh (Geosyntec)
10:25 am	4.	Task 4.7 -- DRAFT Administrative Draft SWRP • Overview of document and key areas for input • Input from TAC review	Lisa Welsh
10:35 am	5.	Task 5.1 – Project Concept Designs • Review of final list of projects for 10% and 30% concept design and selection process • Input from TAC review of example 10% concept designs	Lisa Welsh

11:40 am	6.	Task 6.1.2 -- Public Outreach Meeting (June 2018) • Potential date, time, and location • Meeting format • Pre-meeting outreach plan	Jill Bicknell
11:55 am	7.	Review Action Items	Jill Bicknell
12:00 pm	8.	Adjourn	

Stormwater Resource Plan for the Monterey Peninsula, Carmel Bay, and South Monterey Bay Integrated Regional Water Management Planning Region

Technical Advisory Committee (TAC)
Meeting #4

Thursday, April 12, 2018
10:00 am – 12:00 noon

MEETING SUMMARY

1. Welcome/Introductions

   Jeff Condit (Monterey One Water) welcomed TAC participants and informed them that the purposes of today's meeting are to: update TAC members on Stormwater Resource Plan (SWRP) task activity since the last TAC meeting; receive TAC input on the DRAFT Administrative Draft SWRP; update TAC members on the status of preparation of 10% and 30% concept designs of selected projects and receive TAC input on example 10% concept designs; and solicit TAC input on plans for the public workshop for presentation of the Public Draft SWRP. Attendees introduced themselves.

2. Additions or Revisions to the Agenda

   There were no additions or revisions to the agenda.

3. Update on SWRP Task Activity

   Lisa Welsh (Geosyntec) reviewed the consultant team's task activity during March and April 2018, and the summary of grant deliverables to date and in progress (Slide 5 of the TAC PowerPoint presentation, attached). She also reviewed the items for TAC review in April and May (Slide 6). The TAC's current focus for review is the DRAFT Administrative Draft SWRP. Comments are due by April 23. TAC members will have another opportunity to review the Admin Draft after it is submitted on April 30 and before the Public Draft is completed (May 31).

   Dominic Roques (Central Coast Regional Water Board) asked about the CEQA process for the SWRP and the 30% concept design for the Hartnell Gulch project. Lisa explained that the SWRP itself is exempt from CEQA but there will be a CEQA checklist prepared for the Hartnell project and included in the Public Draft SWRP. Larry Hampson (Monterey Peninsula Water Management District) asked if a CEQA initial study was required prior to submitting a project for a Prop 1 implementation grant. Rachid Ait-Lasri (State Water Board Grant Manager) confirmed that CEQA documentation is not required as part of the grant application; however, completion of some or all of the CEQA process for a project will improve project scoring (as it is a measure of project readiness).

4. Task 4.7 -- DRAFT Administrative Draft SWRP

Lisa reviewed the outline of the Admin Draft SWRP sections (Slide 8). She recommended that TAC members conduct a high level review, since they have already reviewed most of the content in the form of technical memoranda. The key items for input at this point are the project concepts.

Larry asked if the issue of excess wet weather flows and options for capture and use would be described in the SWRP. Judd Goodman (Geosyntec) said that options for improvements to water and wastewater infrastructure, that would allow for additional runoff capture, will be included in Section 4 of the Water Recovery Study (WRS). The section will describe what can be done with current infrastructure and with future enhancements. Lisa added that another option for capturing wet weather flows is the proposed drywell program. It was agreed that capturing wet weather flows is a lower priority than diverting dry weather flows.

5. Task 5.1 – Project Concept Designs

Lisa presented the final list of projects for 10% and 30% concept design (Slide 11) and described that the list of projects was finalized through email communication with the TAC over the weeks following the last TAC meeting. Maps were prepared for each project concept, included contributing drainage area and key features, and a template for describing the projects in the SWRP was provided (using the Hartnell Gulch project as an example). Lisa noted that all project descriptions will be provided to project proponents for review before including them in the Public Draft SWRP.

Lisa described the details of each project considered for the 10% concept design, and the TAC provided the following input:

<u>Hartnell Gulch</u>

- Dominic - It may be difficult to get permits to put fill in the creek. It might be a good idea to bring in Fish & Game staff and Central Coast Regional Water Board 401 Certification staff (contact Phil Hammer). He also suggested that options for creek restoration be investigated. Judd – portions of the canyon are narrow with steep banks.
- Sarah Hardgrave (Big Sur Land Trust) – look at opportunities to widen channel banks and add wetlands. Also suggested including permeable paving in parking lot near Pacific. Photographs of the area would be helpful.
- Diana Staines (Denise Duffy & Associates) – will trails and signage be part of the project? Jeff – possible locations for trails and signs will be indicated, but not designed.
- Dominic – the write-up in the template for the Hartnell project needs to be improved.
- Larry – Can the template include cross sections? Judd – templates are for 10% design; cross sections will be included in the 30% concept design.

- Sarah – consider a CDS unit or other measure to collect sediment upstream of the diversion structure and maintenance costs.
- Dominic – a 30-year planning horizon should include consideration of climate change impacts. Judd – it would be difficult to consider climate change without looking at specific model results for the location because climate predictions are model dependent. The 30-year life cycle cost estimate would provide a range that indirectly accounts for climate change impacts.
- Larry – there was a USGS climate change study done for the Carmel River watershed which could be a good reference.
- Judd – Excess capacity in the sanitary sewer needs to be known in order to define the rate of diversion.

<u>Lake El Estero</u>

- Judd – the 10% design is consistent with the project in the EIR. A new aspect being investigated is the ability to store additional wet weather flow. Estimates of runoff recovery volume will be provided assuming both existing infrastructure constraints (divert during the dry season only) and potential future infrastructure improvements (divert at any time of year, but not during or immediately following storm events)

<u>Monterey Tunnel and Calle Principal Stormwater Diversion</u>

- Discussed different diversion locations.
- Jennifer Gonzalez (Monterey One Water) – connection to the Monterey One Water interceptor pipeline requires a flow meter. Gravity connections from storm drain to sanitary sewer are not an option; diversions would have to be pumped.
- Judd – Excess capacity in the sanitary sewer needs to be known in order to define the rate of diversion. Jeff Krebs had mentioned previously he was going to get metering data of seepage flows that can be diverted during the dry season.

<u>David Avenue Reservoir</u>

- A stormwater management project that included David Avenue Reservoir was completed by Fall Creek Engineering in 2014 and included a 40% design. A follow up study is underway by the Wallace Group to revise/update analyses from the Fall Creek report. Work by Wallace will not be completed in time for inclusion in the SWRP but Geosyntec will make sure that their data and calculations are consistent with what Wallace is using.
- Judd – will need feedback from the TAC on sanitary sewer capacity, which may dictate the rate of discharge to the sanitary sewer, if this is the preferred option over discharging to the storm drain.
- Sarah – there have been improvements in the storm drainage infrastructure downstream of the project, including installation of trash capture devices, that should be considered.

Del Monte Manor Park

- Lisa – the concept is to use a vegetated swale to direct runoff to a rain garden in the corner of the park, which would then discharge to an infiltration well.
- Scott – will run the concept by other staff. There may be other storm drains in the area that can be diverted.

Dry Well Aquifer Recharge Program

- Lisa – the concept is to divert storm drains to infiltration wells with pretreatment. Depths to groundwater are 30 to 60 feet in the area. The most downstream locations were selected to capture the largest drainage areas. Locations are indicated as parcel-sized, but they only require an area the size of a parking stall. They can be installed in the public right of way, such as under a sidewalk. Some locations may require several drywells in combination.
- Sarah – How often does the pretreatment chamber need to be maintained? Lisa – approximately once per year on average. Sarah – make sure there is access for maintenance.
- Scott – note that some of the streets convey a lot of surface runoff; it is not all piped flow. Lisa – could look at two options, capturing street flow and diverting piped flow.
- Scott – interested in draining street runoff from Hilby Ave and Kimball Ave to a bioretention facility that could also be used for traffic calming.

South Carmel and 4th Avenue Dry Weather Diversion

- Lisa – Project concept is storm water diversion to the sewer main along San Antonio Ave. Concept will also mention a larger potential project that would include construction of a new stormwater pipe along San Antonio and a new dedicated stormwater holding tank at Rio Park (behind the Mission and Larson Field). Water demand is in the dry and wet season for golf course irrigation in Del Monte Forest (Pebble Beach).

6. Task 6.1.2 -- Public Outreach Meeting (June 2018)

   a. Potential date, time, and location

   Lisa explained that the Public Draft will be released by May 31, which would make a mid-June date appropriate. Jeff Condit said that Jeff Krebs is looking into the use of either the Monterey Convention Center (first choice) or Monterey City Council Chambers. It would be an evening meeting, about one hour in duration.

   b. Meeting format

   It was suggested that the format consist of a brief presentation followed by an opportunity for the public to walk around to different stations at which exhibits describing the concept projects were displayed. It was also suggested that exhibits be prepared with basic information on the water needs of the region and how the projects will help to augment water supply. A translator will be available at the meeting (Diana and Sarah can provide contacts).

c. Pre-meeting outreach plan

- The Public Draft SWRP will be posted on the www.montereysea.org website. Other organizations (e.g., IRWM, MWD) will be asked to post links to the document.
- A bilingual flyer will be developed, and released about 2 weeks before the meeting. TAC members and MRSWMP agencies will help post the flyer in public places (e.g., city halls and libraries) and online. The flyer will also be emailed to the stakeholder list.
- An advertisement will be developed and placed in the Monterey County Weekly. The City of Monterey will help post a notice on Next Door.

7. Action Items

- TAC members will provide comments on the DRAFT Admin Draft by April 23.
- Geosyntec will work with project proponents to address project issues and complete the 10% concept designs in May and the 30% concept design in June.
- Jeff Condit will work with Jeff Krebs to identify a date, time and location for the public workshop.
- EOA will develop the public workshop flyer and send to Jeff Condit by May 31. EOA will also look into placing an ad in the Monterey County Weekly.
- Diana and Sarah will provide contacts for Spanish translators to EOA.
- The project team will schedule TAC Meeting #5 for late July.

Technical Advisory Committee (TAC) Meeting #4

April 12, 2018

Attendance List

Name	Organization
Scott Ottmar	City of Seaside
Richard Lancero	City of Monterey
Tom Harty (phone)	County of Monterey Resource Management Agency
Jeff Condit	Monterey One Water
Jennifer Gonzalez	Monterey One Water
Larry Hampson	Monterey Peninsula Water Management District
Sarah Hardgrave	Big Sur Land Trust
Dominic Roques (phone)	Regional Water Quality Control Board, Central Coast Region
Rachid Ait-Lasri (phone)	State Water Resources Control Board
Lisa Welsh	Geosyntec (consultant to Monterey One Water)
Judd Goodman	Geosyntec (consultant to Monterey One Water)
Lisa Austin (phone)	Geosyntec (consultant to Monterey One Water)
Jill Bicknell (phone)	EOA, Inc. (consultant to Monterey One Water)
Diana Staines	Denise Duffy & Assoc. (consultant to Monterey One Water)

Monterey One Water
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Water Boards

Geosyntec consultants
engineers | scientists | innovators

EOA inc.

DD&A

Monterey Peninsula Stormwater Resource Plan

TAC Meeting #4

12 April 2018

Monterey One Water
Providing Cooperative Water Solutions

TAC Meeting #4 Agenda

- 1. Welcome/Introductions
- 2. Additions or Revisions to the Agenda
- 3. Update on SWRP Task Activity
- 4. Administrative Draft SWRP
- 5. Project Concept Designs
- 6. Public Outreach Meeting (June 2018)
- 7. Review Action Items

Monterey One Water
Providing Cooperative Water Solutions

2. Additions or Revisions to the Agenda

Monterey One Water
Providing Cooperative Water Solutions

3. Update on SWRP Task Activity

Monterey One Water
Providing Cooperative Water Solutions

Summary of Grant Deliverables

Grant Item #	Description / Submittal	Final Draft to State	Submittal Status
2.2	Agenda, Notes for 3rd TAC Meeting	3/29/2018	Submitted
2.2	Agenda, Notes for 4th TAC Meeting	4/30/2018	In progress
4.5	Results of Analysis, Prioritization, and Project Selection (Prioritized Projects Technical Memorandum)	3/29/2018	Submitted
4.5	Water Recovery Study Report	3/30/2018*	Final Draft Completed
4.6.3	Technical Memo on Draft Implementation Strategy	3/29/2018	Submitted
4.7	Administrative Draft SWRP and Self-Certification Checklist	4/30/2018	In progress
4.8	Public Draft SWRP with 10% Concept Designs & CEQA	5/31/2018	In progress
6.1.2	Stakeholder Meeting 2 Notes	2018 Q1 Report	In progress

*not a grant deliverable

Monterey One Water
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Items for TAC Review

Grant Item #	Description / Submittal	Final Draft to State	Submittal Status
2.2	Agenda, Notes for 3rd TAC Meeting	3/29/2018	Submitted
2.2	Agenda, Notes for 4th TAC Meeting	4/30/2018	In progress
4.5	Results of Analysis, Prioritization, and Project Selection (Prioritized Projects Technical Memorandum)	3/29/2018	Submitted
4.5	Water Recovery Study Report	3/30/2018*	Final Draft Completed
4.6.3	Technical Memo on Draft Implementation Strategy	3/29/2018	Submitted
4.7	Administrative Draft SWRP and Self-Certification Checklist	4/30/2018	In progress
4.8	Public Draft SWRP with **10% Concept Designs & CEQA**	5/31/2018	In progress
6.1.2	Stakeholder Meeting 2 Notes	2018 Q1 Report	In progress

4. Administrative Draft SWRP

Administrative Draft SWRP Outline

- 1. Introduction
- 2. Organization, Coordination, and Collaboration
- 3. Watershed Identification
- 4. Water Quality Compliance
- 5. Quantitative Methods for Identification and Prioritization
- 6. Identification and Prioritization of Projects
- 7. Implementation Strategy and Schedule
- 8. Education, Outreach, and Public Participation

Administrative Draft SWRP Appendices

- A – Self Certification Checklist
- B – TAC Meeting Summaries
- C – Annotated List of Data and Plans
- D – Water Recovery Study Report
- E – Planned Project Data Request and SWRP Project Database
- F – Project Concepts (May)
- G – CEQA Checklist (May) & 30% Project Concept (June)
- H – Stakeholder Outreach Plan and Meeting Summaries

5. Project Concept Designs

Concept Projects

Project Name	Project Proponent	Project Type	Project Description
Hartnell Gulch	**Monterey**	**Diversion to sanitary sewer and creek restoration project**	**Install two pumps to divert underground seepage into the sanitary sewer as well as stream restoration to improve the riparian corridor.**
Lake El Estero	Monterey	Lake project with diversion to sanitary sewer	Install diversion valve from box culvert on north side of the lake to divert flows into the sanitary sewer.
Tunnel and Calle Principal Stormwater Diversion	Monterey	Diversion to sanitary sewer project	Install diversion pump for underground seepage and divert to the sanitary sewer.
South Carmel and 4th Avenue Dry Weather Diversion	Carmel-by-the-Sea	Diversion to sanitary sewer project	Divert dry weather runoff and small wet weather flows to the sanitary sewer for treatment and reuse for golf course irrigation.
David Ave Reservoir	Pacific Grove	Reservoir project with diversion to sanitary sewer	Store and divert runoff to the sanitary sewer.
Del Monte Manor Park Infiltration	Seaside	Regional infiltration project	Open space park improvements and flood management to infiltrate runoff from the surrounding right-of-way.
Dry Well Aquifer Recharge Program	Seaside with support from regional partners	Infiltration to domestic supply aquifer program	Divert flows from the storm drain network into a water quality pretreatment system that will discharge to a dry well above the domestic supply aquifer.

6. Public Outreach Meeting

Public Outreach Meeting

- Logistics: Date (mid June), Time, Location
- Meeting Format
- Pre-Meeting Outreach Plan
  - Posting of the Admin Draft SWRP
    - Online Version
    - Print Copy
  - Bilingual Flyer (distributed via email and community center postings)

8. Review Action Items and Next Steps

TAC Meeting #5 – Late July

- Response to Comments on Public Draft SWRP
- Response to Comments on CEQA Checklist

Stormwater Resource Plan for the Monterey Peninsula, Carmel Bay, and South Monterey Bay Integrated Regional Water Management Planning Region

Technical Advisory Committee (TAC)
Meeting #5

Monday, August 13, 2018
10:00 am – 12:00 noon

Conference Call Only

MEETING SUMMARY

1. Welcome/Introductions

   Jeff Condit (Monterey One Water) welcomed TAC participants and informed them that the purposes of today's meeting are to: update TAC members on Stormwater Resource Plan (SWRP) task activity since the last TAC meeting; receive TAC input on responses to comments on the Public Draft SWRP; update TAC members on the 30% design for the Hartnell Gulch Project and receive input; and discuss next steps and remaining deliverables through the end of the project. Attendees introduced themselves.

2. Additions or Revisions to the Agenda

   There were no additions or revisions to the agenda.

3. Update on SWRP Task Activity

   Kelly Havens (Geosyntec) reviewed the consultant team's task activity during May – August 2018, and the summary of grant deliverables to date and in progress.

4. Task 4.7 -- Public Draft SWRP

   Lisa Welsh (Geosyntec) provided an overview of the Public Meeting held on June 27, 2018 to present the SWRP to the public. The meeting was well attended. The meeting included an update on the SWRP process, IRWMP process, and presentation of conceptual project designs. The meeting was video recorded and the recording is posted on the MontereySEA.org website.

   Kelly said that a Draft Responses to SWRP Public Comments Matrix was e-mailed to the TAC for review. The matrix includes a summary of the public comments received at the public meeting, as well as written comments received during the public comment period. She provided an overview of the following comments that will lead to some changes in the SWRP, and asked for the TAC's input:

- In response to a comment, all statements referring to removal of urban pollutants associated with urban flows will be revised to replace “removal” with “treatment”. The TAC agreed with this response.
- Three projects for which Conceptual Designs were prepared propose to use stormwater runoff to help recharge the Seaside Groundwater Basin. One public comment noted that additional permits may be needed from Seaside Basin Watermaster. Kelly asked if it would be appropriate to include additional language to the SWRP stating that implementation of these projects would require filing a storage application and obtaining a permit from the Seaside Basin Watermaster in order to authorize the recharge to be performed. Scott Ottmar (Seaside) noted that these projects propose using green infrastructure facilities, and should not require additional permitting. Dominic Roques (Regional Water Board) supported Scott’s statement.
- A comment was received at the public meeting and stakeholder meetings noting that agencies should ensure that project implementation is a collaborative effort, and identified projects should not be in conflict with each other. Kelly informed the TAC that project footprints do not overlap; however, project drainage areas may overlap. Overlapping drainage areas were identified in the Water Recovery Study as described in Appendix D of the SWRP. Prior to moving forward with project design, overlapping drainage areas may need to be considered. However, this level of coordination is outside of the SWRP Scope of Work. The TAC agreed with this response.
- Tom Reeves submitted a number of questions and comments on the Public Draft SWRP and Water Recovery Study. The TAC agreed that all of his questions are good ones, but addressing most of them is outside of the scope of work for the SWRP. There are policy questions related to economic analysis, distribution of benefits to the community, interagency agreements, and water rights that will need to be addressed as projects are implemented. In response to his question about the cities achieving the goal of “zero discharge”, Sarah Hardgrave (Big Sur Land Trust) suggested clarifying that this goal is specific to dry weather flows being discharged to an Area of Special Biological Significance (ASBS). Sarah offered to set up a meeting with Alison Imamura, Larry Hampson, Jeff Krebs, and others to discuss how to address some of the policy questions. Kelly said she would edit the matrix and send it to the group in advance of the meeting.

5. Task 5.1 – Project Concept Designs – Update on 30% Design for Hartnell Gulch

- Kelly reviewed the design details for the Hartnell Gulch project and the implementation plan. Dominic Roques (Regional Water Board) had the following comments:

- With the high flow diversion eliminated, did the design try to address the effects of high flows on the channel? Kelly replied that grade controls had been added. Jeff Krebs added that raising the channel bed allowed the channel to be wider, which reduces flow velocities, and that channel armoring was also planned.
- Has Geosyntec staff contacted the 401 Certification staff at the Water Board? Kelly replied no, this will be part of the next steps on the project. Dominic encouraged her to contact them as soon as possible to discuss the project.

6. Next Steps and Project Completion

- Kelly reviewed the remaining steps for completion of the project (Slide 15). Key deliverables include completing the Final Draft SWRP by August 31; and completing the Final SWRP and Self-Certification Checklist, the Final 30% Level Design and Project Implementation Plan, and the CEQA Study Final Draft by September 30.

7. Action Items

In addition to the steps described in Item 6 above, other action items included:

- Kelly will revise the response to comments matrix and email it to the TAC, along with a redlined version of the revised SWRP, including the responses to comments.
- Sarah will set up a meeting to discuss policy issues related to SWRP comments.

Technical Advisory Committee (TAC) Meeting #5

August 13, 2018

Attendance List (all by phone)

Name	Organization
Scott Ottmar	City of Seaside
Jeff Condit	Monterey One Water
Alison Imamura	Monterey One Water
Larry Hampson	Monterey Peninsula Water Management District
Jeff Krebs	City of Monterey
Sarah Hardgrave	Big Sur Land Trust
Dominic Roques	Regional Water Quality Control Board, Central Coast Region
Lisa Welsh	Geosyntec (consultant to Monterey One Water)
Kelly Havens	Geosyntec (consultant to Monterey One Water)
Jill Bicknell	EOA, Inc. (consultant to Monterey One Water)
Vishakha Atre	EOA, Inc. (consultant to Monterey One Water)
Diana Staines	Denise Duffy & Assoc. (consultant to Monterey One Water)

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Monterey Peninsula Stormwater Resource Plan

TAC Meeting #5

August 13, 2018

TAC Meeting #5 Agenda

1. Introductions
2. Additions or Revisions to the Agenda?
3. Update on SWRP Task Activity
4. Public Draft SWRP – Comments Received and Response Discussion
5. Update on 30% Design for Hartnell Gulch
6. Next Steps and Project Completion
7. Review Action Items

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2. Additions or Revisions to the Agenda?

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3. Update on SWRP Task Activity

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Summary of Grant Deliverables – Q2, Q3, Q4 2018

Grant Item #	Description / Submittal	Final Draft to State	Submittal Status
2.2	Agenda, Notes, Sign-In for 4th TAC Meeting	4/30/2018	Submitted
2.2	Agenda, Notes, Sign-In for 5th TAC Meeting	8/31/2018	In progress
4.7	Administrative Draft SRP and Draft Self-Certification Checklist	4/30/2018	Submitted
4.8	Public Draft SRP	6/25/2018	Submitted
4.9	Summary of Comments	7/25/2018	Submitted
4.9	*Responses to Comments (to TAC only)*	*8/8/2018*	*Submitted*
4.1	Final Draft SRP	8/31/2018	In progress*
4.11	Final SRP and Signed Self-Certification and Submittal to State, TAC, and IRWM Group	9/30/2018	In progress
5.1	10% Level Designs - Seven Concepts	6/25/2018	Submitted
5.2	30% Level Design and Project Implementation Plan	9/30/2018	In progress
5.2	CEQA Study Final Draft	9/30/2018	In progress (Complete)
6.1.2	Public Outreach Meeting (Public Draft SWRP)	2018 Q2 Report	In progress

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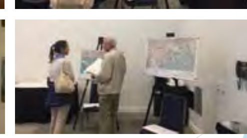
Overview of Public Meeting



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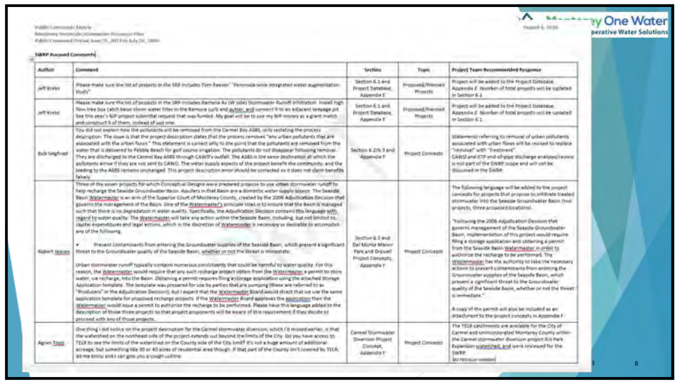
4. Public Draft SWRP – Comments Received and Response Discussion



SWRP Focused Comments

Author	Comment	Section	Topic	Project Team Recommended Response
Jeff Krebs	Please make sure the list of projects in the SRP includes Tom Reeves' "Peninsula-wide integrated water augmentation study".	Section 6.1 and Project Database, Appendix E	Proposed/Planned Projects	Project will be added to the Project Database, Appendix E. Number of total projects will be updated in Section 6.1.
Jeff Krebs	Please make sure the list of projects in the SRP includes Ramona Av (W side) Stormwater Runoff Infiltration. Install high flow tree box catch basin storm water filter in the Ramona curb and gutter, and connect it to an adjacent seepage pit. See this year's NIP project submittal request that was funded. My goal will be to use my NIP money as a grant match and construct 5 of them, instead of just one.	Section 6.1 and Project Database, Appendix E	Proposed/Planned Projects	Project will be added to the Project Database, Appendix E. Number of total projects will be updated in Section 6.1.
Bob Siegfried	You did not explain how the pollutants will be removed from the Carmel Bay ASBS, only restating the process description. The issue is that the project description states that the process removes "any urban pollutants that are associated with the urban flows." This statement is correct only to the point that the pollutants are removed from the water that is delivered to Pebble Beach for golf course irrigation. The pollutants do not disappear following removal. They are discharged to the Carmel Bay ASBS through CAWD's outfall. The ASBS is the same destination at which the pollutants arrive if they are not sent to CAWD. The water supply aspects of the project benefit the community, and the loading to the ASBS remains unchanged. This project description error should be corrected so it does not claim benefits falsely.	Section 6.2/6.3 and Appendix F	Project Concepts	Statements referring to removal of urban pollutants associated with urban flows will be revised to replace "removal" with "treatment". CAWD and ETP end-of-pipe discharge analyses/review is not part of the SWRP scope and will not be discussed in the SWRP.
Robert Jaques	Three of the seven projects for which Conceptual Designs were prepared propose to use urban stormwater runoff to help recharge the Seaside Groundwater Basin. Aquifers in that Basin are a domestic water supply source. The Seaside Basin Watermaster is an arm of the Superior Court of Monterey County, created by the 2006 Adjudication Decision that governs the management of the Basin. One of the Watermaster's principle roles is to ensure that the Basin is managed such that there is no degradation in water quality. Specifically, the Adjudication Decision contains this language with regard to water quality: The Watermaster will take any action within the Seaside Basin, including, but not limited to, capital expenditures and legal actions, which is the discretion of Watermaster is necessary or desirable to accomplish any of the following: • Prevent contaminants from entering the Groundwater supplies of the Seaside Basin, which present a significant threat to the Groundwater quality of the Seaside Basin, whether or not the threat is immediate. Urban stormwater runoff typically contains numerous constituents that could be harmful to water quality. For this reason, the Watermaster would require that any such recharge project obtain from the Watermaster a permit to store water, via recharge, into the Basin. Obtaining a permit requires filing a storage application using the attached Storage Application template. The template was prepared for use by parties that are pumping (these are referred to as "Producers" in the Adjudication Decision), but I expect that the Watermaster Board would direct that we use the same application template for proposed recharge projects. If the Watermaster Board approves the application then the Watermaster would issue a permit to authorize the recharge to be performed. Please have this language added to the description of those three projects so that project proponents will be aware of this requirement if they decide to proceed with any of those projects.	Section 6.3 and Del Monte Manor Park and Dryvell Project Concepts, Appendix F	Project Concepts	The following language will be added to the project concepts for projects that propose to infiltrate treated stormwater into the Seaside Groundwater Basin (two projects, three proposed locations): "Following the 2006 Adjudication Decision that governs management of the Seaside Groundwater Basin, implementation of this project would require filing a storage application and obtaining a permit from the Seaside Basin Watermaster in order to authorize the recharge to be performed. The Watermaster has the authority to take the necessary actions to prevent contaminants from entering the Groundwater supplies of the Seaside Basin, which present a significant threat to the Groundwater quality of the Seaside Basin, whether or not the threat is immediate." A copy of the permit will also be included as an attachment to the project concepts in Appendix F.
Agnes Topp	One thing I did notice on the project description for the Carmel stormwater diversion, which I'd missed earlier, is that the watershed on the northeast side of the project extends out beyond the limits of the City. Do you have access to TELR to see the limits of the watershed on the County side of the City limit? It's not a huge amount of additional acreage, but something like 30 or 40 acres of residential area though. If that part of the County isn't covered by TELR, let me know and I can give you a rough outline.	Carmel Stormwater Diversion Project Concept, Appendix F	Project Concepts	The TELR catchments are available for the City of Carmel and unincorporated Monterey County within the Carmel stormwater diversion project Rio Park Expansion watershed, and were reviewed for the SWRP. No revision needed.

5. Update on 30% Design for Hartnell Gulch

Overview of Proposed Design

- Invasive plants to be replaced with native vegetation
- Bed elevation to be raised to promote public access
  - Drop structure at downstream limit
- Buried stone grade controls located at upstream limits of project, and three bridge crossings
- Dry weather flow to be diverted to sanitary sewer via new manhole in Hartnell Street
  - Diversion includes stop log structure, gravity pipe, hydrodynamic separator, pump station, and forcemain
- High flow bypass stormdrain was found to be infeasible due to high peak design flowrates

Hartnell Gulch Project Implementation Plan

- Introduction/Overview
- Major Implementation Tasks
  - Field Testing
  - Design
  - Permitting/Approval/Reporting
  - Construction
- Suggested Implementation Schedule

6. Next Steps and Project Completion

Summary of Grant Deliverables – Q3, Q4 2018

Grant Item #	Description / Submittal	Final Draft to State	Submittal Status
2.2	Agenda, Notes, Sign-In for 5th TAC Meeting	8/31/2018	In progress
4.1	Final Draft SRP	8/31/2018	In progress*
4.11	Final SRP and Signed Self-Certification and Submittal to State, TAC, and IRWM Group	9/30/2018	In progress
5.2	30% Level Design and Project Implementation Plan	9/30/2018	In progress
5.2	CEQA Study Final Draft	9/30/2018	In progress (Complete)
6.1.2	Public Outreach Meeting (Public Draft SWRP)	2018 Q2 Report	In progress

7. Review Action Items

APPENDIX C
Annotated List of Reviewed Data and Reports

APPENDIX C: ANNOTATED LIST OF REVIEWED DATA AND REPORTS

This SWRP Appendix includes the Annotated List of Reviewed Data and Reports, as required by Grant Task 3.1. The deliverable is organized as follows:

Attachment A: Annotated List of Reviewed Data

The Annotated List of Reviewed Data includes the geospatial information system (GIS) and other data provided by cooperating entities that will be used to conduct the analyses for the SWRP. The list includes the data type, the source, the spatial coverage, and other relevant information. The "required", "recommended", and "optional" notes correspond to how critical the data is to complete the proposed analyses.

Attachment B: Annotated List of Plans and Reports

The Annotated List of Plans and Reports summarizes plan and report documents used for the development of the SWRP. Each plan and report included is summarized by their title, the organization (i.e., lead author), year published, a description, the study or report type, and the benefits applicable to the report. The study or report type and the benefits applicable to the report are included by "Y" (yes) or "N" (no) in columns included in Table 1 below. Descriptions of each of the columns are also provided in Table 1.

Table 1: Columns Included in Annotated List of Plans and Reports and Associated Descriptions

Annotated List of Plans and Reports – Table Column Header	Column Description
Existing Conditions	Discusses existing conditions and/or goals more generally at the watershed scale.
Watershed reports	Watershed characterization studies/ plans/ assessments or reports
Watershed stewardship	Watershed stewardship manuals
Floodplain management	Floodplain management plans
Water Management	Water management plans (including potable/non-potable water use studies)
Stream Restoration	Stream restoration plans and/or in-stream project plans/reports
Stormwater/LID	Stormwater or LID management plans/ master plans/ guidance
General Plans	General Plans and Specific Plans (for development/redevelopment projections)
Water Projects/CIP Lists	Flood/ Water Treatment/ Wastewater Projects or CIP lists

Annotated List of Plans and Reports – Table Column Header	Column Description
Water Quality Study	Stormwater quality studies and/or TMDL implementation studies, or ASBS Studies
Other	Other
Water Quality	Water Quality (related to reducing pollutant loads)
Water Supply	Water Supply (related to water supply augmentation)
Flood Control	Flood Control (related to minimizing or mitigate a flood or inundation risk)
Environmental	Environmental Benefit (relates to providing habitat, urban forestry, mitigate heat island effects, restore watershed function)
Community	Community Benefit (relates to improvement of public spaces, provide parks and play areas, improve community aesthetics, improve pedestrian or bicycle safety)

* * * * *

Attachment A: Annotated List of Reviewed Data

Type	Source	Required / Recommended / Optional	Received / Create	Notes	Comprehensive Regionwide Coverage	Multi-jurisdictional, but Not Comprehensive Regionwide Coverage	Unincorporated Monterey County	Monterey	Pacific Grove	Sand City	Carmel	Del Rey Oaks	Seaside
Administrative Datasets													
Political boundaries (eg, council districts, city boundaries)	Local jurisdictions, US Census	Required	Received		X		X	X	X	X	X	X	X
Road centerlines	Local jurisdictions, US Census	Required	Received		X		X	X					X
Water utility boundaries	MPWMD	Required	Received		X								
Disadvantaged Community (DAC) boundaries	US Census	Required	Public data downloaded		X								
Regional Park Boundaries	AMBAG, California Protected Areas Database	Required	Received		X								
State/National Park boundaries	AMBAG, Local jurisdictions, US Census, US Bureau of Land Management, California Protected Areas Database	Required	Received or downloaded.		X								X
Rights-of-Way boundaries (polygon)	Local jurisdictions	Recommended	Received from jurisdictions as indicated								X		X
Municipality owned, maintained, operated areas (polygon)	Monterey County Assessor	Optional	Received		X								
Water and Wastewater District Boundaries		Optional	Received		X								
Building footprints	Local jurisdictions	Optional	Received from jurisdictions as indicated										X
Elevation Datasets (one or more of the following, based on best available)													
LiDAR	MPWMD	Required	Received, can supplement with USGS data	Large coverage of western coastal portion of county, but does not cover portions of Seaside		X							
Digital Elevation Models (DEMs)	USGS	Required	Public data downloaded, not received from local jurisdictions		X								
Contours	MPWMD, local jurisdiction	Required	Received from jurisdictions as indicated	Will use to supplement LiDAR data received				X					X
Contours	USGS	Required	Derived from USGS DEM	Will use to supplement LiDAR data received	X								
Land Use Datasets													
Parcels with Land Use and Ownership only	Local jurisdictions, AMBAG, Monterey County Assessor	Required	Received		X		X			X	X		X
Parcels with Land Use, Ownership, and Zoning	Local jurisdictions	Optional	Received from jurisdiction as indicated										X
Parcels with Land use and Zoning only	Local jurisdictions	Optional	Received from jurisdiction as indicated						X				
Parcels with Land Use only	Local jurisdictions	Optional	Received from jurisdictions as indicated					X				X	
Schools	Geosyntec	Recommended	Geosyntec developed this data for all local jurisdictions and portions of unincorporated Monterey County through trash management project.			X							
Parks	Geosyntec	Recommended	Geosyntec developed this data for all local jurisdictions and portions of unincorporated Monterey County through trash management project.			X							
Impervious cover (w/ any attributes such as feature type)		Recommended	Not received										
Planned Areas		Recommended	Not received										
Specific Plan Areas		Recommended	Not received										
General Plans		Recommended	Not received										
Environmental Datasets *(GI siting and sizing)*													
Streams/Rivers/Waterbodies	Local jurisdictions, AMBAG, State / Federal public data	Required	Received		X			X			X	X	X
303(d) Streams/Rivers/Waterbodies	Federal public data	Required	Received		X								
Watersheds	AMBAG, Central Coast Regional Water Quality Control Board	Required	Received		X								
Locally-derived soil/geology/ hydrogeology/ geotechnical coverages	Local jurisdiction, MPWMD, USGS	Required	Received		X						X		

Type	Source	Required / Recommended / Optional	Received / Create	Notes	Comprehensive Regionwide Coverage	Multi-jurisdictional, but Not Comprehensive Regionwide Coverage	Unincorporated Monterey County	Monterey	Pacific Grove	Sand City	Carmel	Del Rey Oaks	Seaside
County specific rain gauge locations	NOAA	Required	Public data downloaded	Public hourly data downloaded	X								
Depth to groundwater with date of sampling	CASGEM	Required	Public data downloaded; not received from local jurisdictions or agencies	Point data at various wells in Monterey County. Comprehensive regionwide coverage may not exist		X							
Local flood inundation or flood risk areas	FEMA	Required	Public data downloaded; not received from local jurisdictions or agencies		X								
County specific rain gauge locations	MPWMD	Recommended	Partially received; can supplement with public data	Limited daily recods from the Navy Postgradaute School and MPWMD Office. MPWMD data needs to be digitized		X							
Mapped contaminant plumes or contaminated sites		Optional	Not received										
Rainfall isohyetal maps	MPWMD	Optional	Received		X								
Habitat protection areas or similar designations	AMBAG, US Fish and Wildlife, local jurisdiction	Optional	Received	Unsure if data is comprehensive		X							X
Natural resource areas or similar designations	AMBAG, US Fish and Wildlife	Optional	Received	Unsure if data is comprehensive		X							
Archaeologically Sensitive Areas	Local Jurisdictions	Optional	Partially Received				X	X					
Stormwater/Water Quality Program Datasets													
Storm Drains Network (inlets, outfalls, open channels and gravity mains)	Local jurisdictions	Required	Received			X	X	X	X	X	X	X	X
Reservoirs	USEPA / USGS	Required	Public data downloaded; not received from local jurisdictions or agencies	National Hydrography Dataset Plus (NHDPlus). Unsure if data is comprehensive.		X							
Flow gage locations (storm drains and channels)	USGS	Required	Public data downloaded; not received from local jurisdictions or agencies	Channels only		X							
Runoff Rate (by catchment)	SWTELR	Required	Received from existing SWTELR data	Full coverage of all jurisdictions and partial coverage of unincorporated Monterey County. Catchment areas may not match other received catchment data.		X							
Pollutant Loading (by catchment)	SWTELR	Required	Received from existing SWTELR data			X							
Catchment/Sub-basin/Drainage Areas to Outfalls if available	Local jurisdictions	Recommended	Received from jurisdictions as indicated				X	X	X	X	X	X	X
Existing or Proposed (eg CIP) structural BMPs by type	Local jurisdictions	Recommended	Received from jurisdictions as indicated				X	X	X	X	X		X
Discharge Points	Local jurisdictions	Optional	Received from jurisdictions as indicated					X	X	X	X	X	X
Operations and maintenance (inlet offsets, trash removal/cleanout records)	Local jurisdictions	Optional	Received from jurisdiction as indicated						X				
Trash priority areas	Geosyntec	Optional	Developed by Geosyntec	Comprehensive coverage in all local jurisdictions and portions of Unincorporated Monterey County		X							
Water Quality Data	Urban Watch	Optional	In Progress	Data request pending with Urban Watch		X							
Locations of water treatment facilities (and locations of distribution lines which convey water from source to treatment facility)		Optional	Not received										
Transportation Planning Datasets													
Proposed road diets or similar designations		Optional	Not received										

Type	Source	Required / Recommended / Optional	Received / Create	Notes	Comprehensive Regionwide Coverage	Multi-jurisdictional, but Not Comprehensive Regionwide Coverage	Unincorporated Monterey County	Monterey	Pacific Grove	Sand City	Carmel	Del Rey Oaks	Seaside
Proposed complete streets or similar designations		Optional	Not received										
Proposed bicycle networks or similar designations		Optional	Not received										
Proposed pedestrian networks or similar designations		Optional	Not received										
Safe routes to school networks		Optional	Not received										
High Resolution Aerial Imagery													
Any available information	MPWMD	Optional	Received	Carmel River area only		X							
Sanitary Sewer Datasets													
Gravity mains	Local jurisdictions, Monterey One Water	Required	Received from jurisdictions as indicated			X		X		X		X	X
Pump stations	Local jurisdicitons	Required	Received from jurisdictions as indicated	No pump stations expected in unincorporated Monterey County				X	X	X	X	X	X
Waste water treatment plants		Recommended	Not received										
Waste water treatment plant effluent lines (ocean outfalls, groundwater replenishment, recycled purple pipe water lines)		Recommended	Not received										

Attachment B: Annotated List of Plans and Reports

Title	Organization	Year	Description	Existing Conditions	Watershed reports	Watershed stewardship	Floodplain management	Water Management	Stream Restoration	Stormwater/LID	General Plans	Water Projects/CIP Lists	Water Quality Study	Other	Water Quality	Water Supply	Flood Control	Environmental	Community
Stormwater Tool to Estimate Load Reduction Draft Final Technical Document	2NDNATURE	2016	Manual describing the use of the Tool to Estimate Load Reductions (TELR).	N	N	N	N	N	N	N	N	N	N	N	Y	Y	N	N	N
AACE Classification System	AACE International	2005	Cost estimate classification system for engineering, procurement, and construction costs	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	N	N
Coastal Regional Sediment Management Plan for Southern Monterey Bay (2008)	Association of Monterey Bay Area Governments	2008	Summarizes the Southern Monterey Bay Coastal Erosion Workgroup's list of potential ways of addressing coastal erosion in the area, and evaluates the applicability of those technologies in the near future. Report proposes feasibility studies for proposed projects.	Y	Y	N	Y	N	N	N	Y	N	N	N	N	N	Y	Y	N
Monterey Bay Area Regional Forecast Population, Housing Unit and Employment Projections for Monterey, San Benito and Santa Cruz Counties to the Year 2035 (2008)	Association of Monterey Bay Area Governments	2008	A regional forecast of population, housing and employment for the Monterey Bay region. The forecast is used to provide data support for long term regional planning documents, special districts' master plans, as well as to support city and county long range planning. Mentions, but does not detail, current and planned Water District projects.	N	N	N	N	Y	N	N	N	Y	N	N	Y	Y	N	N	N
Coastal Regional Sediment Management Planning in Southern Monterey Bay, California (2011)	Association of Monterey Bay Area Governments	2011	This paper presents the findings of the Coastal Regional Sediment Management (RSM) Plan developed to address erosion in the Bay. The Plan first evaluates the sedimentary processes, erosion rates and sensitive species and habitat along the coast. Those data sets are then combined with economic, ecological, and societal considerations, to identify critical areas of erosion and to propose RSM-based solutions.	Y	Y	N	N	N	N	N	N	N	N	N	N	N	Y	Y	N
Monterey County Williamson Act FY 2015-16	Association of Monterey Bay Area Governments	2016	Map of agricultural land as defined by the Williamson Act.	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y
Carmel River Floodplain Restoration and Environmental Enhancment Project - 35% Design Basis Report	Big Sur Land Trust	2015	Design Report describing the Floodplain Restoration and Enviornmental Enhancement Project	Y	Y	N	Y	N	N	N	N	Y	Y	N	Y	N	Y	Y	Y
Restoration and Management Plan for the Carmel River Floodplain Restoration and Environmental Enhancement Project	Big Sur Land Trust	2015	Summary of the Plan for the Carmel River Floodplain Restoration and Environmental Enhancement Project.	N	N	N	N	N	N	N	N	N	Y	N	N	N	N	N	Y
CalAm Monterey Peninsula Water Supply Project Draft EIR	California American Water	2015	Draft EIR for Monterey Peninsula Water Supply Project to develop up to 9,752 ac-ft/yr of water supplies for CalAm's Monterey District Service Area.	N	N	N	N	Y	N	N	N	Y	N	N	N	Y	N	N	N

Title	Organization	Year	Description	Existing Conditions	Watershed reports	Watershed stewardship	Floodplain management	Water Management	Stream Restoration	Stormwater/LID	General Plans	Water Projects/CIP Lists	Water Quality Study	Other	Water Quality	Water Supply	Flood Control	Environmental	Community
Urban Water Management Plan for the Central Division – Monterey County District (2015)	California American Water	2015	Meets a requirement for the California Urban Water Management Planning Act. Provides information for Water Supply Assessments and Written Verifications of Water Supply, supports regional long-range planning documents including City and County General Plans, provides standard methodology for water utilities to assess their water resource needs and availability.	N	N	N	N	N	N	Y	N	N	N	N	N	Y	N	N	N
Memorandum - Recommended Capacity for the Monterey Peninsula Water Supply Project (MPWSP) Desalination Plant (2013)	California American Water	2013	Summarizes design capacity for desalination plant for the Monterey Peninsula Water Supply Project (MPWSP), which will become the principal supply for CAW's system, replacing a major portion of the supply from the Carmel River and the Seaside Groundwater Basin.	N	N	N	N	Y	N	N	N	Y	N	N	N	Y	N	Y	N
The Impacts of Sea-Level Rise on the California Coast (2009)	California Climate Change Center	2009	Summarizes potential impacts of sea level rise on the California Coast, including analysis of current population, infrastructure, and property at risk from projected sea level rise.	Y	N	N	N	N	N	N	N	N	N	Y	N	N	Y	Y	Y
Monterey County Important Farmland (2010)	California Department of Conservation	2010	Map of agricultural land in Monterey Peninsula.	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y
What will be the Cost of Future Sources of Water for California?	California Public Utilities Commission	2016	Paper provides examples of various costs for sources of water throughout California.	N	N	N	N	Y	N	N	N	N	N	N	N	Y	N	N	N
Model-Based Prediction of the effect of development on increased runoff and mitigating effec ponds- a case study of Canyon del Rey Creek	California State University Monterey Bay	2013	HEC-HMS model results for Canyon del Rey creek	Y	Y	N	N	N	N	N	N	N	N	N	Y	N	Y	N	N
Model-Based Prediction of the effect of development on peak flows- Canyon del Rey watershed	California State University Monterey Bay	2013	HEC-HMS model results for Canyon del Rey watershed	Y	Y	N	N	N	N	N	N	N	N	N	Y	N	Y	N	N
Model-Based Prediction of the effect of developmentof the Del Rey Oaks portion of former Fort Ord on peak flows - Arroyo Del Rey, Monterey County, CA	California State University Monterey Bay	2013	HEC-HMS model results for Del Rey Oaks portion of Arroyo Del Rey	Y	Y	N	N	N	N	Y	N	N	N	N	N	N	N	N	N
Stormwater Best Management Practices Handbook New Development and Redevelopment	California Stormwater Quality Association	2003	CASQA BMP Manual	N	N	N	N	N	N	Y	N	N	N	N	Y	Y	Y	N	N
Land Use History and Mapping in California's Central Coast Region (2003)	Central Coast Watershed Studies	2003	Provides a history of land use and changes over time in the Cities of Seaside and Monterey.	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	Y

Title	**Organization**	**Year**	**Description**	**Existing Conditions**	**Watershed reports**	**Watershed stewardship**	**Floodplain management**	**Water Management**	**Stream Restoration**	**Stormwater/LID**	**General Plans**	**Water Projects/CIP Lists**	**Water Quality Study**	**Other**	**Water Quality**	**Water Supply**	**Flood Control**	**Environmental**	**Community**
Physical and Hydrologic Assessment of the Carmel River Watershed California (2004)	Central Coast Watershed Studies	2004	The report documents the present hydrologic and physical condition of the Carmel Watershed. The descriptions and interpretations are based upon digital, aerial, and land-based views, and a review of the regional literature. The report provides an overview of geology, climate, hydrology, and susceptibility to landslides and erosion. Following those broad descriptions, each subwatershed of the Carmel River is analyzed in more detail. Lastly, recommendations for future watershed management strategies are provided.	Y	Y	Y	Y	N	Y	Y	N	N	N	N	Y	N	Y	Y	N
Stormwater outfall watershed delineation, land cover characteristics, and recommended priorities for monitoring and mitigation in the City of Pacific Grove, California	Central Coast Watershed Studies	2011	This study was conducted as part of a class project by students in the Advanced Watershed Science and Policy (ENVS660) course at California State University at Monterey Bay. The primary objectives of this study were to 1) research and review the historical and regulatory context for stormwater management within the City of Pacific Grove, California, 2) provide mapping of all major stormwater outfalls with the City limits, 3) conduct a Geographic Information Systems (GIS) analysis to delineate the surface watershed of each of the major stormwater outfalls, 4) quantify the characteristics of those watersheds, and 5) provide recommendations for future monitoring and stormwater mitigation activities.	Y	N	N	N	Y	N	Y	N	N	Y	N	Y	N	N	Y	Y
Streamflow gaging at Greenwood Park, Pacific Grove, California: January-April 2012	Central Coast Watershed Studies	2012	This report describes work done by staff & students at the Watershed Institute (CSUMB) for the Monterey Bay Sanctuary Foundation and the City of Pacific Grove. The overall scope of work was to gage stormwater flow above and below Greenwood Park in the City of PG during the winter of 2011-12.	Y	N	N	N	N	N	N	N	N	Y	N	N	N	N	N	N
Understanding Stormwater Management Options Using a Water Balance Framework	Central Coast Watershed Studies	2013	This study was conducted as part of a class project by students in the Advanced Watershed Science and Policy (ENVS660) course at California State University at Monterey Bay. The primary objectives of this study were to 1) Develop an annual water balance examining the effects of different components of the water cycle in the small, medium, and large storm seasons, as well as in the dry season, 2) Estimate the percentage of stormwater that could be diverted or treated before reaching the ASBS during small, medium and large storms under three potential management scenarios, and 3) Estimate the percentage of stormwater that could be retained or treated using low impact development (LID) based on land use type and stormwater runoff during small, medium, and large storms.	Y	N	N	N	Y	N	Y	N	N	Y	N	Y	N	N	Y	Y
An Existing Conditions and Drought-year Stormwater Quality Study of Majors Creek: Monterey, CA (2014)	Central Coast Watershed Studies	2014	Examines why Majors Creek was listed on the 303(d) list and outlines a plan to remove the Creek from the list, delineates the watershed, summarizes water quality sample results from monitoring conducted, analyzes management and improvement strategies using the Watershed Treatment Model, and documents the physical condition of the Creek.	Y	Y	N	N	N	Y	N	N	N	Y	N	Y	Y	N	Y	N

Title	Organization	Year	Description	Existing Conditions	Watershed reports	Watershed stewardship	Floodplain management	Water Management	Stream Restoration	Stormwater/LID	General Plans	Water Projects/CIP Lists	Water Quality Study	Other	Water Quality	Water Supply	Flood Control	Environmental	Community
Stormwater mapping and land use analysis, City of Del Rey Oaks, California	Central Coast Watershed Studies	2015	In support of the Del Rey Oaks PEAIP, we used a Global Positioning System (GPS) unit to collect locations of unmapped storm drain inlets and outfalls, and verified locations of currently mapped inlets and outfalls. We compiled metadata identifying the type and size of outfalls, and photographed inlets and outfalls. We conducted storm drain watershed (stormshed) delineations to aid in the understanding of stormwater routing within Del Rey Oaks. Land use areas within each stormshed were calculated to identify areas of priority where increased pollution in runoff may occur. We identified potential mitigation areas in the city where runoff and pollution may be diminished. These efforts will support the necessary next steps for Phase II compliance.	Y	N	N	N	N	N	Y	N	N	Y	N	Y	N	N	N	N
Developing Adaptive Management Tools for the Carmel River Floodplain Restoration and Environmental Enhancement Project	Central Coast Watershed Studies	2016	This report was a class project conducted by students in the Advanced Watershed Science and Policy (ENVS 660) course at California State University Monterey Bay (CSUMB). ENVS 660 partnered with the Big Sur Land Trust (BSLT) to plan for long term planting and management of the Tier 2 restoration of the Carmel River Floodplain Restoration and Environmental Enhancement (FREE) project, located within the lower Carmel River Watershed in Monterey County, California.	Y	N	Y	Y	Y	Y	N	N	N	Y	N	N	N	Y	Y	Y
Effects of Local Runoff on Water Levels and Water Quality in the Carmel River Lagoon During Dry-River Periods	Central Coast Watershed Studies	2016	This was a class project conducted by students in the Advanced Watershed Science and Policy (ENVS 660) course at California State University at Monterey Bay (CSUMB). Our goal was to determine how local runoff influences water levels and WQ in the CRL during the river not connected (RNC) season.	Y	N	N	Y	N	N	N	N	N	Y	N	Y	N	N	N	N
Stormflow monitoring and modelling at Pacific Grove, California, 2012 and 2015	Central Coast Watershed Studies	2016	This report describes work done by staff and students at the Watershed Institute (CSUMB) for the City of Pacific Grove. The overall scope of work was to measure stormwater flow in the City of Pacific Grove within diverse watersheds, and to use a data-driven modeling approach to estimate current stormflow and predict future stormflow under specific stormwater control measures (SCMs).	Y	N	N	N	N	N	N	N	N	Y	N	Y	N	N	N	N
Pacific Grove Area of Special Biological Significance (ASBS) Revised Final Compliance Plan (2016)	Cities of Monterey and Pacific Grove	2016	Demonstrates how the Cities of Pacific Grove and Monterey will comply with the Special Protections for Beneficial Uses of the ASBS. The Pacific Grove ASBS extends for 3.2 miles along the Pacific Grove shoreline west from the Monterey Bay Aquarium to Asilomar Boulevard just before Point Pinos, with close to 500 ocean acres within the Monterey Bay National Marine Sanctuary (MBNMS). The Pacific Grove ASBS receives runoff from approximately 1,106 acres in Pacific Grove and 101 acres in Monterey.	Y	Y	N	N	N	N	Y	N	Y	Y	N	Y	N	N	Y	Y
40% Design Engineering Report Stormwater Management Project	Cities of Pacific Grove and Monterey	2014	This project addresses stormwater discharges into the Pacific Grove Area of Special Biological Significance (ASBS), which receives urban runoff from the New Monterey District in the City of Monterey and from the City of Pacific Grove. Over the past several years, the Cities of Monterey and Pacific Grove have been evaluating alternative stormwater management projects to address regulatory requirements imposed by the State Water Resources Control Board (SWRCB) for stormwater discharges to the ASBS.	N	N	N	N	N	N	N	N	Y	N	N	N	N	N	Y	Y
City of Marina General Plan (2010)	City of Marina	2010	General Plan for future new and re-development in the City of Marina	N	N	N	N	N	N	N	Y	N	N	N	Y	N	N	N	Y

Title	Organization	Year	Description	Existing Conditions	Watershed reports	Watershed stewardship	Floodplain management	Water Management	Stream Restoration	Stormwater/LID	General Plans	Water Projects/CIP Lists	Water Quality Study	Other	Water Quality	Water Supply	Flood Control	Environmental	Community
Final Environmental Impact Report - City of Monterey General Plan Update (2004)	City of Monterey	2004	Impact report for City of Monterey General Plan for new and re-development build out	N	N	N	N	N	N	N	Y	N	N	N	Y	N	N	N	Y
City of Monterey General Plan (2005)	City of Monterey	2005	General Plan for future new and re-development in the City of Monterey	N	N	N	N	N	N	N	Y	N	N	N	Y	N	N	N	Y
Final Environmental Impact Report for the 2010 Draft City of Monterey General Plan Update (2010)	City of Monterey	2010	Impact report for City of Monterey General Plan for new and re-development build out	N	N	N	N	N	N	N	Y	N	N	N	Y	N	N	N	Y
Engineering Analysis Development of Non-potable Irrigation Water Systems (1999)	City of Monterey	1999	Identifies properties where non-potable water could be utilized, and evaluates the feasibility of developing non-potable supply sources to serve these properties.	Y	N	N	N	Y	N	N	Y	N	N	N	N	Y	N	Y	Y
Land Use Plan for the Laguna Grande/Roberts Lake Local Coastal Program (Addendum) (2000)	City of Monterey	2000	Change in land use designation to land use around Laguna Grande/Roberts Lake	N	Y	N	N	Y	N	N	N	N	N	N	N	N	N	N	Y
Del Monte Beach Land Use Plan (2003)	City of Monterey	2003	Fulfills a mandate of the California Coastal Act. Establishes policies regarding habitat preservation, coastal erosion, land use designations and public access to Del Monte Beach. Also identifies issues of importance to residents and property owners in the beach area.	Y	Y	N	N	Y	N	N	Y	N	Y	N	Y	Y	Y	Y	Y
Monterey Harbor Land Use Plan (2003)	City of Monterey	2003	Land Use Plan provides the specific goals, policies, and implementation actions that govern land and water use within the coastal zone. The Land Use Plan together with its implementing measures (Coastal Implementation Plan, or CIP) constitute the Local Coastal Program.	N	N	N	N	N	N	N	Y	N	N	N	Y	N	N	N	Y
Groundwater Replenishment Project Urban Runoff Capture at Lake El Estero (2014)	City of Monterey	2014	Plan describes a proposed project which involves diversion of stormwater flows into the sanitary sewer system, which will be used as a source of water supply for the Pure Water Program following treatment.	Y	N	N	N	Y	N	N	Y	N	Y	N	Y	Y	N	N	N
Final Sea Level Rise and Vulnerable Analyses, Existing Conditions and Issues Report	City of Monterey	2016	Study examining the potential impact of sea level rise on the Monterey Coast within the Monterey Peninsula region, including model results.	Y	Y	N	Y	N	N	N	N	Y	N	N	N	N	Y	N	Y
Alternatives Analysis and Data Acquisition for Pacific Grove and Carmel Bay Areas of Special Biological Significance (2006)	City of Monterey Public Works	2006	This report presents the results of alternatives analysis and data acquisition for storm water and non-storm water discharges to the Pacific Grove Area of Special Biological Significance (ASBS) and the Carmel Bay ASBS. (MACTEC) performed the study to assess the feasibility of diverting, storing, treating, and/or reusing storm water from the Del Monte Forest, the New Monterey section of the City of Monterey, and the City of Pacific Grove, and preventing these storm water and non-storm water discharges from entering the Pacific Grove and Carmel Bay ASBS.	Y	Y	N	N	Y	N	N	Y	N	Y	N	Y	Y	N	N	N
Pacific Grove General Plan (1994)	City of Pacific Grove	1994	General Plan for new and re-development in the City of Pacific Grove.	N	N	N	N	N	N	N	Y	N	N	N	Y	N	N	N	Y

Title	Organization	Year	Description	Existing Conditions	Watershed reports	Watershed stewardship	Floodplain management	Water Management	Stream Restoration	Stormwater/LID	General Plans	Water Projects/CIP Lists	Water Quality Study	Other	Water Quality	Water Supply	Flood Control	Environmental	Community
City of Pacific Grove Urban Runoff Diversion Project Phase II Final Report - SWRCB Agreement No. 02-227-50-1	City of Pacific Grove	2008	The project diverts the 8th Street and 17th Street storm drain outfalls to the Monterey One Water sanitary sewer system during the dry season.	Y	Y	N	N	Y	N	Y	N	N	Y	N	Y	N	N	Y	N
Local Water Project Draft Facility Plan Report WRFP No. 3316-010	City of Pacific Grove	2014	The City of Pacific Grove is pursuing the construction and operation of a Satellite Recycled Water Treatment Plant (SRWTP) to produce recycled water for non-potable water demands in the City of Pacific Grove with future capability to expand to service other local demands outside of the City. This study documents the work conducted in support of this effort as part of the City of Pacific Grove Local Water Project (PGLWP). See Chapter 4 for analysis of potential non-potable water use sites.	Y	N	N	N	N	N	N	N	Y	N	N	N	N	N	Y	Y
Monterey Pacific Grove ASBS Stormwater Management Project Final EIR	City of Pacific Grove	2014	Final EIR for the Monterey/ Pacific Grove ASBS Stormwater Management Project.	Y	Y	N	N	N	N	Y	N	Y	Y	N	Y	N	N	Y	Y
City of Pacific Grove Urban Greening Plan	City of Pacific Grove	2016	This Urban Greening Plan identifies projects, plans, policies, and programs the City of Pacific Grove (City) can implement to achieve numerous environmental and community benefits. For example, green spaces can help to reduce flooding and improve stomwater quality, provide wildlife habitat, help maintain air quality, reduce urban heat islands, and provide gathering spaces for neighborhood socializing and community building.	Y	N	Y	N	N	N	N	N	Y	N	N	N	N	N	Y	Y
Pacific Grove Low Impact Development (LID) Infrastructure Plan (2016)	City of Pacific Grove	2016	The City of Pacific Grove applied for and was awarded a Proposition 84 Grant to develop an Urban Greening Plan. The LID Plan (scheduled to begin in 2016) will consist of initial planning and conceptual design of priority areas for green infrastructure and the urban forest to implement stormwater treatment measures.	Y	Y	N	N	N	N	Y	N	N	Y	N	Y	N	N	Y	N
Master Plan for Improvements to the Regionla Storm Drainage System Final Report	City of Seaside	2001	The Preliminary Design Report (FDR), Fort Ord Reuse Authority (FORA) Stormwater Infrastructure- Phase 1, is based on the engineering work funded through EDA Technical Assistance Grant Award No. 07-79-03954. The TA Grant was awarded to assist in a master planning effort for storm drainage on the former Fort Ord and to eliminate the existing ocean outfalls on lands to be transferred to the State of California, Department of Parks and Recreation. Removal of the outfalls requires the development of alternate means of stormwater disposal.	Y	Y	N	N	Y	N	Y	Y	Y	Y	N	N	N	N	Y	Y
Seaside General Plan (2003)	City of Seaside	2003	General plan for future new and re-development for Seaside.	N	Y	N	N	Y	N	N	N	N	N	N	N	N	N	N	Y
Seaside General Plan EIR (2004)	City of Seaside	2004	EIR General plan for future new and re-development for Seaside.	N	Y	N	N	Y	N	N	N	N	N	N	N	N	N	N	Y
Seaside East Conceptual Master Plan (2010)	City of Seaside	2010	General plan for future new and re-development for Seaside.	N	Y	N	N	Y	N	N	N	N	N	N	N	N	N	N	Y
City of Seaside Local Coastal Program (2013)	City of Seaside	2013	Land Use Plan provides the specific goals, policies, and implementation actions that govern land and water use within Seaside's coastal zone. The Land Use Plan together with its implementing measures (Coastal Implementation Plan, or CIP) constitute the Local Coastal Program.	N	N	N	N	N	N	N	Y	N	N	N	Y	N	N	N	Y

Title	Organization	Year	Description	Existing Conditions	Watershed reports	Watershed stewardship	Floodplain management	Water Management	Stream Restoration	Stormwater/LID	General Plans	Water Projects/CIP Lists	Water Quality Study	Other	Water Quality	Water Supply	Flood Control	Environmental	Community
Seaside Stormwater Master Plan Update – Phase 1 (2014)	City of Seaside	2014	Plan to investigate and address system deficiencies by developing improvement projects, an O&M and inspection program, and a stormwater utility fee study. The storm drain collection system serves the City of Seaside including Seaside proper, Seaside Highlands and Presidio of Monterey Annex (POMA).	Y	Y	N	Y	N	N	Y	N	Y	N	N	Y	N	Y	N	N
Infiltration and Groundwater Recharge Estimate for the Seaside Coastal Subareas	Fall Creek Engineering, Inc	2015	Study to examine areas conducive to recharging the Seaside Groundwater Basin and potential recharge amounts	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	Y	N
Fort Ord Reuse Plan (1997)	Fort Ord Reuse Authority	1997	Focuses on the concepts for and elements of re-development of the former Fort Ord military reservation, including the history of the site, current conditions, market opportunities, reuse considerations, environmental impact, and integration into the regional economy.	Y	Y	N	N	Y	N	N	Y	N	Y	N	Y	Y	N	Y	Y
Fort Ord Storm Water Master Plan (2005)	Fort Ord Reuse Authority	2005	Summarizes existing infrastructure and hydrologic conditions for the former Fort Ord cantonment area and provides guidelines for the on-site infiltration obligation.	Y	Y	N	N	N	N	Y	N	N	Y	N	Y	N	Y	N	N
Fort Ord Reuse Plan Reassessment (2012)	Fort Ord Reuse Authority	2012	Describes topics and potential options for modifications to the Fort Ord Base Reuse Plan or to the Fort Ord Reuse Authority's operational procedures. The reassessment was mandated through a lawsuit settlement with the Sierra Club, and involved information gathering from the public and reevaluation of the plan's policies and programs.	Y	Y	Y	Y	Y	N	N	Y	Y	Y	N	Y	Y	Y	Y	N
Water Storage in the Seaside Basin - Memorandum	From District Counsel to Chairmain, Board Members, and General Manager	2007	Memorandum to describe the process to store water in the Seaside Basin in light of the Superior Court Decision in California American Water v. City of Seaside et al, Case No. M66343.	N	N	N	N	Y	N	N	N	N	N	N	N	Y	N	N	N
Resistivity imaging reveals complex pattern of saltwater intrusion along monterey coast	M. Goebel, A. Pilisecky, R. Knight	2017	Journal article summarizing a study to examine saltwater intrusion along the coast of Monterey adjacent to the Seaside Groundwater basin.	Y	Y	N	N	N	N	N	N	N	N	N	Y	Y	N	Y	N
Regional Urban Water Augumentation Project, Final Environmental Impact Report	Marina Coast Water District	2004	The Regional Water Augmentation Project proposes to provide an additional water supply of 2,400 acre-feet per year (AFY) for the Ord Community area (also known as the former Fort Ord military base) as identified in the Fort Ord Reuse Plan (FORP).	Y	N	N	N	Y	N	N	N	Y	N	Y	N	Y	N	N	Y
Marina Coast Water District Urban Water Management Plan (2005)	Marina Coast Water District	2005	Overview of water management plan for Marina Coast Water District municipal water supplier.	Y	N	N	N	Y	N	Y	Y	Y	Y	N	Y	Y	N	N	N
Regional Urban Water Augumentation Project, Addendum No. 1 to Environmental Impact Report	Marina Coast Water District	2006	The Regional Water Augmentation Project proposes to provide an additional water supply of 2,400 acre-feet per year (AFY) for the Ord Community area (also known as the former Fort Ord military base) as identified in the Fort Ord Reuse Plan (FORP).	Y	N	N	N	Y	N	N	N	Y	N	Y	N	Y	N	N	Y

Title	Organization	Year	Description	Existing Conditions	Watershed reports	Watershed stewardship	Floodplain management	Water Management	Stream Restoration	Stormwater/LID	General Plans	Water Projects/CIP Lists	Water Quality Study	Other	Water Quality	Water Supply	Flood Control	Environmental	Community
Regional Urban Water Augumentation Project, Addendum No. 2 to Environmental Impact Report	Marina Coast Water District	2007	The Regional Water Augmentation Project proposes to provide an additional water supply of 2,400 acre-feet per year (AFY) for the Ord Community area (also known as the former Fort Ord military base) as identified in the Fort Ord Reuse Plan (FORP).	Y	N	N	N	Y	N	N	N	Y	N	Y	N	Y	N	N	Y
Final Public Review RUWAP Shared Pipeline Addendum EIR	Marina Coast Water District	2016	Addendum to the Regional Urban Water Augmentation Project EIR, compiled by City of Marina.	N	N	N	Y	N	N	N	N	N	N	N	Y	Y	N	N	N
Marina Coast Water District Urban Water Management Plan (2015) Final	Marina Coast Water District	2016	Overview of water management plan for Marina Coast Water District municipal water supplier (update)	Y	N	N	N	Y	N	Y	Y	Y	Y	N	Y	Y	N	N	N
Regional Urban Water Augumentation Project, Addendum No. 3 to Environmental Impact Report	Marina Coast Water District	2016	The Regional Water Augmentation Project proposes to provide an additional water supply of 2,400 acre-feet per year (AFY) for the Ord Community area (also known as the former Fort Ord military base) as identified in the Fort Ord Reuse Plan (FORP).	Y	N	N	N	Y	N	N	N	Y	N	Y	N	Y	N	N	Y
Monterey Bay Aquarium (MBA) - Storm Water and Waterfront Management Plan (2014)	Monterey Bay Aquarium	2014	Fulfills MBA's Ocean Plan Exception requirements for both a Storm Water and Waterfront Management Plan and to protect the ocean water quality of the ASBS. Plan goals include: 1) ensuring seawater effluent locations do not contain constituents in exceedance of the Ocean Plan, 2) eliminating dry weather flow from our facility, 3) utilizing best management practices to improve the quality of storm water runoff, and 4) practicing safe waterfront operations	Y	Y	Y	N	N	N	N	N	N	Y	N	Y	N	N	Y	N
Monterey Bay National Marine Sanctuary Final Management Plan (2008)	Monterey Bay National Marine Sanctuaries	2008	Management Plan for the Monterey Bay National Marine Sanctuary	Y	Y	Y	N	N	N	N	N	N	Y	N	Y	N	N	Y	N
Monterey Bay National Marine Sanctuary Condition Report (2009)	Monterey Bay National Marine Sanctuaries	2009	Description of the condition of the Monterey Bay National Marine Sanctuary	Y	Y	Y	N	N	N	N	N	N	Y	N	Y	N	N	Y	N
Strategic Plan for Central Coast Water Quality Monitoring Coordination and Data Synthesis (2009)	Monterey Bay National Marine Sanctuary	2009	Strategic Plan to improve regional capacity to coordinate monitoring, synthesize information, communicate, and respond with adaptive management for monitoring on the Central Coast.	Y	Y	Y	N	N	N	Y	N	N	N	N	Y	N	N	Y	N
Preparing for the Future: Climate Change and the Monterey Bay Shoreline (2011)	Monterey Bay National Marine Sanctuary	2011	Summary of a Monterey Bay region-wide gathering on climate change adaptation.	Y	Y	N	Y	N	N	N	N	N	N	N	N	N	Y	Y	N

Title	Organization	Year	Description	Existing Conditions	Watershed reports	Watershed stewardship	Floodplain management	Water Management	Stream Restoration	Stormwater/LID	General Plans	Water Projects/CIP Lists	Water Quality Study	Other	Water Quality	Water Supply	Flood Control	Environmental	Community
Comparison of the Six Central Coast Integrated Regional Water Management Plans and Recommendations for Collaborative Programs (2008)	Monterey Bay National Marine Sanctuary	2008	This document compares the six IRWMPs that have been developed for the Central Coast region with the goal of identifying the major priorities of each plan and common interests and concerns. It is meant to facilitate coordination between the individual public agency plans, programs, and projects within each IRWMP region.	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y
Central Coast Water Quality Data Assessment (2008)	Monterey Bay National Marine Sanctuary/Sanctuary Integrated Monitoring Network	2008	The purpose of this data assessment was to characterize existing and accessible water quality data sets, evaluate their applicability to fundamental questions about non-point source pollution on the Central Coast, and identify important water quality and other data gaps.	Y	Y	N	N	N	N	N	N	N	Y	N	Y	N	N	N	N
Monterey Economic Forecast (2011)	Monterey County	2011	Presents national, state, and local economic forecasts for the County of Monterey, as well as descriptions of the state of business, agriculture, real estate, and demographics in the County.	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	N	N
Carmel River Watershed Stewardship Manual (2013)	Monterey County Resource Management Agency	2013	The purpose of this manual is to provide techniques to support solutions for many of the resource issues (e.g. erosion, groundwater overdraft, invasive plants) experienced in the Carmel Valley. Techniques range from roof runoff management to rural road erosion control to wildlife-friendly pond and pasture management.	Y	N	Y	N	N	Y	N	N	N	Y	N	Y	N	N	Y	N
Carmel Bay Area of Special Biological Significance (ASBS) Draft Compliance Plan (2014)	Monterey County Resource Management Agency	2014	Plan describes how the Carmel Bay ASBS watershed that is under County jurisdiction will comply with the Special Protections for Beneficial Uses of the ASBS. It addresses the portion of the Carmel Bay ASBS watershed that is under County jurisdiction and subject to the Phase II Small MS4 General Permit. The ASBS encompasses 1,584 acres (6.7 miles of coastline) of various coastal marine habitats between Pescadero and Granite Points, and is entirely overlapped by the Carmel Bay State Marine Conservation Area.	Y	Y	N	N	Y	N	Y	N	N	Y	N	Y	N	N	Y	Y
Greater Monterey Peninsula Area Plan (1995)	Monterey County Resource Management Agency	1995	Outlines current conditions and implementation plans for the Monterey Peninsula, touching on natural resources, environmental constraints, human resources, and development in the area.	Y	Y	N	Y	N	N	N	Y	Y	Y	N	Y	Y	Y	Y	Y
Fishery Analysis for the Carnel River Lagoon Biological Assesment Report	Monterey County Resource Management Agency	2014	Analyses of environmental and other factors at the Carmel River Lagoon to fish populations in the Carmel River.	Y	Y	N	Y	N	Y	N	N	N	Y	N	Y	N	Y	Y	N

Title	Organization	Year	Description	Existing Conditions	Watershed reports	Watershed stewardship	Floodplain management	Water Management	Stream Restoration	Stormwater/LID	General Plans	Water Projects/CIP Lists	Water Quality Study	Other	Water Quality	Water Supply	Flood Control	Environmental	Community
Memorandum of Understanding for the Construction Phase of the Carnel River FREE Project	Monterey County Resource Management Agency, Big Sur Land Trust	2017	MOU between the Monterey Peninsula Regional Park District and the Monterey County Resource Management Agency/ Big Sur Land Trust for Constructing the Floodplain Restoration and Envionmental Establishment Project on the Carmel River.	N	N	N	Y	Y	N	Y	N	Y	Y	N	N	N	Y	Y	Y
Monterey County Water Resources Agency Act (1995)	Monterey County Water Resources Agency	1995	Act to provide for control of flood and stormwater for Monterey County.	N	N	N	Y	N	Y	Y	N	N	N	N	Y	Y	N	N	N
Monterey County Groundwater Management Plan (2006)	Monterey County Water Resources Agency	2006	This report establishes a set of management objectives for the basin, describes existing conditions, outlines historical and projected water demands in the basin, and presents a set of general groundwater management actions.	Y	Y	N	N	Y	N	N	N	Y	N	N	Y	Y	Y	N	N
Monterey County Floodplain Management Plan (2008)	Monterey County Water Resources Agency	2008	This is an update of a 2002 report identifying the flooding sources affecting Monterey County, and establishing an implementation plan to reduce flood hazards.	Y	Y	N	Y	Y	N	Y	N	Y	Y	N	N	N	Y	Y	N
Monterey County Floodplain Management Plan (updated 2014)	Monterey County Water Resources Agency	2014	Completed as part of the FEMA NFIP Community Rating System. Intended to assess the flooding hazards within unincorporated areas of Monterey County and summarize floodplain management program and mitigation strategy within the county. Areas included in the plan are: Carmel, North County, Carmel Valley, Greater/Central Salinas, Del Monte Forest/Big Sur, Monterey Peninsula, South County.	Y	Y	N	Y	N	N	N	N	N	N	N	N	N	Y	N	Y
Pure Water Monterey Groundwater Replenishment Project, http://purewatermonterey.org/	Monterey One Water	2014	Website for the Monterey Peninsula Groundwater Replenishment Project.	Y	N	N	N	Y	N	N	N	Y	N	N	N	Y	N	N	N
Section IV: Operations and Maintenance Program of the Sewer System Management Plan	Monterey One Water	2014	Summary of the O&M Program for the Sewer System Management Plan	N	N	N	N	Y	N	Y	N	Y	N	N	Y	Y	N	N	N
Consolidated Final Environmental Impact Report for the Pure Water Monterey Groundwater Replenishment Project	Monterey One Water	2016	Final EIR for the Pure Water Monterey Recycled Water Project, located at the Regional Treatment Plant on the Monterey Peninsula.	Y	N	N	N	Y	N	N	N	Y	N	N	N	Y	N	N	N

Title	Organization	Year	Description	Existing Conditions	Watershed reports	Watershed stewardship	Floodplain management	Water Management	Stream Restoration	Stormwater/LID	General Plans	Water Projects/CIP Lists	Water Quality Study	Other	Water Quality	Water Supply	Flood Control	Environmental	Community
Grant Agreement between Monterey Peninsula Water Management District and the City of Monterey for Local Water Project Development Expenses (Water Recovery Study)	Monterey Peninsula & The City of Monterey	2016	Grant Agreement for the Water Recovery Study	N	N	N	N	Y	N	Y	N	Y	Y	N	N	Y	N	N	N
San Jose Creek Watershed Assessment (2014)	Monterey Peninsula Regional Park District	2014	Assessment of the watershed draining to San Jose Creek.	Y	Y	N	N	N	N	N	N	N	Y	N	Y	N	N	Y	N
Aquifer Storage and Recovery Project, Environmental Impact Report	Monterey Peninsula Water Management District	2006	The ASR project would allow diversion of a limited amount of flow from the Carmel River during high flow conditions for storage in, and later recovery from, the Seaside Groundwater Basin.	Y	Y	N	N	Y	N	N	N	N	N	Y	N	Y	N	Y	Y
Study Plan for Long Term Adaptive Management of the Carmel River State Beach and Lagoon (2007)	Monterey Peninsula Water Management District	2007	Summary of analyses to devize a Beach and Lagoon Management scheme to support both homeowners needing protection from potential flood inundation and protection of rare fish and amphibian species.	Y	Y	Y	N	N	N	Y	N	N	N	N	Y	N	N	Y	N
Monterey Peninsula Water Management District Water Supply Charge (2012)	Monterey Peninsula Water Management District	2012	Summary of MPWMD Supply Charge.	Y	N	N	N	Y	N	N	N	Y	N	N	N	Y	N	N	N
Monterey Peninsula Water Management District Annual Reports http://www.mpwmd.net/resources/annual-reports/	Monterey Peninsula Water Management District	2013	Website providing annual reports summarizing the MPWMD's previous year's goals, accomplishments, and other activitites.	Y	N	N	N	Y	N	N	N	Y	N	N	N	Y	N	N	N
Monterey Peninsula Water Management District Mission, Vision & Goals http://www.mpwmd.net/who-we-are/mission-vision-goals/	Monterey Peninsula Water Management District	2013	Website summarizing MPWMD's mission statement.	Y	N	N	N	Y	N	N	N	Y	N	N	N	Y	N	N	N
Canyon del Rey Master Drainage Plan – Draft (2014)	Monterey Peninsula Water Management District	2014	Presents an update to the Master Drainage Plan for Canyon del Rey originally prepared for the Monterey County Water Resources Agency in 1977. This updated plan accounts for changes in hydrologic and hydraulic conditions in the watershed, as well as the addition of new and updated flood management facilities. It also provides a new investigation and evaluation of sediment related processes in the watershed, including analyses of sediment transport, erosion, and deposition within the stream channel system.	Y	Y	N	Y	N	N	N	Y	N	N	N	N	N	Y	N	N

Title	Organization	Year	Description	Existing Conditions	Watershed reports	Watershed stewardship	Floodplain management	Water Management	Stream Restoration	Stormwater/LID	General Plans	Water Projects/CIP Lists	Water Quality Study	Other	Water Quality	Water Supply	Flood Control	Environmental	Community
Los Padres Dam and Reservoir Long-Term Strategic and Short-Term Tactical Plan (2014)	Monterey Peninsula Water Management District	2014	Overview of Los Padres Dam History along with future plans for dam operation.	Y	Y	N	N	Y	N	N	N	Y	N	N	Y	Y	N	Y	N
Draft Monterey Peninsula, Carmel Bay and South Monterey Bay Integrated Regional Water Management Plan Update (2014)	Monterey Peninsula Water Management District	2014	IRWM Plan update to address the major challenges and opportunities related to managing water resources within the Monterey Peninsula IRWM region (Region).	N	N	N	Y	Y	N	Y	N	Y	Y	N	Y	Y	Y	Y	Y
Seaside Groundwater Basin Salt & Nutrient Management Plan (2014)	Monterey Peninsula Water Management District	2014	Summary of the Salt and Nutrient Management Plan Prepared for the Seaside Groundwater Basin.	N	N	N	N	Y	N	N	N	N	Y	N	Y	Y	N	N	N
Assessment of Previous Models, Data Inventory, and Development of a Conceptual Model for Simulating Flow in the Carmel River and its Alluvial Aquifer: Support Services for MPWMD's IRWMP Project 8 (2015)	Monterey Peninsula Water Management District	2015	The Carmel River Basin is found to fill to capacity every year due to Carmel River streamflow. There have been extensive studies conducted recently examining the Carmel Valley , particularly surface and groundwater interactions in the Basin. A detailed hydrologic model that links GSFLOW and MODFLOW has been developed and is undergoing calibration. The model simulates flows and diversions in the Carmel River and its alluvial aquifer.	Y	Y	N	Y	N	Y	Y	N	N	N	N	Y	Y	Y	Y	N
Carmel River Watershed Assesment and Action Plan 2016 update	Monterey Peninsula Water Management District	2016	Update of the 2014 Action Plan	Y	Y	N	N	Y	N	N	Y	Y	N	N	Y	Y	Y	Y	Y
Summary of Operations Monterey Peninsula ASR Project WY 2016	Monterey Peninsula Water Management District	2016	Summary of operations of the Monterey Peninsula Aquifer Storage and Recovery (ASR) Project during Water Year 2016.	N	N	N	N	Y	N	N	N	N	Y	N	Y	Y	N	N	N
Integrated Natural Resources Management Plan (Sept. 2013)	Naval Support Activity Monterey	2013	The document charts the management and use of installation natural resources, establishes conservation priorities, and provides a basis for formulating budgets. The plan covers 1,000 acres of properties owned and managed by the Naval Support Activity Monterey.	N	N	N	N	N	N	N	Y	N	N	N	Y	N	N	N	Y
Presidio of Monterey Non-Potable Water Concept Plan (2013)	Presidio of Monterey	2013	Study to determine potential to incorporate greywater applications as part of a sustainable water program.	N	Y	N	N	Y	N	N	N	Y	N	N	Y	N	Y	N	N

Title	Organization	Year	Description	Existing Conditions	Watershed reports	Watershed stewardship	Floodplain management	Water Management	Stream Restoration	Stormwater/LID	General Plans	Water Projects/CIP Lists	Water Quality Study	Other	Water Quality	Water Supply	Flood Control	Environmental	Community
Stormwater characterization for reduction and reuse: Presidio of Monterey, California (2014)	Presidio of Monterey	2014	The objective of the study is to determine the effectiveness of LID in stormwater management in the Presidio of Monterey.											N	Y	Y	Y	Y	N
Draft California 2014 Integrated Report Region 3 Central Coast Regional Water Quality Control Baord	Region 3 Central Coast Regional Water Quality Control Baord	2016	2014 303(d) list for the Central Coast Regional Water Quality Control Board	N	N	N	N	N	N	N	N	N	Y	N	Y	N	N	N	N
Water Quality Control Plan for the Central Coastal Basin (2011)	Regional Water Quality Control Board	2011	The Central Coast Basin Plan provides a summary of water quality standards for the Central coast region along with the various beneficial uses for water bodies present in the region. The Basin Plan also describes the programs, projects, and other actions needed to meet the standards, State and Regional Board plans and policies to protect water quality, and statewide and regional monitoring programs.	N	N	N	N	N	N	N	N	N	Y	N	Y	N	N	N	N
Certification of Fecal indicator Bacteria TMDLs and Alternative Implementation Programs for Lower San Antonio River, Tularcitos Creek, Cholame Creek, San Lorenzo Creek, and Arroyo De La Cruz Watersheds	Regional Water Quality Control Board, Central Coast Region	2011	TMDL for fecal indicator bacteria for Tularcitos Creek and other receiving water bodies	N	N	N	N	N	N	N	N	N	Y	N	Y	N	N	N	N
Seaside Basin Monitoring and Management Program	Seaside Groundwater Basin Watermaster	2006	Summary of the monitoring and management plan for the Seaside Groundwater Basin.	N	N	N	N	Y	N	N	N	N	Y	N	Y	Y	N	N	N
Seaside Groundwater Basin Modeling and Protective Groundwater Elevations (2009)	Seaside Groundwater Basin Watermaster	2009	Summary of the results of the calibrated groundwater flow model of the Seaside Groundwater Basin.	N	N	N	N	Y	N	N	N	N	N	N	N	Y	N	N	N
Water Year 2011 Seawater Intrusion Analysis Report – Seaside Basin, Monterey County California (2011)	Seaside Groundwater Basin Watermaster	2011	This report addresses the potential for, and extent of, seawater intrusion in the Seaside Groundwater Basin.	Y	Y	N	N	N	N	N	N	N	N	N	Y	Y	N	Y	N
Water Year 2014 Seawater Intrusion Analysis Report – Seaside Basin, Monterey County California (2014)	Seaside Groundwater Basin Watermaster	2014	This report addresses the potential for, and extent of, seawater intrusion in the Seaside Groundwater Basin.	Y	Y	N	N	N	N	N	N	N	N	N	Y	Y	N	Y	N
Seaside Basin Amended Decision (2005)	State of California	2005												N					

Title	Organization	Year	Description	Existing Conditions	Watershed reports	Watershed stewardship	Floodplain management	Water Management	Stream Restoration	Stormwater/LID	General Plans	Water Projects/CIP Lists	Water Quality Study	Other	Water Quality	Water Supply	Flood Control	Environmental	Community
Fort Ord Dunes State Park General Plan and Environmental Impact Report (2004)	State Park and Recreation Commission	2004	This report was prepared to address comprehensive management of the state park's lands, by defining a framework for resource stewardship, interpretation, facilities, visitor use, and services. Describes current hydrologic conditions in the park.	Y	Y	Y	N	Y	N	Y	Y	Y	Y	N	Y	Y	Y	Y	N
Order on Four Complaints Filed Against the California-American Water Company (1995)	State Water Resources Control Board	1995	Initial order on complaints against CalAm relating to Carmel River drafting.	Y	Y	N	N	Y	N	N	N	N	Y	N	N	Y	N	Y	N
Cease and Desist Order WR 2009-0060 (Carmel River)	State Water Resources Control Board	2009	Cease and Desist Order from the state of California to limit overdraft on the Carmel River by CalAm.	N	N	N	N	Y	N	N	N	N	N	N	N	Y	N	N	N
Post-Construction Stormwater Management Requirements for Development Projects in the Central Coast Region - User Guide for Municipal Implementation	State Water Resources Control Board	2013	Summary of requirements for implementing stormwater management projects in the Central Coast.	Y	Y	N	N	N	N	Y	N	N	Y	N	Y	N	N	N	N
Recycled Water Policy (2013)	State Water Resources Control Board	2013	Summary of the State Board's Recycled Water Policy.	N	N	N	N	Y	N	Y	N	Y	N	N	Y	Y	N	N	N
Storm Water Resource Plan Guidelines	State Water Resources Control Board	2015	State Board Guidelines on developing a Stormwater Resource Plan.	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
Order of Amending in Part Requirements of State Water Baord Order WR 2009-0060.	State Water Resources Control Board	2016	Amended Cease and Desist Order for the Carmel River	Y	N	N	N	Y	N	N	N	N	N	N	N	Y	N	Y	N
Carmel River Watershed Action Plan 2014 Update (2014)	The Carmel River Watershed Conservancy	2014	The Action Plans are based on scientific studies, mission statement objectives and input from our prospective partners and the Public. There are 57 actions in the Action Plan, which are subdivided into eight Action categories: Flows, Groundwater, Habitat, Sedimentation, Steelhead, Education, Public Safety, and Water Quantity.	Y	Y	Y	Y	N	Y	Y	N	Y	N	N	Y	Y	Y	Y	Y
Active Projects in the Carmel River Watershed	The Carmel River Watershed Conservancy	2017	List of current water resources, environmental and/or restoration related projects ongoing in the Carmel River Watershed.	Y	Y	N	N	N	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y
Supplemental Carmel River Watershed Action Plan (2007)	The Planning and Conservation League Foundation and the Carmel River Watershed Conservancy	2007	This report analyzes the opportunities that exist to remove the antiquated dam, reduce downstream groundwater pumping, and implement an integrated watershed restoration and sediment management strategy. It focuses on opportunities to provide benefits to the downstream community and the public through restoration of the Carmel River Watershed.	Y	Y	Y	N	N	N	Y	N	Y	N	N	Y	N	N	Y	N

Title	Organization	Year	Description	Existing Conditions	Watershed reports	Watershed stewardship	Floodplain management	Water Management	Stream Restoration	Stormwater/LID	General Plans	Water Projects/CIP Lists	Water Quality Study	Other	Water Quality	Water Supply	Flood Control	Environmental	Community
Watershed and Riparian Assessment Report (WRAR): Bureau of Land Management Lands Former Fort Ord, Monterey County, California (2002)	The Watershed Institute	2002	Characterizes the dominant physical, ecological, and cultural components of a portion of the former Fort Ord landscape.	Y	Y	N	N	N	N	N	N	Y	Y	N	N	N	Y	Y	Y

APPENDIX D
Monterey Peninsula Water Recovery Study Report

engineers | scientists | innovators

Monterey Peninsula Water Recovery Study Report

Part of the Monterey Peninsula Stormwater Resource Plan

Prepared for

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April 16, 2018

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ACRONYMS AND ABBREVIATIONS

ADWF	average dry weather flow
AF	acre-foot
AFY	acre-feet per year
ASBS	Area of Special Biological Significance
ASR	Aquifer Storage and Recovery
AWPF	Advanced Water Purification Facility
BP	Big Sur River – Frontal Pacific Ocean Catchment
CAWD	Carmel Area Wastewater District
CalAm	California American Water
CEQA	California Environmental Quality Act
CM	Canyon Del Rey – Frontal Monterey Bay Catchment
CMAC	Continuous Monitoring and Adaptive Control
CRFREE	Carmel River Floodplain Restoration and Environmental Enhancement
CSIP	Castroville Seawater Intrusion Project
CU	Capture and Use
DSS	Diversion to Sanitary Sewer
DWR	Department of Water Resources
GIS	Geographic Information System
GWR	Ground Water Replenishment
HSG	Hydrologic Soil Group
INF	Infiltration to a Water Supply Aquifer
IRWM	Integrated Regional Water Management
IRWMP	Integrated Regional Water Management Plan
LR	Lake or Reservoir
M1W	Monterey One Water
MGD	million gallons per day

MPWMD	Monterey Peninsula Water Management District
MRWPCA	Monterey Regional Water Pollution Control Agency
NED	National Elevation Dataset
NHD	National Hydrography Dataset
NOAA	National Oceanic and Atmospheric Administration
NRCS	National Resource Conservation Service
PBCSD	Pebble Beach Community Services District
PWMGWR	Pure Water Monterey Groundwater Replenishment
PWWF	peak wet weather flow
RTP	Regional Treatment Plant
RWQCB	Regional Water Quality Control Board
SVRP	Salinas Valley Reclamation Project
SWRCB	State Water Resources Control Board
SWRP	Stormwater Resource Plan
TAC	Technical Advisory Committee
TELR	Tool to Estimate Load Reduction
USGS	U. S. Geological Survey
WBD	Watershed Boundary Dataset
WWTP	Wastewater Treatment Plant

1. INTRODUCTION AND BACKGROUND

This report documents how the Monterey Peninsula (the Peninsula) Water Recovery Study (the Study) evaluated the feasibility of establishing a Peninsula-wide water recovery and reclamation system. The methodology presented herein focuses on identifying and evaluating potential projects to capture sources of wet and dry weather runoff within the Monterey Peninsula, Carmel Bay, and South Monterey Bay Integrated Regional Water Management (IRWM) Region (the Planning Area) for water recovery and use. These water recovery projects are meant to reduce the Peninsula's dependence on the Carmel River, Carmel Valley Alluvial Aquifer, and adjudicated Seaside Groundwater Basin (currently the primary water supply sources in the Planning Area). The study considers how to store, treat, and transport potential sources of runoff prior to entering existing water and wastewater infrastructure for use, but does not identify projects that expand existing water distribution and wastewater storage, treatment, and conveyance system capacities, or determine if this will be needed. The study provides a foundation for more project-specific analyses in the future.

1.1 Study Objectives

The objectives of this Study include:

1. Examine the feasibility of a region-wide water recovery and reclamation system to reduce dependence on existing water supply sources.
2. Consider stormwater and non-stormwater sources (wet and dry weather runoff) and how the sources can be stored, treated, and transported prior to entering existing water and wastewater infrastructure for use.
3. Identify two, at a minimum, projects selected by the Water Recovery Study proponents – City of Monterey, Monterey Peninsula Water Management District, and Monterey One Water – for development of conceptual designs as part of the Study.

1.2 Study Tasks

The tasks conducted as part of this Study include:

- Task A: Develop a memorandum describing the methodology used to examine the feasibility of region-wide water recovery and reclamation system; conduct outreach to technical stakeholders.
- Task B: Use the methodology to identify projects focusing on treatment, transport, and storage; consider system optimization; and document the results in a report.
- Task C: Develop concept designs for the preferred project and at least one alternative project.
- Task E: Complete a California Environmental Quality Act (CEQA) checklist for the preferred project and prepare a 30% design.
- Task F: Develop a project implementation plan.

This report is the deliverable associated with Task B. Project identification is described in Section 2 and project feasibility evaluation is described in Section 3. Tasks C, E, and F are described in Section 4, but the results of these tasks will be reported separately.

1.3 Planning Area

As described in the Monterey Peninsula, Carmel Bay, and South Monterey Bay IRWM Plan Update (MPWMD and DD&A, 2014), the Planning Area is in the Central Coast Regional Water Quality Control Board (RWQCB Region 3) and lies between the Salinas River groundwater basin and the Big Sur coast. The Planning Area was established based on watershed and groundwater basin limits, portions of the near-shore environment areas affected by inland area activities, and takes into consideration jurisdictional limits, powers, and responsibilities for water resource management. The Planning Area comprises approximately 340 square miles and consists of coastal watershed areas in Carmel Bay and south Monterey Bay between Point Lobos on the south and Sand City on the north – a 38.3-mile stretch of the coast that includes two Areas of Special Biological Significance (Carmel Bay and Pacific Grove). The area encompasses the six Monterey Peninsula cities of Carmel-by-the-Sea, Del Rey Oaks, Pacific Grove, Monterey, Sand City, Seaside, and extends into portions of the unincorporated area of Monterey County at the former Fort Ord, in the Carmel Highlands, Pebble Beach, the inland areas of Carmel Valley and the Laguna Seca area. A map of the Planning Area is provided in Figure 1.

1.3.1 Watersheds

The U.S. Geological Survey (USGS) and California Department of Water Resources (DWR) watersheds that are located within the Planning Area will be used as the basis for the Water Recovery Study. The jurisdictional boundaries within these watersheds will also be used to further delineate planning priorities. The USGS and DWR watersheds in the region, shown in Figure 1, include:

- The Carmel River Basin watershed,
- Most of the Canyon Del Rey/ Frontal Monterey Bay watershed,
- A small portion of the Big Sur/ Frontal Pacific Ocean watershed, and
- A small portion of the El Toro Creek/ Salinas River watershed.

The Carmel River Basin watershed makes up the most area within the Planning Area (255 square miles) and is the only watershed fully contained within the Planning Area boundary. The Carmel River and the Carmel Valley Alluvial Aquifer (approximately 6.8 square miles within the Carmel River Basin watershed) currently represent the largest source of potable water for the region. The watershed has less urban development than the Canyon Del Rey/ Frontal Monterey Bay watershed.

The Canyon Del Rey/ Frontal Monterey Bay watershed (69 square miles, approximately 53 of which are within the Planning Area) contains the majority of urbanized areas within the Planning Area, as well as the majority of the water demand. The watershed is underlain by the adjudicated Seaside Groundwater Basin and small portions of the Salinas Valley Groundwater Basin, which are hydraulically connected and used for water supply. The extent of these groundwater aquifers is 69 square miles, 25 square miles of which are within the Planning Area. Those 25 square miles represent 47% of the portion of the Canyon Del Rey/ Frontal Monterey Bay watershed within the Planning Area.

A small portion of the Big Sur/ Frontal Pacific Ocean watershed is within the Planning Area, consisting of approximately 24 square miles of the 167-square mile watershed. The watershed does not have a main water supply source within the Planning Area, though there is some water supply from miscellaneous formations of groundwater within the watershed.

A very small portion of the El Toro Creek/ Salinas River watershed is within the Planning Area, consisting of approximately 6 square miles of the 415-square mile watershed. This area is east of the Canyon Del Rey/ Frontal Monterey Bay watershed and is entirely underlain by the Seaside and Salinas Valley Groundwater Basins (Figure 1).

1.3.2 Catchments

Catchments were delineated using the Tool to Estimate Load Reduction (TELR) and NHDplus[1] (National Hydrography Dataset) catchments. The catchments are defined based on the storm drain outfalls to the ocean. Projects within the same catchments may be combined to create a regional water supply recovery and reclamation system. A map of the delineated catchments for this Study is shown on Figure 2. Appendix A provides a table of the Study catchments with tributary area, level of urban development, and rough estimates of average annual runoff (in units of acre-feet per year, AFY). The runoff estimates provide context for what is potentially available for water recovery. In total, it is estimated that catchments that drain through the Planning Area yield approximately 700 to 1,000 AFY of dry weather runoff and approximately 6,100 AFY of urban stormwater runoff.

1.4 Technical Stakeholder Group

The Water Recovery Study Technical Stakeholder Group includes participants in the region that are familiar with stormwater and wastewater distribution systems, treatment, and/or have technical knowledge of the Carmel River and Carmel Valley Alluvial Aquifer or the Seaside Groundwater Basin. The Technical Stakeholder Group attended an interagency Technical Stakeholder Group meeting on October 17, 2017, the intent of which was to get input on the study objectives and methodology. The Technical Stakeholder Group also provided input on project evaluation once the initial analysis was complete. The Technical Stakeholders are listed in Appendix B.

1.5 Water Recovery Study Methodology Overview

The Water Recovery Study methodology includes the following components:

1. Identification of Water Recovery Study projects, and
2. Evaluation of Water Recovery Study project feasibility characteristics.

[1] NHDPlus is a geo-spatial, hydrologic framework dataset built by the US EPA Office of Water, assisted by the US Geological Survey. NHDPlus is an integrated suite of application-ready geospatial data sets that incorporate many of the best features of the National Hydrography Dataset (NHD), the National Elevation Dataset (NED), and the Watershed Boundary Dataset (WBD).

In addition to the Water Recovery Study components described herein, additional analyses were conducted to evaluate the Water Recovery Study projects as part of the development of the Monterey Peninsula Stormwater Resource Plan (SWRP). A flow chart that describes the interaction between the Water Recovery Study and the SWRP is provided in Figure 3. As indicated in Figure 3, certain aspects of project identification (i.e., obtaining planned stakeholder projects and performing some of the project opportunity analyses) are shared tasks between the SWRP and Water Recovery Study. All projects screened for inclusion in the Water Recovery Study, whether they are identified as Water Recovery projects or not, are included in the list of SWRP projects. The characterization of project feasibility of the Water Recovery Study was performed independently of the SWRP's project classification and evaluation.

The evaluation conducted as part of the SWRP (identified as 'SWRP Tasks' in the flow chart) is summarized in the *Methodology for Integrated Identification, Prioritization, and Analysis of Monterey Peninsula SWRP Projects Memorandum* (Geosyntec, 2017). The identification and evaluation of Water Recovery Study projects (identified as 'Water Recovery Study Tasks' or 'Tasks for Both' in the flow chart) are described in Sections 2 through 4 of this memorandum.

2. WATER RECOVERY STUDY PROJECT IDENTIFICATION

The first step in the Water Recovery Study was to identify potential projects that could recover wet and dry weather runoff for water supply. The four categories of water recovery projects that were considered in the study[2] include:

- Storage and diversion, infiltration, or irrigation from lakes and reservoirs,
- Diversions to sanitary sewer to supplement recycled water,
- Infiltration into a potable water supply aquifer, and
- On-site capture and use.

These project types, as well as the method used to identify the project type, are described in Sections 2.1 through 2.4 below.

In addition, planned projects identified by SWRP cooperating entities, interested parties, and stakeholders were screened and classified into the above project types for inclusion in the Water Recovery Study. A description of how planned projects were submitted for the SWRP is provided in the *Methodology for Integrated Identification, Prioritization, and Analysis of Monterey Peninsula SWRP Projects Memorandum* (Geosyntec, 2017).

In total, 241 Water Recovery Study projects were identified as part of the study. Of the 82 planned projects submitted by stakeholders for the SWRP, 33 were considered Water Recovery projects. Of these 33 planned Water Recovery Study projects, 19 had overlap with Water Recovery projects identified via a Geographic Information System (GIS) opportunity analysis, while 14 were unique in that they did not overlap with projects identified in the opportunity analysis.

2.1 Lakes and Reservoirs

This Study examined existing lakes and reservoirs that receive runoff from substantial tributary area and have existing storage volume that could be used to detain runoff and recover it via percolation (if located above a water supply aquifer), capture and use, and/or diversion to the sanitary sewer system. The study also considered optimizing the operation of lakes and reservoirs to increase runoff capture and use as a potential mechanism to enhance water recovery.

Typically, stormwater detention facilities are not continuously monitored and rely on a passive hydraulic outlet to release flows (e.g., stagnant orifices, weirs, and/or pumps with level settings). To improve upon these conventional designs, remote continuous monitoring and adaptive control (CMAC) has been identified as a promising technology for providing better data collection and management of runoff (California SWRCB, 2016). CMAC can use real-time National Oceanic and Atmospheric Administration (NOAA) rainfall forecast information, along with water level and flow rate monitoring data, to automatically draw down a stormwater facility and provide storage for forecasted runoff based on site and system objectives. The results can include significant improvements in performance, such as runoff capture and reuse (WERF, 2014). CMAC can be

[2] Micro-treatment and injection into perched aquifers was initially considered as a project category. However, a lack of available information on perched aquifers necessitated the removal of this category from the study.

paired with lakes and reservoirs to time diversions to the sanitary sewer to optimize water reuse potential while staying within the available capacity of wastewater conveyance and treatment systems, and additionally, reduce the amount of runoff discharged to Monterey Bay, Carmel Bay, and the Pacific Ocean.

At the outset of this study, Lake El Estero, Laguna Grande (Roberts Lake), David Avenue Reservoir, and Lake Del Monte (Navy Lake) were identified as Lake and Reservoir projects of primary interest. An opportunity analysis was performed to identify other potential lake and reservoir projects within the Planning Area. These opportunities were identified using NHDplus surface water bodies and whether that surface water body has met the following criteria:

1. Has potential to receive a substantial source of stormwater by being located within 10 feet of an NHDplus stream or within 50 feet of an existing storm drain line, and
2. Has potential to recover additional runoff via percolation to a water supply aquifer, capture and use, diversion to sanitary sewer, or optimization.

In-stream obstructions such as rubber dams, which can temporarily inflate to divert runoff or enhance percolation into the subsurface, were not considered as part of this study and are not included in this project category. Surface impoundments that are already a part of the Carmel Area Wastewater District (CAWD) recycled water program in Del Monte Forest were also not considered as part of this opportunity analysis.

There were 13 projects identified in the Lake and Reservoirs (LR) opportunity analysis and one unique project concept submitted by stakeholders that did not overlap with projects identified in the opportunity analysis and was categorized as a Lake and Reservoirs project. The unique project concept is a new detention facility that could be implemented in open space (behind the Safeway on Canyon Del Rey Boulevard in Del Rey Oaks) upstream of Laguna Grande (Roberts Lake). Lake and Reservoir projects are mapped on Figure 4 and listed in the project feasibility matrix provided in Appendix C. The pathway for recovering water (i.e., diversion to sanitary sewer, infiltration into a potable water supply aquifer, or capture and use) for each identified LR project is provided in Table 1.

Table 1: Pathway for Water Recovery for Lake and Reservoir Projects

LR Project ID	Lake/Reservoir Name	Pathway for Water Recovery
LR_01	County and Private Pond	Diversion to sanitary sewer
LR_02	David Avenue Reservoir	Diversion to sanitary sewer
LR_03	Lake Del Monte	Diversion to sanitary sewer, capture and use
LR_04	Lake El Estero	Diversion to sanitary sewer, capture and use
LR_05	Glen of Pacific Grove	Diversion to sanitary sewer, capture and use
LR_06	Laguna Seca	Infiltrate to a potable water supply aquifer
LR_07	Laguna Seca Golf Ranch	Capture and use
LR_08	Monterey Peninsula Regional	Diversion to sanitary sewer, capture and use
LR_10	Nicklaus Club – Monterey	Capture and use

LR Project ID	Lake/Reservoir Name	Pathway for Water Recovery
LR_11	Pacific Grove Golf Links	Diversion to sanitary sewer, capture and use
LR_12	Roberts Lakes / Laguna Grande	Diversion to sanitary sewer, capture and use
LR_13	Santa Lucia Conservancy	Capture and use, other[1]
LR_14	Los Padres Reservoir	Other[1]
LR_planned_79	New Detention behind Safeway	Diversion to sanitary sewer

[1]Another pathway considered was to detain runoff in reservoirs tributary to the Carmel River and release the water at opportune times such that the timing of allowable diversion via the California American Water (CalAm) supply wells could be extended.

2.2 Diversions to Sanitary Sewer

Storm drains that receive runoff from substantial tributary area and can be conveyed to sanitary sewer pump stations can be retrofitted to divert dry weather runoff to the sanitary sewer system for treatment and ultimate reuse. Increased or new detention storage was considered as part of these projects if the first flush of stormwater runoff could be diverted as well. Pretreatment was considered as part of this project category.

Within the Monterey One Water (M1W) (formerly Monterey Regional Water Pollution Control Agency [MRWPCA]) service area, which is primarily within the Canyon Del Rey/Frontal Monterey Bay watershed as well as portions of the northern Salinas Valley, runoff can be diverted to the Regional Treatment Plant (RTP) via gravity sewer and then through one of the M1W Interceptor Pipelines (pressurized force mains and/or gravity main). At the RTP, wastewater undergoes primary and secondary treatment and then can be reclaimed by either: (1) undergoing tertiary treatment and used as recycled 'purple pipe' water for irrigation, via the Salinas Valley Reclamation Project (SVRP) recycled water plant and the Castroville Seawater Intrusion (CSIP) distribution system; or (2) starting in 2019, undergoing advanced treatment, transport, and injection into the Seaside Groundwater Basin, via the Advanced Water Purification Facility (AWPF) of the Pure Water Monterey Groundwater Replenishment (PWMGWR) Project currently under construction. An average of 60 percent of M1W wastewater is recycled each year and that percentage will increase when the PWMGWR Project is operational. M1W currently serves a population of approximately 250,000 people (M1W, 2017) and treats 17.2 million gallons per day (MGD) average dry weather flow (ADWF) for the 2014-2016 period (A. Imamura, personal communication, March 20, 2018), with a peak wet weather flow (PWWF) of 36.8 MGD (M1W, 2016). The RTP is permitted for design flows of 29.6 MGD ADWF and 75.6 MGD PWWF, indicating available capacity for future runoff diversions. Pump station capacity for accepting diversions from lakes and reservoirs as well as additional storm drain diversions was considered as part of this study.

Within the CAWD service area, which is primarily within the Carmel River Watershed, runoff can be diverted to the Wastewater Treatment Plant (WWTP) via gravity sewer and force main. Treated wastewater is reclaimed by sending recycled 'purple pipe' water to Del Monte Forest where it is used to irrigate seven golf courses (Pebble Beach Golf Links, Spyglass Hill, The Links at Spanish Bay, Peter Hay, Cypress Point, Monterey Peninsula Country Club, and Poppy Hills). CAWD's service area is approximately 5.5 square miles and serves 11,000 people within the district and treatment and disposal for an additional 4,500 people in Del Monte Forest from the Pebble Beach

Community Services District (PBCSD) (CAWD, 2017). Current ADWF is approximately 1.8 MGD, 1.2 MGD of which is from CAWD and 0.6 MGD from the Pebble Beach Community Services District. The CAWD WWTP has been designed to treat 4.0 MGD of primarily domestic wastewater and the plant has a permitted capacity of 3.0 MGD, indicating available capacity for future runoff diversions.

One dry weather storm drain diversion project currently in operation is the Pacific Grove Area of Special Biological Significance (ASBS) Dry Weather Diversion System. It has been implemented in three phases between 2001 and June 2014 and currently covers the section of coastline from Lovers Point east to the Hopkins Marine Station (Pacific Grove and Monterey, 2016). This project currently diverts dry weather urban runoff from a 652-acre catchment area to the M1W Interceptor Pipeline that is processed at the RTP (Pacific Grove and Monterey, 2016). Upgrades and expansions of the existing dry weather diversion system are proposed to increase the capacity of the collection system to be able to divert up to the 85th percentile wet weather storm from a portion of the City of Pacific Grove to the M1W Interceptor Pipeline. These proposed upgrades include: stormwater diversions for the Lovers Point and Sea Palm catchments, by diverting runoff into underground storage tanks and metering it to the M1W Interceptor Pipeline; and Greenwood, Eardley, David Avenue, and Pine Street diversions, which would expand facilities already constructed to divert dry weather flows and/or evaluate additional opportunities to utilize new infrastructure such as the David Avenue Reservoir (Pacific Grove and Monterey, 2016). Another dry weather storm drain diversion that is currently being considered is for Lake El Estero. Preliminary analysis has been conducted to divert water from Lake El Estero to the sanitary sewer system (MRWPCA, 2016). Both David Avenue Reservoir and Lake El Estero have been identified in this study as Lake and Reservoir (LR) projects, as stated in Section 2.1.

At the outset of this Study, identified projects in the Diversions to Sanitary Sewer category included: the New Monterey Urban Diversion to the M1W Reeside pump station in the City of Monterey; Del Monte Boulevard and Bay Avenue Outfall Diversion to the M1W Seaside pump station in the City of Seaside; and the Carmel Bay ASBS Project, as identified in the Integrated Regional Water Management Plan (IRWMP) (MPWMD, 2014), which would divert dry-weather runoff to the CAWD sanitary sewer system. An opportunity analysis was performed to identify other potential storm drain diversions to sanitary sewer in the Planning Area. The most readily available opportunities were identified based on storm drain outfalls along the coast that could divert runoff to a sanitary sewer pump station. It was assumed that coastal outfalls could divert runoff upstream or downstream to the nearest sanitary sewer pump station along the pressurized sewer main, which extends parallel to the coast from Pacific Grove through Monterey and Sand City. Along the gravity sewer main, which extends for approximately one mile along the coast in Monterey, coastal outfalls were directed to the nearest downstream sanitary sewer pump station. The coastal sanitary sewer pump stations that were considered include those operated by M1W, jurisdictions which connect to the M1W Interceptor Pipeline (e.g., Seaside County Sanitation District, City of Monterey, Naval Postgraduate School, and Presidio of Monterey), and CAWD. A concept design that could be considered in future analyses includes subsurface storage of storm water runoff under beach parking lots. This type of project is currently underway and in the construction phase in Santa Monica, California.

There were eleven projects identified in the Diversions to Sanitary Sewer (DSS) opportunity analysis and one unique planned project submitted by stakeholders that did not overlap with projects identified in the opportunity analysis and was categorized as a DSS opportunity. The unique stakeholder project is the Hartnell Gulch creek restoration and stormwater diversion project in the City of Monterey. Flows from Hartnell Gulch may be diverted to Lake El Estero and/or temporarily stored underground in the adjacent public library parking lot for additional recovery. DSS opportunities are mapped on Figure 4 and listed in the project feasibility matrix provided in Appendix C.

2.3 Infiltration into a Potable Water Supply Aquifer

Passive recharge into a potable water supply aquifer provides another option for water supply augmentation. Passive recharge into a potable water supply aquifer entails locating an infiltrating stormwater capture facility, such as a subsurface infiltration gallery over a groundwater basin used for water supply or a dry well that is situated above a potable water supply aquifer. Potential passive recharge projects were identified over the Seaside Groundwater Basin, including the Paso Robles and Santa Margarita Aquifers, and the Carmel Valley Alluvial Aquifer.

Overbank flood waters were considered a source of water recovery if stored on the floodplain and allowed to percolate into a water supply aquifer. Candidates for infiltration projects included riparian areas where floodplain connectivity could safely increase without causing flood impacts to infrastructure. The only such planned project is the proposed Carmel River Floodplain Restoration and Environmental Enhancement (CRFREE) Project, co-sponsored by the Monterey County Resource Management Agency and the Big Sur Land Trust, located just east of Highway 1 immediately south of the Carmel River Bridge. The southern floodplain proposed for restoration is above the Carmel River Groundwater Basin, although potential water supply yield from this portion of the aquifer is not appreciable since no potable water supply wells are within or downstream from the project area. Irrigation wells at the CRFREE Project site and west of Highway 1 will benefit from groundwater recharge from storm flow inundation onto the floodplain, which is planned to occur for 5-year storm events and larger. Recharge to the aquifer from the CRFREE Project will primarily result in environmental benefits associated with increased base flows to the Carmel Lagoon, which has extensive habitat supporting the local steelhead salmon population. No other riparian floodplains with permeable soils that are located above aquifers used for water supply were identified.

A geospatial opportunity analysis was conducted to identify potential passive recharge projects. This analysis involved overlaying geographic information regarding physical constraints that could preclude infiltration into a water supply aquifer. Physical constraints that were identified and mapped as part of this effort to delineate feasible infiltration areas (see Figure 5) included:

- Underlying soil type - National Resource Conservation Service (NRCS) Hydrologic Soil Group (HSG) ‘A’ and ‘B’ type soils are considered conducive for infiltration.
- Depth to groundwater – sufficient separation (greater than 10 feet) from the base of the facility to underlying groundwater is recommended to protect groundwater quality.

- Geotechnical hazards – infiltration is not considered feasible if landslides are present or if there is high or very high liquefaction potential.
- Contamination – adjacent or underlying soil or groundwater contamination creates an infeasible condition for groundwater recharge due to the potential for migration of pollution.
- Set-backs – infiltration must be located a sufficient distance (greater than 100 feet) away from water supply wells and septic fields, for groundwater quality purposes. Set-backs from structures and utilities may also be needed to prevent infiltration from impacting structural stability.
- Groundwater basins – Infiltration into a water supply aquifer can only occur if the project overlies one of the identified water supply aquifers in the Seaside Groundwater Basin or Carmel Valley Groundwater Basin.

Locations identified as physically practical for infiltration into a water supply aquifer were further screened to identify locations with sufficient tributary drainage and undeveloped or open space area to implement regional projects, and/or locations that could be considered for smaller distributed infiltration projects. These locations were considered opportunities for implementation of passive regional or distributed stormwater and dry weather runoff recharge projects.

The following data sources were used to identify locations that could be feasible for infiltration opportunities on a parcel basis:

- All opportunities identified in the capture and use opportunity analysis (see Section 2.4);
- Parcels with the following County of Monterey land use codes for vacant land:

Land Use Code	Description	Land Use Code	Description
1A	Vacant S.F.D. 1 Site	3C	Undeveloped 41 to 300 Acres
1B	Vacant S.F.D. 2 or more Sites	3D	Undeveloped 301 or more acres
1M	Vacant Transitional	5A	Vacant Commercial
2A	Vacant Zoned for Multi Family	5Z	Vacant Transitional
2M	Vacant Transitional	6A	Vacant Industrial
3A	Res. Use, Vacant up to 10 ac.	6M	Vacant Transitional
3B	Res. Use, Vacant, 11 to 40 ac.		

The following criteria were used to identify potential infiltration project opportunities:

- Majority of parcel overlying areas feasible for infiltration to a water supply aquifer,
- Parcel size greater than or equal to 0.1 acres,
- Parcel located within 500 feet of a storm drain line,
- Land use/land cover that is either vacant, open space, irrigated, or flat impervious cover (e.g. parking lot, tennis court) using aerial imagery in GIS. Buildings, beach, and wooded areas were considered not feasible for infiltration.

In addition to the parcel-based analysis, two other infiltration project types were considered: (1) a dry well program that could be implemented in residential areas in Seaside and/or Carmel Valley, and (2) projects where runoff could be diverted from tributaries to the Carmel River via the storm drain network. The dry well program would divert flows from storm drain network in residential neighborhoods to a water quality pretreatment system that will discharge to a dry well above domestic supply aquifers. Projects that would detain and infiltrate diverted runoff from tributaries to the Carmel River would be constructed to delay the timing of infiltration into the Carmel Valley Alluvial Aquifer and could retain water for up to one month or longer.

If both infiltration and capture and use water recovery pathways were identified as opportunities on the same parcel, the priority was given to infiltration, except for golf courses and cemeteries, which were prioritized as capture and use projects.

There were 140 projects identified in the Infiltration into a Water Supply Aquifer (INF) category, including two programmatic dry well programs (Seaside and Carmel Valley), six potential opportunities to divert runoff from tributaries to the Carmel River, and three unique planned projects submitted by stakeholders that did not overlap with projects identified in the opportunity analysis and were categorized as an infiltration opportunity. These projects are mapped on Figure 4 and listed in the project feasibility matrix provided in Appendix C.

2.4 Capture and Use

Harvesting of wet and dry weather runoff as a water source is possible throughout the Planning Area where a demand is present. Water storage facilities, including cisterns and above- or below-ground tanks that capture and harvest stormwater from rooftops and other impervious surfaces and then store the water for water supply use, are utilized for these water recovery projects. Irrigation demand for vegetated landscapes was the targeted candidate for capture and use projects.

Cistern water tanks are typically used for smaller distributed facilities, whereas larger above- or below-ground storage tanks are typically used for regional facilities (i.e., capturing runoff from a larger tributary area). Currently, the Monterey Peninsula Water Management District (MPWMD) and CalAm offer rebates for distributed cistern water tanks through the Monterey Water Conservation program (MPWMD, 2017). The rebates offered to residential, commercial, and industrial property owners is $50 per 100 gallons of water storage capacity (up to 500 gallons) in a cistern, then $25 per 100 gallons of water storage capacity up to a maximum storage capacity of 25,000 gallons per qualifying property.

To identify locations where regional capture and use storage facilities could be implemented, a geospatial analysis was conducted to identify potential locations for use of captured water in urban areas. This entailed an identification of public and private irrigated lands, by screening for recreation, park, institutional (i.e., municipal buildings and schools), and open space land uses. The locations were examined in further detail to identify those currently irrigated by potable water. Large irrigated areas that would require considerable water demand were further examined to identify whether the location could be configured to capture sufficient upstream flows (e.g., via storm drain diversion) to support irrigation demand on-site, and whether there is area to house a large capture and use facility.

The following data sources were used to identify areas feasible for capture and use project opportunities:

- Recommended projects based on Table ES1 from the City of Pacific Grove Local Water Project Facility Plan Report (WRFP No. 3316-010), dated January 2014;
- Irrigated green space in the urban areas at the 1:30,000 scale using the World Topographic Map[3] in GIS;
- Parcels with the following County of Monterey land use codes:

Land Use Code	Description	Land Use Code	Description
3H	Wholesale Nurseries, Mushroom Houses	4K	Agriculture Preserves, Irrigated, Row Crop
4C	Row Crop	4N	Ag. Preserve Vineyard, orchard
4D	Field Crops, Alfalfa, Pasture	5W	Recreational, golf courses, resorts, tennis courts
4F	Vineyards	7E	Schools, Colleges, Day Schools, Land and/or Impr.
4G	Orchards (fruits or nuts)	7G	Cemeteries, Etc.

- Public parcel owners associated with County of Monterey land use codes 7A and 7B that have been screened for potential municipal buildings and schools (table provided in Appendix D); and
- Properties within urban areas in the California Protected Areas Database[4].

The following criteria were used to identify potential locations that would be feasible for capture and use:

- Parcel area greater than or equal to 0.1 acres,
- Parcel located within 500 feet of a storm drain line for potential storm drain diversion, and

[3] This map is designed to be used as a basemap by GIS professionals and as a reference map by anyone. The map includes administrative boundaries, cities, water features, physiographic features, parks, landmarks, highways, roads, railways, and airports overlaid on land cover and shaded relief imagery for added context. Coverage is provided down to ~1:4k. This basemap was compiled from a variety of best available sources from several data providers, including the U.S. Geological Survey (USGS), U.S. Environmental Protection Agency (EPA), U.S. National Park Service (NPS), Food and Agriculture Organization of the United Nations (FAO), Department of Natural Resources Canada (NRCAN), GeoBase, Agriculture and Agri-Food Canada, DeLorme, HERE, Esri, OpenStreetMap contributors, and the GIS User Community. For more information on this map, including the terms of use, visit http://goto.arcgisonline.com/maps/World_Topo_Map.

[4] The California Protected Areas Database (CPAD) contains data on lands owned in fee by governments, non-profits and some private entities that are protected for open space purposes. Data includes all such areas in California, from small urban parks to large national parks and forests, mostly aligned to assessor parcel boundaries. California Protected Areas Database (CPAD - www.calands.org). August 2017.

- Potential for irrigated land uses (e.g., ball/recreational fields, parks, golf courses) using aerial imagery in GIS.

There were 75 projects identified in the Capture and Use (CU) category including nine unique planned projects submitted by stakeholders that did not overlap with projects identified in the opportunity analysis and were categorized as a CU opportunity. These are mapped on Figure 4 and listed in the project feasibility matrix provided in Appendix C.

3. CHARACTERIZATION OF PROJECT FEASIBLITY

The identified Water Recovery Study projects were compiled into a Water Recovery Study project database. Each identified project was characterized for project implementation feasibility. This semi-quantitative characterization considered the study objectives and the interests of the stakeholders. This characterization was used to assist with selecting projects for which conceptual designs will be developed.

The three project feasibility characteristics that were evaluated include:

1. Water supply – the estimated annual volume of water that could be recovered for water supply.
2. Planning level cost – the planning level estimate of the unit project cost.
3. Ease of Implementation – considerations for project financing, environmental constraints, complexity of permitting and land acquisition, seasonality of water recovery source, rights to source water, water quality implications, water loss considerations due to hydrogeology, and project coordination and optimization.

Capacity considerations at the RTP and within the sanitary sewer pipeline system were identified when evaluating projects using documented pump station capacities (MRWPCA, 2016) and available pipe diameters, but quantitative evaluation of treatment capacity was not a part of the scope of this study. When considering projects for implementation at the design level, treatment capacity will need to be quantified in detail. Future wastewater generated because of new land development in the service area should also be considered at the design level to estimate the excess capacity available at build-out conditions.

3.1 Water Supply

The estimated amount of annual runoff that could potentially be recovered at the project site to augment water supply is provided as a range. Ranges include 0 - 5 AFY; 5 - 10 AFY; 10 - 20 AFY; 20 - 100 AFY; and 100+ AFY. Estimated net recovery volume was calculated assuming there are no other Water Recovery Study projects implemented in the area tributary to the project. Both wet and dry weather runoff were considered.

Wet weather runoff supply was calculated for all projects opportunities. Wet weather runoff supply was calculated as a function of catchment hydrology, facility configuration, and drawdown rate using the following steps:

a) Calculate the runoff depth (acre-feet per acre per year) as a function of live storage volume, normalized by tributary area (inches); drawdown time (days); and runoff coefficient (unitless). This was displayed in a nomograph, constructed using continuous hydrologic simulation (see nomograph example in Figure 6). Nomographs were developed for catchments with impervious percent of 25%, 50%, 75%, and 100%; catchment soils comprised of HSG A and HSG B/C/D; and drawdown times of 12 hours, 1 day, 2 days, 3 days, 1 week, 1 month, 6 months, and 1 year.

b) Calculate drawdown time (days) by dividing the live storage volume available (i.e., storage volume above a permanent pool) by the sum of the facility's discharge rates (i.e., percolation, capture and use, and diversion).

c) Calculate the stormwater runoff depth (acre-feet per acre per year) and percent capture using the nomographs for the four points surrounding the project's imperviousness and drawdown time and apply four-point linear interpolation.

d) Multiply the annual stormwater runoff depth (acre-feet/acre) by the tributary area (acres) to calculate annual wet weather runoff (AFY).

e) Apply an optimization factor based on available technical literature if use of CMAC is anticipated (i.e., for Lakes and Reservoirs).

Dry weather runoff was estimated for a subset of projects by extrapolating dry weather yield results from previously implemented and evaluated projects, including the Pacific Grove ASBS project and checked with ranges from other studies in southern California (IRWD, 2004 and County of Orange, 2017).

Estimates of net recovered water volume are provided for each project in the project feasibility matrix in Appendix C. The number of projects in each project category that fall within each range of net recovered water volume is summarized in Table 2 below.

Table 2: Net Recovered Water Volume by Project Category (Number of Projects)

Net Recovered Water Volume (AFY)	Lakes / Reservoirs	Diversion to Sanitary Sewer	Infiltration to a Water Supply Aquifer	Capture and Use	Total Number of Projects
0-5	0	4	48	52	104
5-10	1	0	42	9	55
10-20	4	2	39	6	48
20-100	5	4	11	8	28
100+	4	2	0	0	6
Total Number of Projects	14	12	140	75	241

3.2 Planning Level Unit Cost

The planning level estimate of unit project cost (dollars per acre-foot [$/AF] of runoff volume recovered per year) for an assumed design life of 30 years is provided as a range. Ranges include <$800/AF (lower range for traditional water supply); $800 - $2,000/AF (upper range for traditional water supply); $2,000 - $5,000/AF (range for desalination); $5,000 - $10,000/AF; and $10,000+/AF. Planning level cost estimates include capital and operational costs for pretreatment, storage, pumps, electrical power, purchase/lease of private property, and sewer connection fees, where applicable.

Planning level unit costs were calculated for every project opportunity. The cost estimates performed were a Class 5 (AACE, 1997) estimate prepared at a level consistent with rough concept screening. The estimates used available cost information from previously implemented and evaluated projects in the Planning Area.

Estimates of planning level unit cost are provided in the project feasibility matrix in Appendix C. The breakdown of results is summarized in Table 3 below.

Table 3: Planning Level Unit Cost by Project Category (Number of Projects)

Unit Project Cost ($/AF)	Lakes / Reservoirs	Diversion to Sanitary Sewer	Infiltration to a Water Supply Aquifer	Capture and Use	Total Number of Projects
<$800	9	0	0	0	9
$800 - $2,000	3	2	25	1	31
$2,000 - $5,000	1	10	53	4	68
$5,000 - $10,000	0	0	26	0	26
$10,000+	1	0	36	70	107
Total Number of Projects	14	12	140	75	241

3.3 Ease of Implementation

Ease of implementation was evaluated semi-quantitatively based on considerations for project financing, seasonality constraints, complexity due to permitting and land acquisition, potential water quality constraints, water loss considerations associated with hydrogeology, and project coordination.

3.3.1 Financing – Planning Level Capital Cost

Larger projects tend to be more difficult to finance. Thus, the planning level capital cost of each project was categorized based on an order of magnitude estimate. Categories of planning level cost include <$100k; $100k - $1M; $1M - $10M; and $10M+. The same data used to estimate planning level unit cost was used here.

Estimated ranges of planning level capital cost are provided in the project feasibility matrix in Appendix C. The breakdown of results is summarized in Table 4 below.

Table 4: Planning Level Capital Cost by Project Category (Number of Projects)

Capital Project Cost ($)	Lakes / Reservoirs	Diversion to Sanitary Sewer	Infiltration to a Water Supply Aquifer	Capture and Use	Total Number of Projects
<$100k	4	3	8	7	22
$100k - $1M	8	3	92	15	118
$1M - $10M	1	6	37	42	86
$10M+	1	0	3	11	15
Total Number of Projects	14	12	140	75	241

3.3.2 Seasonality Constraints - Portion of Water Recovery that is Diverted to Sanitary Sewer as Wet Weather Runoff

Discussions with M1W and CAWD staff indicated that diverted runoff to the sanitary sewer system is most valuable in the dry season, when water demand is highest, and the recycled purple pipe system is being utilized by agriculture and golf course customers. Starting in the winter of 2019-2020, M1W will have the capability to treat additional water at the RTP, including stormwater that is added to the wastewater collection system. Once treated through the primary and secondary systems, the secondary effluent is currently recycled to advanced tertiary level for crop irrigation. After completion of the Pure Water Monterey Project in late 2019, the water will also be able to be recycled through the advanced water purification facility currently under construction for groundwater recharge/replenishment injection into the Seaside Groundwater Basin. Producing purified recycled water is more expensive than treating the water to a tertiary level for crop irrigation, and the capacity for advanced treatment and groundwater replenishment is limited to 5 MGD of treatment capacity/injection as currently designed. In addition, there is not expected to be any demand or need for new influent water for recycling at the RTP between the months of approximately November and March when excess municipal wastewater is available and irrigation demands are typically low. For that reason, a higher cost for treatment of that water will likely apply, unless waters can be seasonally stored and thus beneficially used for recycling during approximately April through October.

CAWD does not have capability for advanced treatment at its WWTP nor does it have a means to transport treated wastewater for groundwater replenishment. Thus, diversion of stormwater runoff to CAWD's system during the wet season will not be considered for this study. Each project was assessed for how much of the water recovered would be diverted to the sanitary sewer as wet weather runoff. Categories include most (more than half), some (less than half), or none.

The estimated portion of water recovered that is diverted to the sanitary sewer as wet weather runoff is provided in the project feasibility matrix, Appendix C. The breakdown of results is summarized in Table 5 below.

Table 5: Seasonality Constraints[1] by Project Category (Number of Projects)

Portion of Recovered Water Diverted to Sanitary Sewer as Wet Weather Runoff	Lakes / Reservoirs	Diversion to Sanitary Sewer	Infiltration to a Water Supply Aquifer	Capture and Use	Total Number of Projects
No recovered water diverted as wet weather runoff	5	10	140	75	230
Some recovered water diverted as wet weather runoff	2	2	0	0	4
Most recovered water diverted as wet weather runoff	7	0	0	0	7
Total Number of Projects	14	12	140	75	241

[1]Each project was assessed for how much of the water recovered would be diverted to the sanitary sewer as wet weather runoff. Categories include most (more than half), some (less than half), or none.

3.3.3 Complexity of Permitting and Land Acquisition

Complexity of project implementation due to potential permitting and land acquisition was characterized for each project as lower, medium, or higher. Higher permitting complexity was assigned to those identified projects that: are in streams; are in the coastal zone (California Coastal Commission's Coastal Zone Boundary for the State of California); include infiltration to a water supply aquifer via a dry well; and/or a Lakes and Reservoir project. Medium permitting complexity was assigned to those identified projects that are: located on school or public park parcels; located on private parcels requiring purchase or lease agreements (excluding golf courses); and/or projects with potential water rights issues, identified as those which overlie the Seaside Adjudicated Groundwater Basin or the Carmel Valley Alluvial Aquifer. Lower permitting and land acquisition complexity was assigned to all projects not categorized as medium or higher.

The relative complexity of permitting and land acquisition is provided in the project feasibility matrix in Appendix C. The breakdown of results is summarized in Table 6 below.

Table 6: Complexity of Permitting by Project Category (Number of Projects)

Complexity of Permitting (Lower, Medium, Higher)	Lakes / Reservoirs	Diversion to Sanitary Sewer	Infiltration to a Water Supply Aquifer	Capture and Use	Total Number of Projects
Lower	0	0	1	11	12
Medium	0	0	133	46	179
Higher	14	12	6	18	50
Total Number of Projects	14	12	140	75	241

3.3.4 Potential Water Quality Constraints

Water quality implications/constraints were considered for each project based on what is known about the water source proposed. Specifically, the ability to treat stormwater and dry weather runoff at the RTP (via diversion to the wastewater collection system) may be limited by the salinity of the water. If lakes or reservoirs are being used to temporarily store stormwater, the quality of the water diverted into the wastewater collection system will need to be monitored to insure salinity (and potentially other constituent concentrations) is not too high. Diversion to sanitary sewers assumes that periodic water quality monitoring and operations and maintenance costs will be part of the constraints. Additionally, high suspended solids in stream runoff could be a constraint for reuse. Projects that have potential water quality constraints associated with salinity (i.e., low lying lakes along the coast) or suspended solids (i.e., recovered water from streams) were differentiated from ones that do not. This field may not identify all potential water quality constraints but is an approximation for planning purposes.

Projects with potential water quality constraints are identified in the project feasibility matrix in Appendix C. The breakdown of results is summarized in Table 7 below.

Table 7: Potential Water Quality Constraints by Project Category (Number of Projects)

Potential Water Quality Constraints (No, Yes)	Lakes / Reservoirs	Diversion to Sanitary Sewer	Infiltration to a Water Supply Aquifer	Capture and Use	Total Number of Projects
No	11	11	133	75	230
Yes	3	1	7	0	11
Total Number of Projects	14	12	140	75	241

3.3.5 Water Loss Considerations Associated with Hydrogeology

An important consideration related to infiltrating into a water supply aquifer is that not all runoff that is infiltrated, even if directly above a groundwater basin, can be considered completely recovered by an aquifer. This is due to evapotranspiration losses in the vadose zone and geologic hydraulic constrictions. These hydrogeologic considerations affect the timeframe of recharge and the volume of water recovery in a non-trivial way. Runoff that is recovered via diversion to the sanitary sewer and capture and use is anticipated to be a more direct source of water supply than infiltrating into an aquifer.

Project opportunities that infiltrate into water supply aquifers, all of which have water loss considerations associated with hydrogeology, are identified in the project feasibility matrix in Appendix C. The breakdown of results is summarized in Table 8 below.

Table 8: Water Loss Considerations Associated with Hydrogeology by Project Category (Number of Projects)

Water Loss Considerations (No, Yes)	Lakes / Reservoirs	Diversion to Sanitary Sewer	Infiltration to a Water Supply Aquifer	Capture and Use	Total Number of Projects
No	13	12	0	75	100
Yes	1	0	140	0	141
Total Number of Projects	14	12	140	75	241

3.3.6 Project Coordination and Optimization – Catchment and Sanitary Sewer System Grouping

Consideration of how the identified projects could be combined to create a regional water supply recovery and reclamation system was included as part of project implementation feasibility characterization. It was determined that projects within the same catchment (see Figure 2 and Figure 2A for a map of the catchments in the Monterey Peninsula region) could be combined to create a regional water supply recovery and reclamation system. Additionally, projects that divert runoff to the same wastewater treatment plant (i.e., M1W or CAWD) could also be combined to improve coordination and optimization.

The number of identified project opportunities in the same catchment and the destination of diversions to the sanitary sewer are provided in the project feasibility matrix in Appendix C. The breakdown of results is summarized in Table 9, Table 10, and Table 11 below.

Table 9: Catchment Project Coordination by Project Category (Number of Projects)

Catchment Name	Lakes / Reservoirs	Diversion to Sanitary Sewer	Infiltration to a Water Supply Aquifer	Capture and Use	Total Number of Projects
BP[1]-2	0	0	1	0	1
Carmel River	2	0	28	6	36
CM[2]-02	0	0	1	0	1
CM-03	0	0	0	1	1
CM-04	0	0	6	0	6

Catchment Name	Lakes / Reservoirs	Diversion to Sanitary Sewer	Infiltration to a Water Supply Aquifer	Capture and Use	Total Number of Projects
CM-05	0	0	9	2	11
CM-06	0	0	67	2	69
CM-07	7	0	26	8	41
CM-09	1	0	0	8	9
CM-10	1	0	0	6	7
CM-11	0	1	0	10	11
CM-13	0	0	0	3	3
CM-14	0	0	0	1	1
CM-15	0	0	0	7	7
CM-20	0	0	0	1	1
CM-21	1	0	0	5	6
CM-22	0	0	0	1	1
CM-23	0	0	0	1	1
CM-24	0	0	0	1	1
CM-29	1	0	0	1	2
CM-33	0	0	0	2	2
CM-35	1	0	0	3	4
CM-37	0	0	0	1	1
CM-41	0	0	0	2	2
CM-42	0	0	0	1	1
N/A	0	11[3]	2[4]	2[4]	15
Total Number of Projects	14	12	140	75	241

[1]Big Sur River – Frontal Pacific Ocean Catchment (BP).
[2]Canyon Del Rey – Frontal Monterey Bay Catchment (CM).
[3]Diversion to sanitary sewer opportunity and includes diversion from more than one catchment. See Table 10 for more details.
[4]Programmatic project and includes diversion from more than one catchment.

Table 10: Catchments Associated with Diversions to Sanitary Sewer Projects

DSS Project ID	Catchment Names	DSS Project ID	Catchment Names
DSS_01	CM[1]-31, CM-32, CM-33	DSS_07	CM-01 through CM-04
DSS_02	CM-29, CM-30	DSS_08	CM-41, CM-42, Carmel River
DSS_03	CM-14, CM-15	DSS_09	CM-42
DSS_04	CM-08 through CM-11, CM-13	DSS_10	Carmel River

DSS Project ID	Catchment Names	DSS Project ID	Catchment Names
DSS_05	CM-07	DSS_planned_51	CM-11
DSS_06	CM-05, CM-06, CM-07	DSS_planned_60	CM-15 through CM-28

[1]Canyon Del Rey – Frontal Monterey Bay Catchment (CM).

Table 11: Sewer System Project Coordination by Project Category (Number of Projects)

Sanitary Sewer System Destination	Lakes / Reservoirs	Diversion to Sanitary Sewer	Infiltration to a Water Supply Aquifer	Capture and Use	Total Number of Projects
CAWD	0	3	0	0	3
M1W	9	9	0	0	18
Not applicable	5	0	140	75	220
Total Number of Projects	14	12	140	75	241

4. PROJECT SELECTION, DESIGN, AND IMPLEMENTATION PLAN

All Water Recovery Study projects were incorporated into the list of projects in the Monterey Peninsula SWRP and were analyzed as part of the SWRP in addition to the analysis conducted for this study. This entailed classification and a metrics-based evaluation, as shown on Figure 3. The details of SWRP project evaluation is described in the *Methodology for Integrated Identification, Prioritization, and Analysis of Monterey Peninsula SWRP Projects Memorandum* (Geosyntec, 2017).

Utilizing the feasibility characterization described in Section 3, a shortlist of 26 projects which have the highest estimated net recovered water volume (>20 AFY) and lowest unit project cost (<$5,000/AF) was developed (see Appendix E). Projects with the highest net recovered water volume and the lowest unit project cost may be perceived as having the greatest environmental and financial value. Regional LR and DSS projects comprise about half of the list, despite there being far fewer number of projects in these categories than CU and INF. This indicates that these project types may be the most cost effective and appear to be the most promising project types for water recovery based on the characterization of project feasibility.

4.1 Project Selection

By considering the metrics-based evaluation, input from the Monterey Peninsula stakeholders, and other local and institutional knowledge, the Monterey Peninsula SWRP Technical Advisory Committee (TAC) selected seven projects for concept design. Based on stakeholder feedback, the primary factor in project selection was to capture as much usable water as possible to help meet dry weather recycled water demands and augment water supply. Thus, all seven project projects for concept design were also identified in the Water Recovery Study.

The seven selected projects for concept design are described below. The top project selected, Hartnell Gulch, will also include a 30% concept design, a CEQA checklist, and a project implementation plan.

4.1.1 Hartnell Gulch

The Hartnell Gulch project, a proposed diversion to sanitary sewer and creek restoration project, is in the City of Monterey. The project will install a pump to divert underground seepage and stormwater into the sanitary sewer as well as potentially store wet weather runoff underground in the adjacent parking lot or divert it to Lake El Estero. The stream restoration component will improve and restore the riparian corridor. The approximately 1,100-acre tributary drainage area is in a disadvantaged community (DAC) tract. The project is estimated to achieve between 20 to 100 AFY of water supply. Project is identified in Water Recovery Study database as "DSS_planned_51."

4.1.2 Lake El Estero

The Lake Estero project is in the City of Monterey. This is a lake project that will recover water supply via a diversion to sanitary sewer. The project will install a diversion valve from the box culvert on the north side of the lake to divert flows into the sanitary sewer system, instead of discharging into Monterey Bay. The project is estimated to achieve over 100 AFY of water supply from the approximately 2,800-acre tributary drainage area. The project is identified in the Water Recovery Study database as part of "LR_04."

4.1.3 Tunnel and Calle Principal Stormwater Diversion

The Tunnel and Calle Principal stormwater diversion project is in the City of Monterey. The project will install a diversion pump for underground seepage and stormwater flow from the downtown Tunnel and Calle Principal storm drain gravity pipe and divert to the sanitary sewer instead of discharging into Monterey Bay. The project is estimated to achieve from 10 to 20 AFY of water supply from the approximately 290-acre tributary drainage area. The project is identified in the Water Recovery Study database as part of "DSS_04."

4.1.4 South Carmel and 4th Avenue Dry Weather Diversion

Located in the City of Carmel-by-the-Sea, the South Carmel and 4th Avenue Dry Weather Diversion project will divert dry weather runoff and small wet weather flows from the inland storm drain network to the sanitary sewer along San Antonio Avenue for treatment and reuse for golf course irrigation. The project is estimated to achieve between 20 to 100 AFY of water supply from its approximately 125-acre tributary drainage area. The project is identified in the Water Recovery Study database as part of "DSS_08."

4.1.5 Pacific Grove-Monterey ASBS Watershed - David Avenue Reservoir

The Pacific Grove-Monterey ASBS Watershed - David Avenue Reservoir project is in the City of Pacific Grove. This project will store rainwater for diversion to the sanitary sewer instead of discharging into Monterey Bay and the Pacific Grove ASBS region. This project is estimated to achieve from 10 to 20 AFY of water supply from its approximately 28-acre tributary drainage area. The project is identified in the Water Recovery Study database as "LR_02."

4.1.6 Del Monte Manor Park Infiltration

The Del Monte Manor Park Infiltration Project in the City of Seaside is a regional infiltration project. The project includes open space park improvements and flood management to infiltrate runoff from the surrounding right-of-way. The project is estimated to achieve from 10 to 20 AFY of water supply from its approximate 3.6-acre tributary drainage area that contains a DAC. The project is identified in the Water Recovery Study database as "INF_planned_19."

4.1.7 Dry Well Aquifer Recharge Program

The Dry Well Aquifer Recharge Program in the City of Seaside will focus on using dry wells to recharge urban runoff to a potable water supply aquifer. The program will divert flows from the storm drain network to a water quality pretreatment system that will discharge to dry wells above the domestic supply aquifers in the Seaside Groundwater Basin. The project is estimated to achieve between 20 to 100 AFY of water supply. The project is identified in the Water Recovery Study database as "INF_DW_SEA."

4.2 Considerations for Future Improvements to Water and Wastewater Infrastructure

This Study focused on how to store, treat, and transport potential sources of runoff prior to entering existing water and wastewater infrastructure and did not consider improvements to the water and wastewater infrastructure. Consideration for future improvements to these systems is important to understanding how the water recovery opportunities identified in this Study may be utilized in the future. This is particularly the case for the DSS and LR projects that propose to divert runoff to the M1W and CAWD sanitary sewer systems for eventual recycling. As mentioned in Section 4, these project types are among the most cost effective and feasible for water recovery based on the characterization performed in this Study. Future improvements to water and wastewater infrastructure to facilitate additional water recover may include, but are not limited to, those described in the following sections.

4.2.1 Pure Water Monterey Ground Water Replenishment Expansion

With the implementation of the Pure Water Monterey Ground Water Replenishment (GWR) project, potential diversions of runoff to the M1W sanitary sewer system during the dry season (i.e., from April to October) could result in recovery of hundreds to thousands of acre-feet per year of water supply. As summarized in Appendix A, an estimated 390 to 550 AFY of dry weather runoff and 4,300 to 5,200 AFY of wet weather runoff is generated in catchments that drain through M1W's service area. All this dry weather runoff and a portion of the wet weather runoff could feasibly be diverted to the sanitary system for recycling at the RTP via the DSS and LR projects identified in this Study. In combination, the projects associated with Lake El Estero (LR_04), Laguna Grande - Roberts Lake (LR_12), David Avenue Reservoir (LR_02), and Del Monte - Navy Lake (LR_03) could recover at least a few hundred acre-feet per year of stormwater runoff via the GWR project.

Expansion of the Pure Water Monterey GWR project could allow for injection of a greater volume of AWPF product water into the Seaside Groundwater Basin and replenishment of the aquifer during the winter season, when source water is plentiful. Figures 7 and 8 provide flow schematics for the Pure Watery Monterey GWR project, as currently planned (MRWPCA, 2016). The water supply gap for the CalAm Monterey region will be reduced by 3,500 AFY (from 9,752 AFY to 6,252 AFY) with the currently planned Pure Water Monterey GWR project. The excess source water could potentially produce additional ATWF product water to reduce the region's supply gap to as low as 2,118 to 3,428 AFY depending on the type of operational year, although the total use of source water would likely be less due to the seasonal timing of the excess (MRWPCA, 2016). Nonetheless, with the implementation of Water Recovery Study projects on top of excess source water, closing the CalAm water gap appears to be within reach.

Expanding the planned 5 MGD ATWF to a 7 MGD capacity is the estimated maximum for the currently undeveloped footprint available at the RTP facility (M1W, 2018). While this would help shrink the water shortage gap, increasing the advanced treatment capacity beyond 7 MGD and building additional delivery infrastructure opens more possibilities for reliable runoff capture and recovery from LR and DSS, after all other existing source waters are fully utilized.

4.2.2 Recycled Water Storage Expansion

Expanded storage of recycled water from both the M1W RTP and CAWD WWTP would allow for collection of more wet weather runoff in the wet season for use in the dry season. This seasonality issue is at the crux of the water recovery problem because supply of source water occurs at a different time than demand. The cost of storing recycled water in new tanks or reservoirs is likely greater than utilizing available storage in the Seaside aquifers, but if there are political, hydrogeological, or other technical constraints to storing more recycled water in the groundwater basin, then new above ground storage would be an option. One major constraint to storing recycled water above ground is the potential for algae buildup with significant holding times (M1W, 2018). Enclosed storage could help address this problem but would be an expensive solution.

Currently the 80 acre-feet of storage in the SVRP only addresses diurnal storage needs for operations and not seasonal needs. Additional storage along the CSIP pipeline could be a strategic approach for storage expansion. Similarly, storage along the CAWD recycled pipelines could help address the seasonal discrepancy between supply and demand for golf course irrigation.

One readily available option for getting slightly more water treated at the AWTF and less discharged to the ocean outfall during storm events could be to temporarily utilize empty clarifier tanks at the RTP. This approach would involve detaining water coming from the RTP primary and secondary processes at the peak of the hydrograph so that more water could be metered to the AWTF and injected into the Seaside aquifers at the designed treatment rate.

4.2.3 Advanced Treatment at CAWD Wastewater Treatment Plant

As summarized in Appendix A, an estimated 320 to 460 AFY of dry weather runoff and 1,700 AFY of urban wet weather runoff is generated in catchments that drain through the CAWD and PBCSD service area. Unlike the M1W system, only dry weather and some first flush runoff can be feasibly diverted to the CAWD/PBCSD sanitary sewer system for recycling because there is no current seasonal storage capacity or capability for advanced treatment of source water in the wet season. Advanced treatment capabilities at the CAWD WWTP, possibly coupled with a conveyance pipeline from the WWTP to injection wells into the Carmel River groundwater basin, is a possible pathway to recover wet weather runoff via CalAm’s aquifer storage and recovery (ASR) system. Piping of CAWD advanced treatment water to injection wells in the Seaside aquifers is believed to be cost prohibitive.

4.2.4 Micro-Treatment of Lake Water for Groundwater Replenishment

If lake water could be treated by micro-treatment plants to a potable level, then this water could be sent directly to CalAm’s ASR system to replenish the Seaside aquifers. Alternatively, if the micro-treatment plants can produce water to a level comparable to the ATWF product water, then it could be piped directly to injection wells in the Seaside aquifers, like what is currently being implemented for the Pure Water Monterey GWR project. Timing-wise, this micro-treatment approach could provide flexibility to recover runoff whenever it is desired, including during the wet season, because operational constraints associated with the RTP, ATWF, SVRP, and its source waters would not exist. The source water locations for the micro-treatment plants could initially focus on Lake El Estero, Laguna Grande (Roberts Lake), and Del Monte (Navy Lakes) because the vicinity of these existing lakes to one another could allow for only one micro-treatment plant.

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FIGURES

Notes:

Areas outside of city boundaries are unincorporated Monterey County.

Shapefiles and maps received from the Association of Monterey Bay Area Governments and the Monterey Peninsula Water Management Agency.

Legend

- Monterey Peninsula IRWMP/SWRP Boundary
- Monterey Peninsula Water Management District Boundary
- Carmel Area Waste Water District
- USGS / DWR Watershed
- City Limit

Groundwater Basins

- Adjucated Seaside Groundwater Basin
- Salinas Valley Corral De Tierra Area
- Salinas Valley Marina Area
- Carmel Valley Groundwater Basin

Notes:
*Pink hue indicates Groundwater Basin is outside of IRWMP Area

- 303(d) Listed River/Stream
- River/Stream
- Highway
- Waterbody
- Federal, State, and Regional Parks, and Other Open Lands
- Area of Special Biological Significance

Study Planning Area

Monterey Peninsula Water Recovery Study

Geosyntec consultants

MONTEREY REGIONAL Stormwater Management PROGRAM

Figure 1

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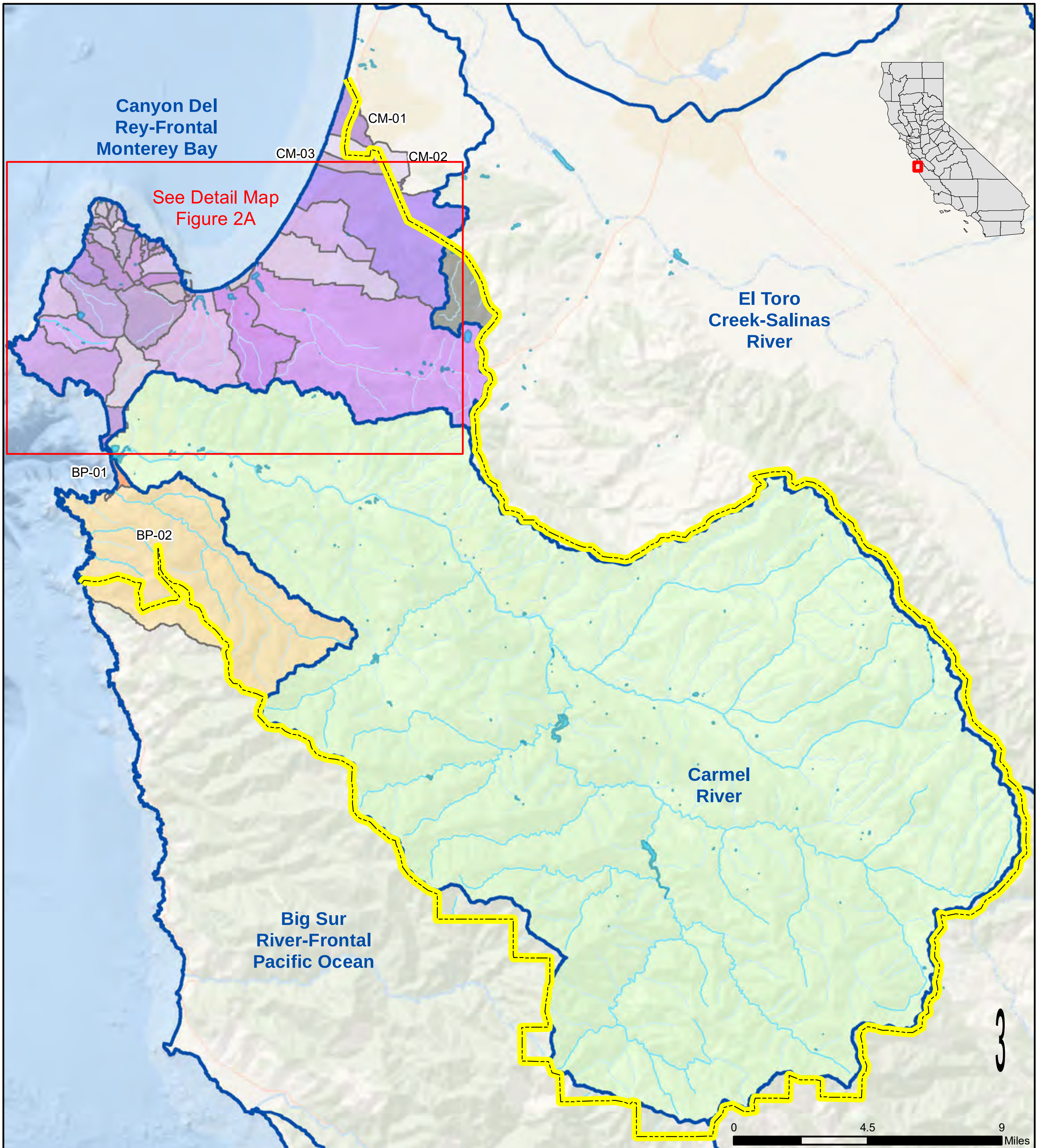

Legend

- Monterey Peninsula IRWMP/SWRP Boundary
- Stream
- Waterbody
- USGS / DWR Watershed
- Carmel River Catchment
- Big Sur River - Frontal Pacific Ocean Catchments (BP)
- Canyon Del Rey - Frontal Monterey Bay Catchments (CM)
- El Toro Creek - Salinas River Catchment

Catchments Overview

Monterey Peninsula Water Recovery Study

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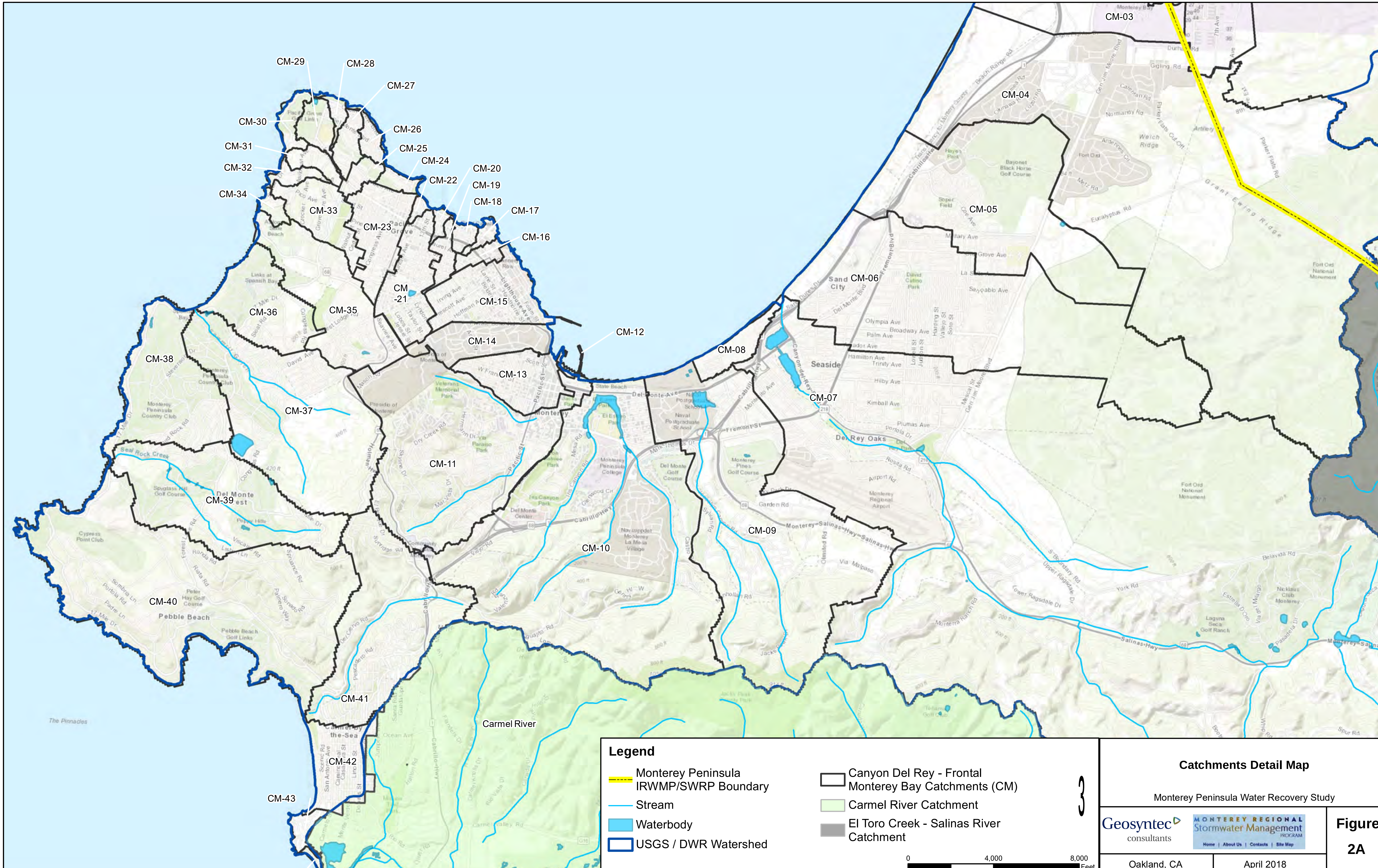
Figure 2

P:\GIS\MRWPCA\Project\Water Recovery Study Report\Figure 2 - Catchments.mxd 3/28/2018 9:30:42 AM



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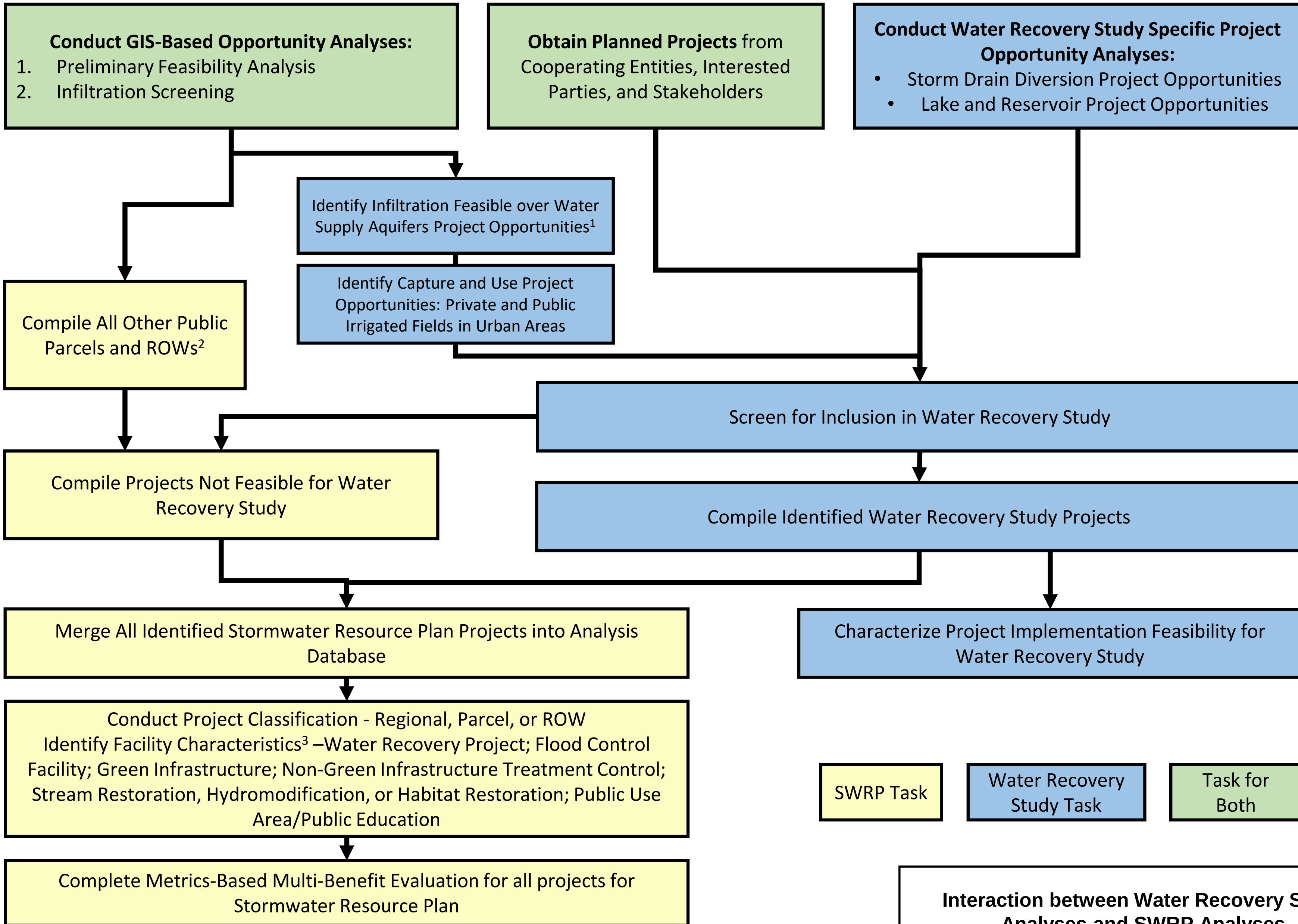

Interaction between Water Recovery Study Analyses and SWRP Analyses

Monterey Peninsula Water Recovery Study

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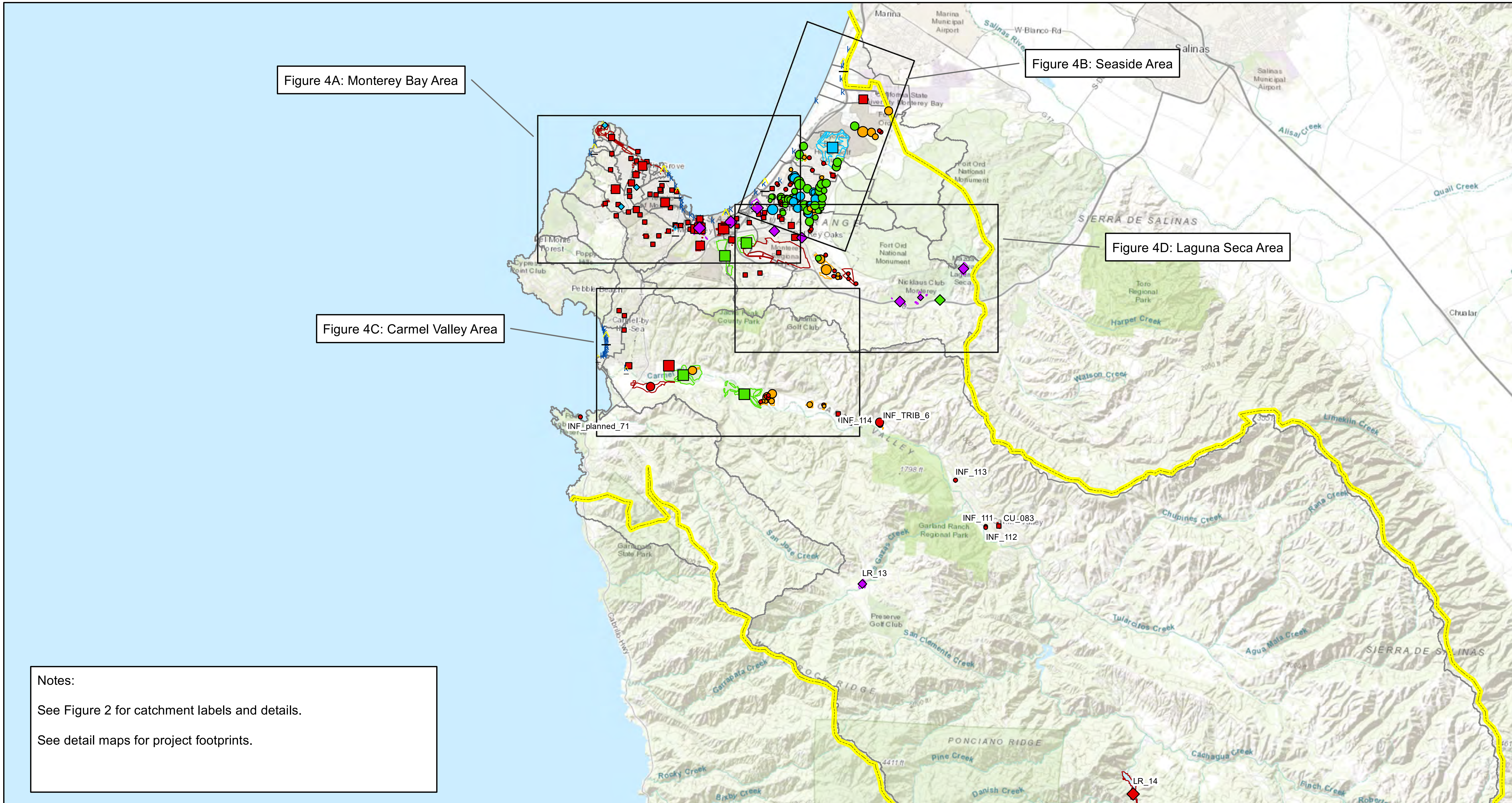
Figure 3

Notes:

1. Public Parcels/ ROWs and Private Undeveloped Parcels
2. Not identified as potential Water Recovery Study Project
3. In some cases, a project may have multiple facility characteristics



Legend

Monterey Peninsula IRWMP/SWRP Boundary
Catchment Boundary

Unit Project Cost, $/AF
- <$800
- $800-$2,000
- $2,000-$5,000
- $5,000-$10,000
- $10,000+

Recovered Water Volume, AFY
- 100+
- 20-100
- 10-20
- 5-10
- 0-5

Project Type
- Infiltration to a Water Supply Aquifer
- Capture and Use
- Lakes / Reservoirs
- Diversion to Sanitary Sewer

k Diversion of Storm Drain or Stream

0 2.75 5.5 Miles

Identified Project Opportunities Overview

Monterey Peninsula Water Recovery Study

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Figure 4

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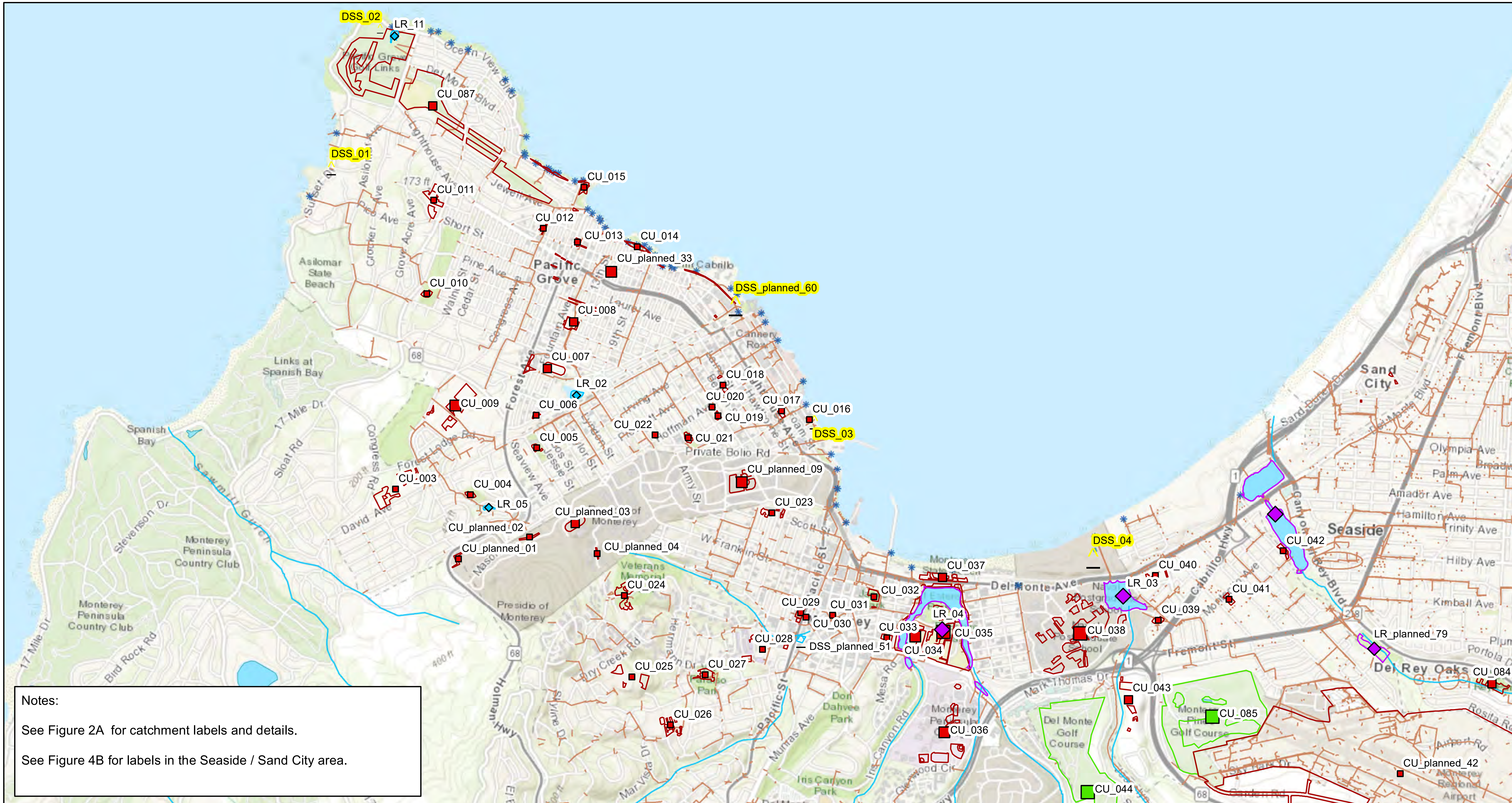
P:\GIS\MRWPCA\Project\Water Recovery Study Report\Figure 4 - WRS Projects Overview.mxd 3/28/2018 9:35:15 AM



Notes:

See Figure 2A for catchment labels and details.

See Figure 4B for labels in the Seaside / Sand City area.

Legend

- Monterey Peninsula IRWMP/SWRP Boundary
- Stream
- Storm Drain
- Waterbody
- Catchment Boundary

Unit Project Cost, $/AF

- <$800
- $800-$2,000
- $2,000-$5,000
- $5,000-$10,000
- $10,000+

Recovered Water Volume, AFY

- 100+
- 20-100
- 10-20
- 5-10
- 0-5

Project Type

- Infiltration to a Water Supply Aquifer
- Capture and Use
- Lakes / Reservoirs
- Diversion to Sanitary Sewer

k Diversion of Storm Drain or Stream

0 0.5 1 Miles

Identified Project Opportunities Monterey Bay Area

Monterey Peninsula Water Recovery Study

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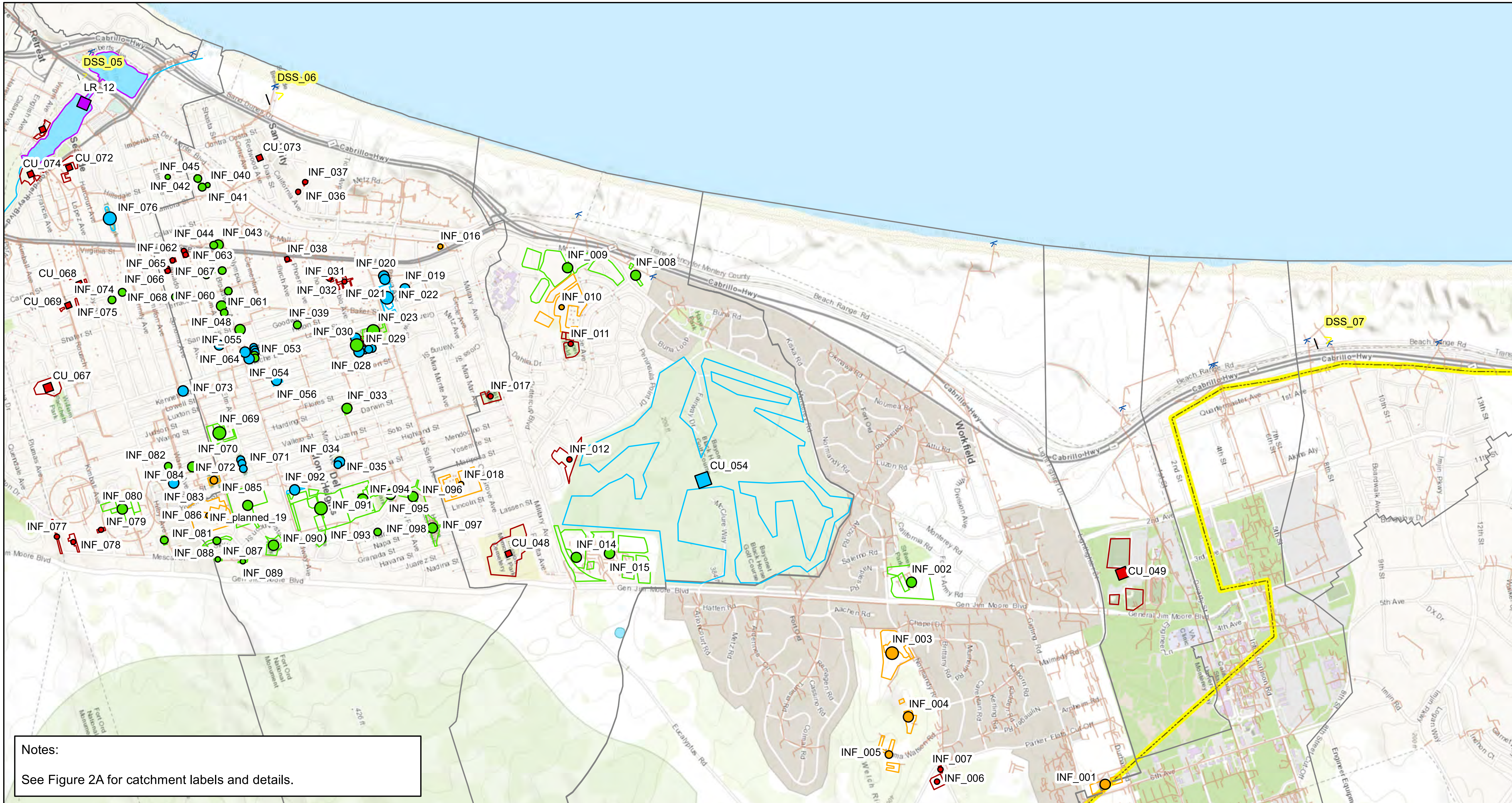
Figure 4A

P:\GIS\MRWPCA\Project\Water Recovery Study Report\Figure 4A - WRS Projects - Monterey.mxd 3/22/2018 3:41:34 PM



Legend

- Monterey Peninsula IRWMP/SWRP Boundary
- Stream
- Storm Drain
- Waterbody
- Catchment Boundary

Unit Project Cost, $/AF

- <$800
- $800-$2,000
- $2,000-$5,000
- $5,000-$10,000
- $10,000+

Recovered Water Volume, AFY

- 100+
- 20-100
- 10-20
- 5-10
- 0-5

Project Type

- Infiltration to a Water Supply Aquifer
- Capture and Use
- Lakes / Reservoirs
- Diversion to Sanitary Sewer

k Diversion of Storm Drain or Stream

0 1,800 3,600 Feet

Identified Project Opportunities Seaside Area

Monterey Peninsula Water Recovery Study

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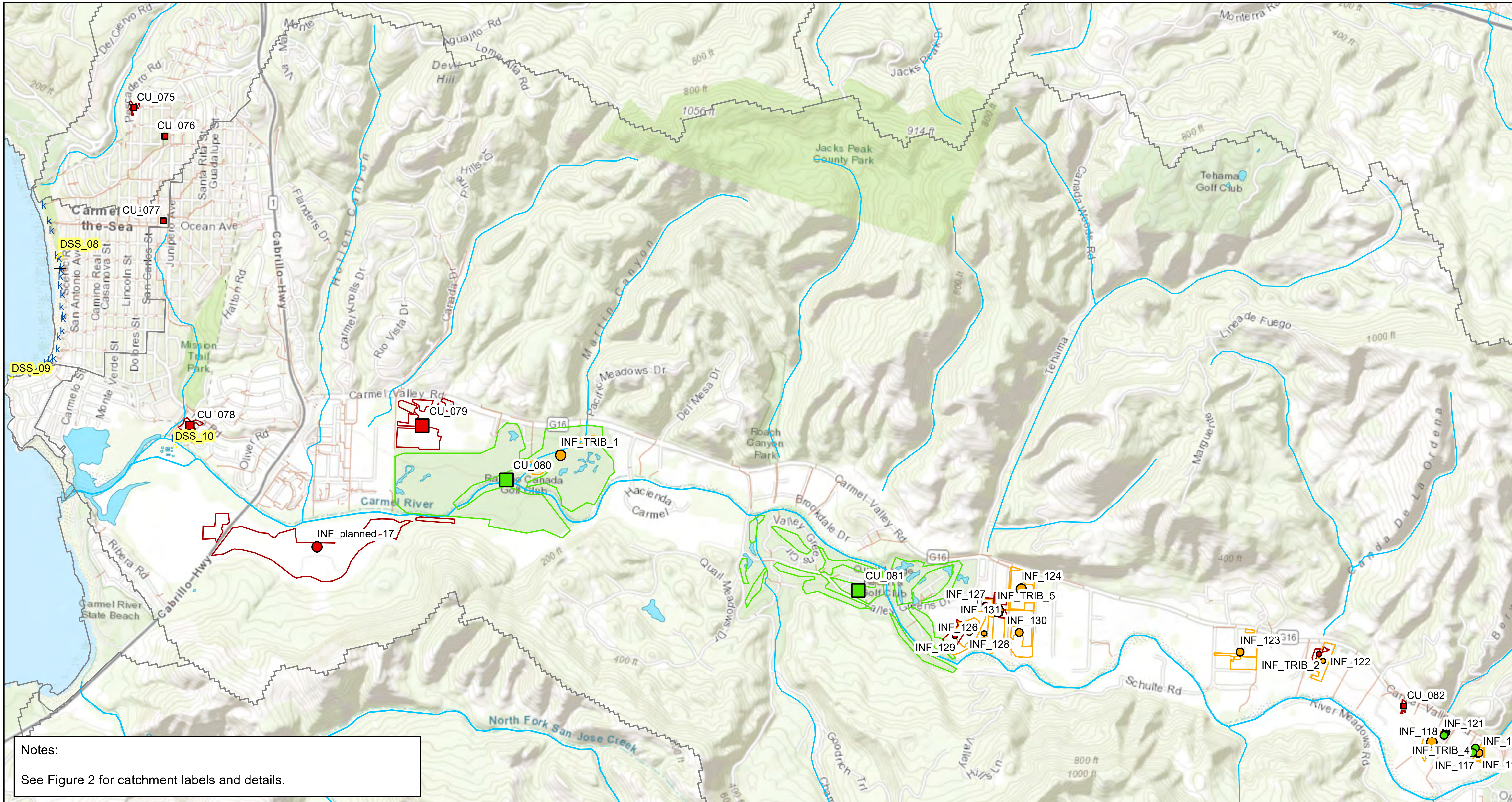
Figure 4B

P:\GIS\MRWPCA\Project\Water Recovery Study Report\Figure 4B - WRS Projects -Seaside Detail.mxd 3/28/2018 9:23:47 AM



Legend

- Monterey Peninsula IRWMP/SWRP Boundary
- Stream
- Storm Drain
- Waterbody
- Catchment Boundary

Unit Project Cost, $/AF

- <$800
- $800-$2,000
- $2,000-$5,000
- $5,000-$10,000
- $10,000+

Recovered Water Volume, AFY

- 100+
- 20-100
- 10-20
- 5-10
- 0-5

Project Type

- Infiltration to a Water Supply Aquifer
- Capture and Use
- Lakes / Reservoirs
- Diversion to Sanitary Sewer

k Diversion of Storm Drain or Stream

0 0.5 1 Miles

Identified Project Opportunities
Carmel Valley Area

Monterey Peninsula Water Recovery Study

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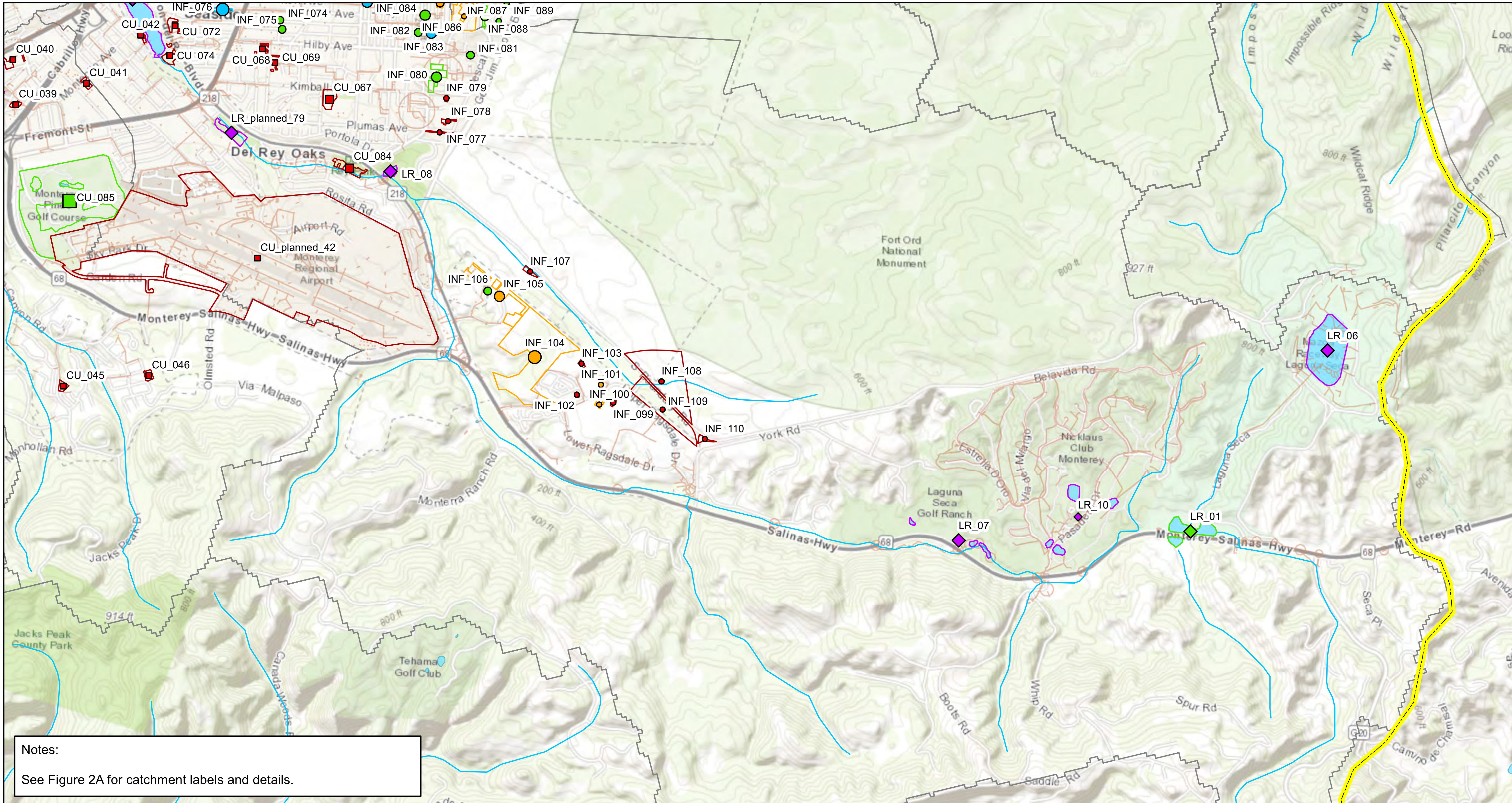
Figure 4C

P:\GIS\MRWPCA\Project\Water Recovery Study Report\Figure 4C - WRS Projects - Carmel Detail.mxd 3/28/2018 9:19:58 AM



Notes:

See Figure 2A for catchment labels and details.

Legend

- Monterey Peninsula IRWMP/SWRP Boundary
- Stream
- Storm Drain
- Waterbody
- Catchment Boundary

Unit Project Cost, $/AF

- <$800
- $800-$2,000
- $2,000-$5,000
- $5,000-$10,000
- $10,000+

Recovered Water Volume, AFY

- 100+
- 20-100
- 10-20
- 5-10
- 0-5

Project Type

- Infiltration to a Water Supply Aquifer
- Capture and Use
- Lakes / Reservoirs
- Diversion to Sanitary Sewer

k Diversion of Storm Drain or Stream

0 0.5 1 Miles

Identified Project Opportunities
Laguna Seca Area

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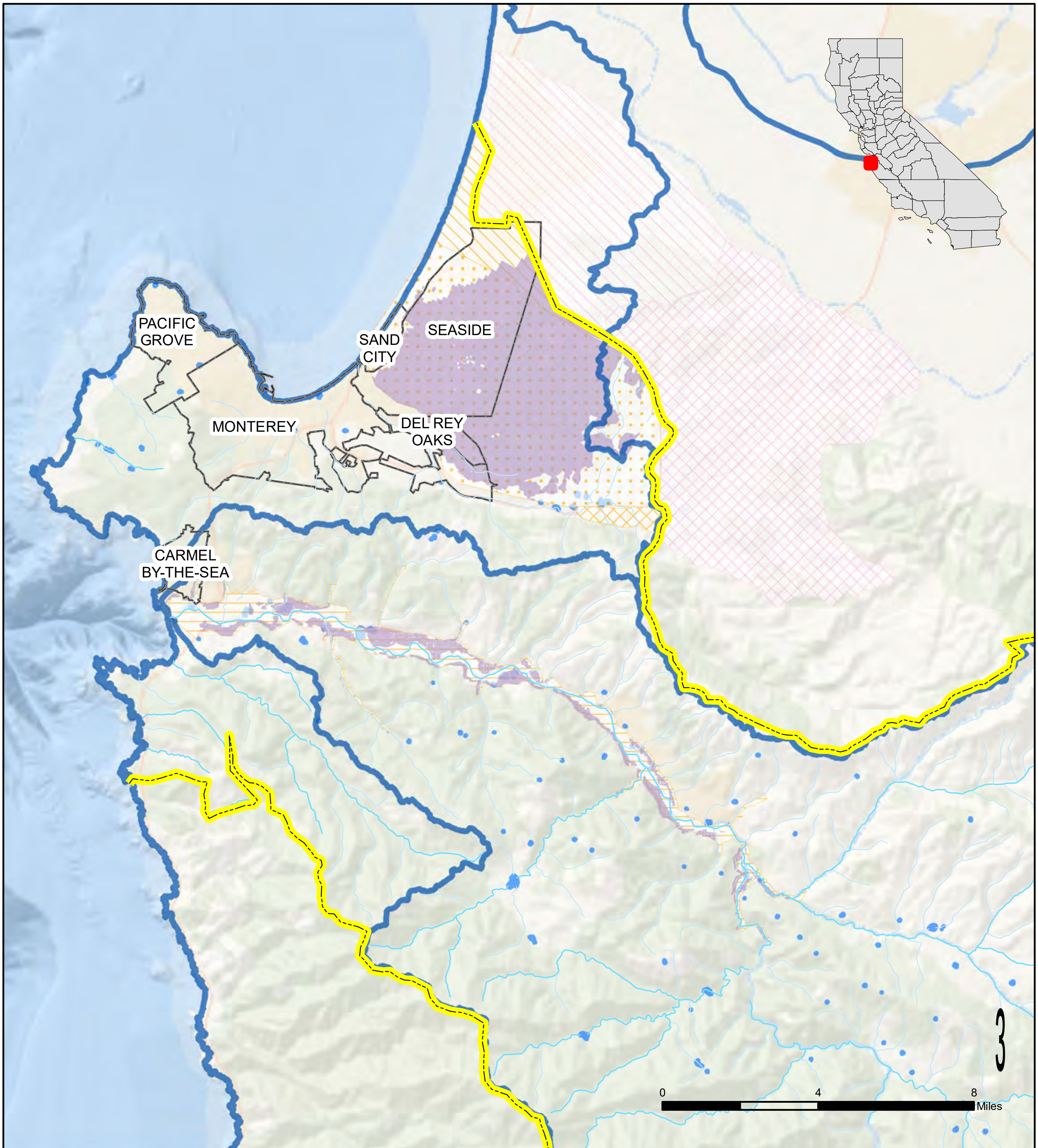
Figure 4D

P:\GIS\MRWPCA\Project\Water Recovery Study Report\Figure 4D - WRS Projects - Laguna Seca.mxd 3/22/2018 3:13:40 PM



Legend

- Monterey Peninsula IRWMP/SWRP Boundary
- River/Stream
- Waterbody
- USGS / DWR Watershed
- City Limit
- Adjucated Seaside Groundwater Basin
- Salinas Valley Corral De Tierra Area
- Salinas Valley Marina Area
- Carmel Valley Alluvial
- Area Feasible for Infiltration to a Water Supply Aquifer

Feasibility for Infiltration to a Water Supply Aquifer

Monterey Peninsula Water Recovery Study

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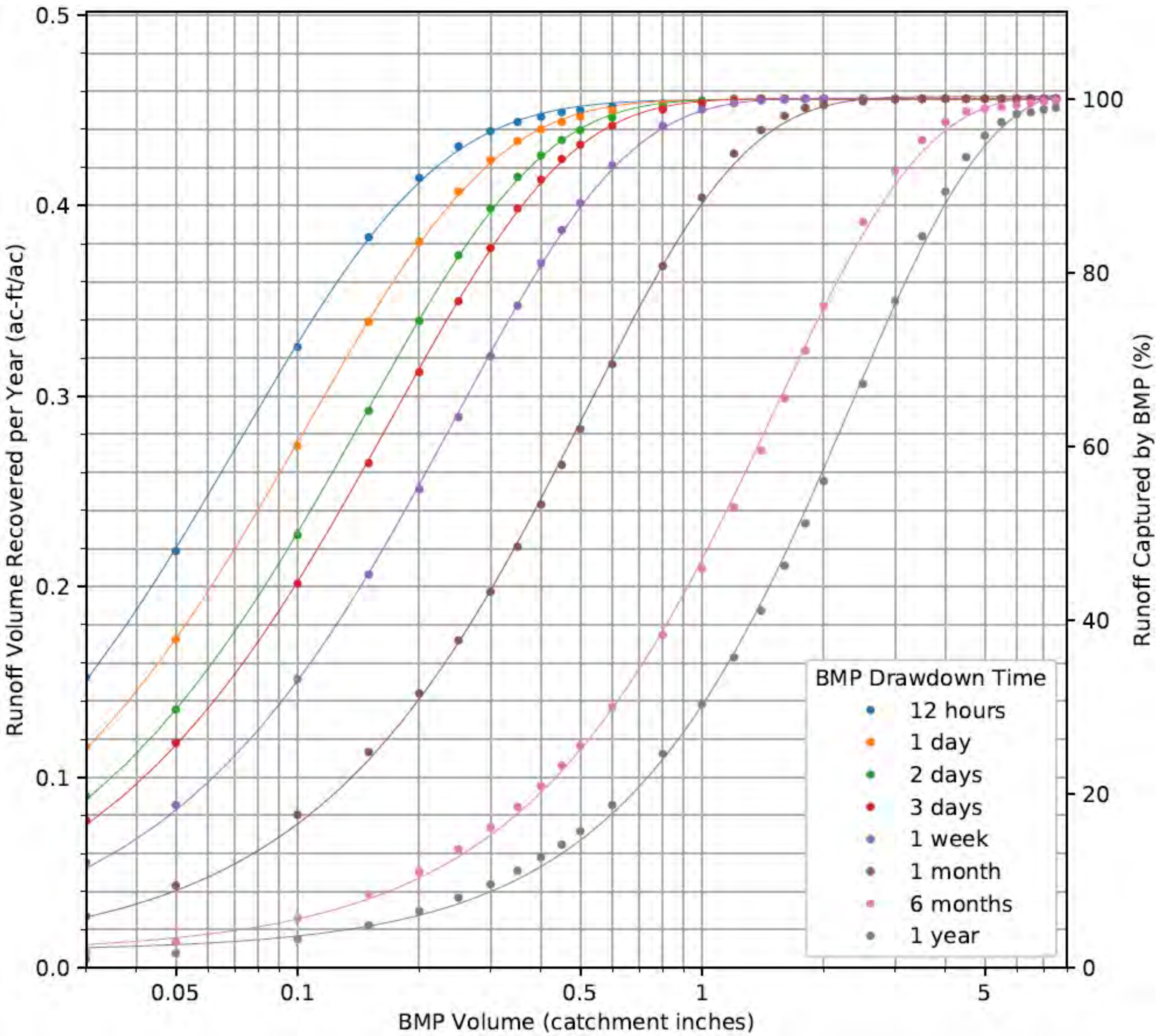
Figure 5

P:\GIS\MRWPCA\Project\Water Recovery Study Report\Figure 5 - Infiltration Feasibility.mxd 3/28/2018 9:25:52 AM



Notes:
Example nomograph shown is for drainage areas with 50% imperviousness underlain by Soil Type A.

Example Nomograph for Runoff Capture Monterey Peninsula Water Recovery Study		
Geosyntec consultants / Monterey Regional Stormwater Management Program		**Figure** **6**
WW2405	April 2018	

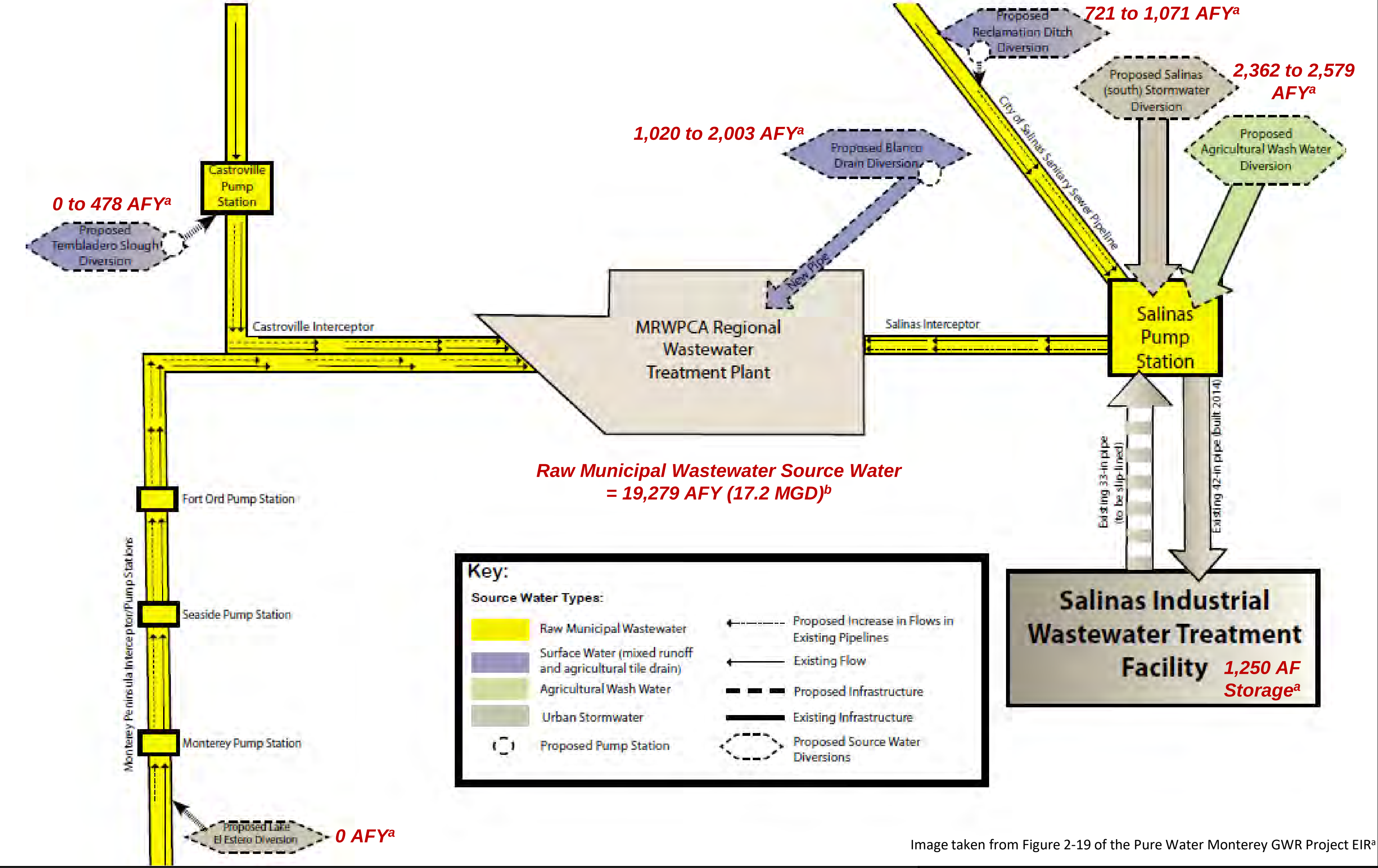


Image taken from Figure 2-19 of the Pure Water Monterey GWR Project EIR[a]

Notes:

a) Monterey Regional Water Pollution Control Agency (MRWPCA). 2016. Pure Water Monterey Groundwater Replenishment Project Consolidated Final Environmental Impact Report. State Clearinghouse No. 2013051094. January.

b) Monterey Regional Water Pollution Control Agency (MRWPCA). 2018. Email: RE: Monterey Peninsula Water Recovery Study - DRAFT Report for Review. from Alison Nemura. March 20.

Pure Water Monterey Flow Schematic - Source Water to Treatment

Monterey Peninsula Water Recovery Study

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Figure 7

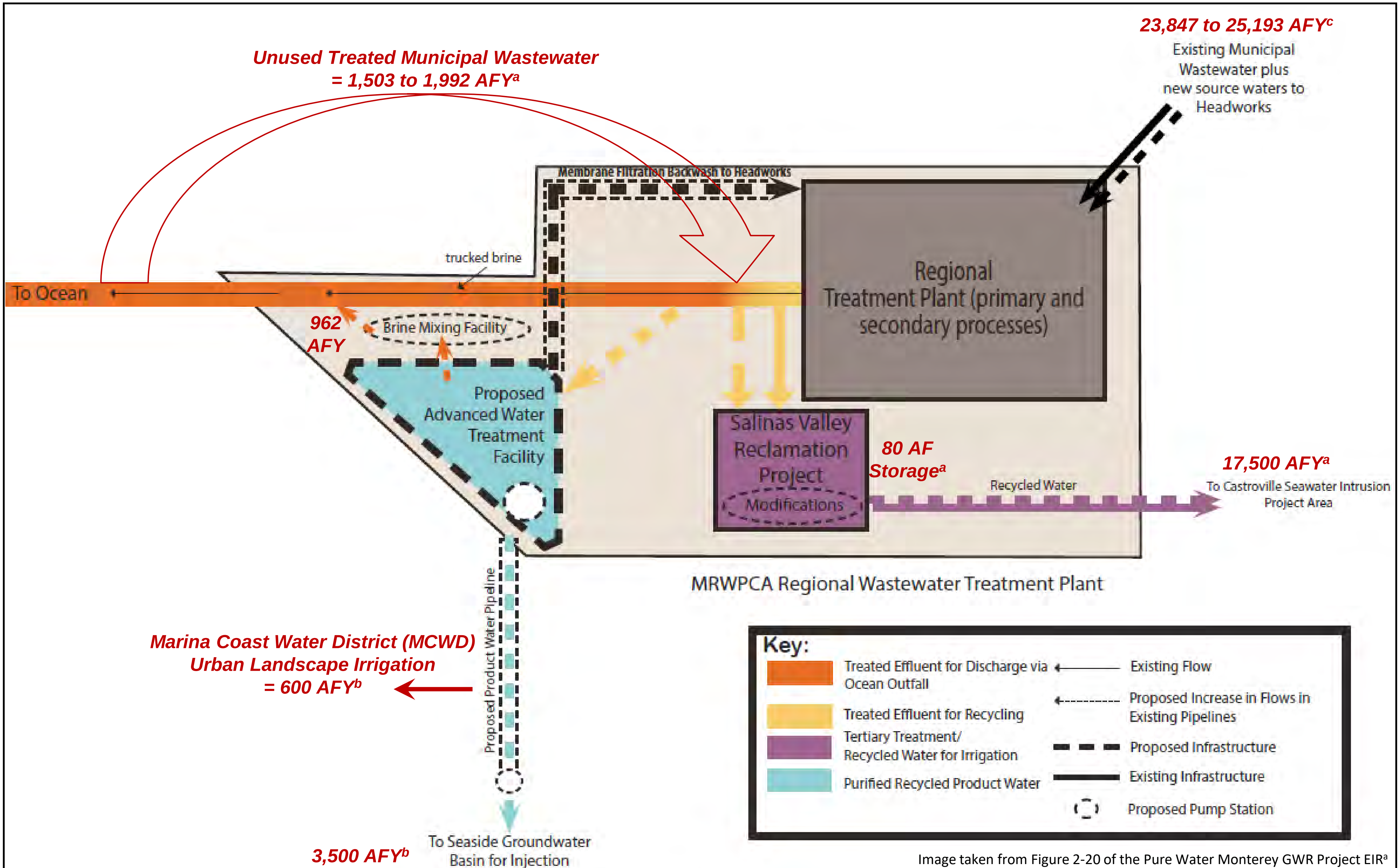

Image taken from Figure 2-20 of the Pure Water Monterey GWR Project EIR[a]

Notes:

a) Monterey Regional Water Pollution Control Agency (MRWPCA). 2016. Pure Water Monterey Groundwater Replenishment Project Consolidated Final Environmental Impact Report. State Clearinghouse No. 2013051094.January.

b) Monterey Regional Water Pollution Control Agency (MRWPCA). 2017. Pure Water Monterey Groundwater Replenishment Project Consolidated Final Environmental Impact Report. State Clearinghouse No. 2013051094. Addendum No. 3. October 24.

c) See Figure 7

Pure Water Monterey Flow Schematic - Regional Treatment Plant

Monterey Peninsula Water Recovery Study

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Figure 8

APPENDIX A
Summary of Catchment Size, Level of Urban Development, and Estimated Runoff

Catchment ID	Tributary Area (acres)	% Urban Development[1]	% Impervious Cover[1]	Estimated Dry Weather Runoff (AFY)[2]	Estimated Wet Weather Runoff (AFY)[3]	Estimated Urban Wet Weather Runoff (AFY)[3]	Associated Sanitary Sewer System
CM-01[4]	654	93.6	46.1	16 to 22	220	218	M1W
CM-02	818	95.8	45.9	20 to 28	274	272	M1W
CM-03	419	94.5	26.3	10 to 14	92	90	M1W
CM-04	5,284	35.0	8.5	47 to 67	566	382	M1W
CM-05	1,337	72.9	19.6	25 to 35	240	217	M1W
CM-06	2,067	58.1	37.8	30 to 43	589	575	M1W
CM-07	10,837	31.7	11.1	87 to 124	1,359	925	M1W
CM-08	105	91.5	56.5	2 to 3	43	43	M1W
CM-09	1,991	59.5	19.3	30 to 43	354	301	M1W
CM-10	2,637	47.1	13.5	31 to 45	373	289	M1W
CM-11	1,307	78.3	20.9	26 to 37	244	226	M1W
CM-12	7	74.6	45.9	-	2	2	M1W
CM-13	232	99.9	60.5	6 to 8	102	102	M1W
CM-14	209	93.2	31.6	5 to 7	52	51	M1W
CM-15	309	99.9	60.7	8 to 11	137	137	M1W
CM-16	41	100.0	64.2	1	19	19	M1W
CM-17	27	98.9	53.2	1	10	10	M1W
CM-18	30	100.0	54.2	1	12	12	M1W
CM-19	53	100.0	55.6	1 to 2	21	21	M1W
CM-20	19	100.0	53.2	0 to 1	7	7	M1W
CM-21	255	99.1	44.0	6 to 9	82	82	M1W
CM-22	15	100.0	65.2	0 to 1	7	7	M1W
CM-23	241	99.9	49.8	6 to 9	87	87	M1W
CM-24	34	100.0	46.3	1	12	12	M1W
CM-25	49	97.4	28.6	1 to 2	11	11	M1W
CM-26	42	100.0	42.8	1 to 2	13	13	M1W
CM-27	69	100.0	29.0	2	16	16	M1W
CM-28	28	100.0	34.2	1	7	7	M1W
CM-29	78	100.0	15.1	2 to 3	12	12	M1W
CM-30	59	94.2	22.3	1 to 2	12	11	M1W
CM-31	56	97.7	33.5	1 to 2	15	14	M1W
CM-32	40	85.4	24.3	1	8	8	M1W
CM-33	198	83.0	20.2	4 to 6	36	34	M1W
CM-34	33	78.6	31.2	1	8	8	M1W
CM-35	533	77.0	26.1	10 to 15	116	108	M1W

Catchment ID	Tributary Area (acres)	% Urban Development[1]	% Impervious Cover[1]	Estimated Dry Weather Runoff (AFY)[2]	Estimated Wet Weather Runoff (AFY)[3]	Estimated Urban Wet Weather Runoff (AFY)[3]	Associated Sanitary Sewer System
CM-36	352	59.8	9.6	5 to 8	41	33	CAWD/PBCSD
CM-37	1,140	54.7	7.7	16 to 23	116	91	CAWD/PBCSD
CM-38	578	69.6	11.7	10 to 15	75	65	CAWD/PBCSD
CM-39	806	45.2	4.6	9 to 13	64	43	CAWD/PBCSD
CM-40	1,957	63.4	8.2	31 to 45	206	171	CAWD/PBCSD
CM-41	875	57.2	6.2	13 to 18	80	62	CAWD/PBCSD
CM-42	243	88.9	24.5	5 to 8	51	49	CAWD/PBCSD
CM-43	43	99.1	28.0	1 to 2	10	10	CAWD/PBCSD
CM-44	11	64.1	29.2	-	3	2	CAWD/PBCSD
Carmel River	162,411	5.0	0.6	205 to 293	7,753	1,084	CAWD/PBCSD
BP-1[5]	142	54.8	16.5	2 to 3	23	19	CAWD/PBCSD
BP-2	14,030	5.7	0.5	20 to 29	654	86	CAWD/PBCSD
El Toro Creek - Salinas River	1,486	14.7	1.9	6 to 8	86	30	N/A
Total	**214,186**	**13.1**	**3.4**	**711 to 1016**	**14,320**	**6,078**	
M1W Total	30,112	50.7	18.6	387 to 552	5,160	4,333	
CAWD/PBCSD Total	182,589	6.9	0.9	319 to 455	9,074	1,715	

1 Level of urban development and impervious cover was calculated based on the 2011 National Land Cover Dataset (NLCD).

2 Average annual dry weather runoff was calculated based on applying an assumed dry weather flow rate (0.7 to 1.0 x 10^{-4} cfs/urban acre, per Pacific Grove ASBS dry weather diversion data) over six months duration to the area of urban development.

3 Average annual wet weather runoff was calculated based on multiplying a runoff coefficient (per Attachment 1 of Central Coast Regional Water Board's Resolution No. R3-2013-0032) by a conservatively low mean annual precipitation (12.8 inches), and the tributary area.

4 Canyon Del Rey – Frontal Monterey Bay Catchment (CM).

5 Big Sur River – Frontal Pacific Ocean Catchment (BP).

APPENDIX B
List of Technical Stakeholders

Water Recovery Study Technical Stakeholder Group List

Agency/Organization	Name	Contact Information
Monterey One Water	Jeff Condit	jeff@my1water.org
Monterey One Water	Alison Imamura	alison@my1water.org
Monterey One Water	Mike McCullough	mike@my1water.org
Monterey Peninsula Water Management District	Larry Hampson	Larry@mpwmd.net
Monterey Peninsula Water Management District	Tom Lindberg	Tom@mpwmd.net
Carmel Area Wastewater District	Drew Lander	Lander@cawd.org
City of Seaside	Scott Ottmar	sottmar@ci.seaside.ca.us
City of Monterey	Jeff Krebs	krebs@monterey.org
City of Monterey	Tricia Wotan	wotan@monterey.org
City of Monterey	Laurie Willamson	williamson@monterey.org
City of Pacific Grove	Milas Smith	msmith@cityofpacificgrove.org
City of Carmel	Agnes Topp	atopp@ci.carmel.ca.us
City of Sand City	Leon Gomez	lgomez@cdengineers.com
Monterey County	Tom Harty	hartytr@co.monterey.ca.us
Seaside Groundwater Basin Technical Manager	Bob Jaques	bobj83@comcast.net
Monterey Peninsula Regional Water Authority	Jim Cullem	j.ecull@comcast.net
California American Water	Christopher Cook	Christopher.Cook@amwater.com
California American Water	Ian Crooks	Ian.Crooks@amwater.com
USGS	Rich Niswonger	rniswon@usgs.gov
Monterey County Water Resources Agency	Howard Franklin	franklinh@co.monterey.ca.us
Marina Coast Water District	Brian True	btrue@mcwd.org
Stanford University	Rosemary Knight or Meredith Goebel	rknight@stanford.edu mgoebel@standord.edu
City of Monterey (retired City Engineer)	Tom Reeves	gtreeves@sbcglobal.net
Big Sur Land Trust	Sarah Hardgrave	shardgrave@bigsurlandtrust.org
Consultant Project Team		
Geosyntec Consultants	Lisa Austin Judd Goodman	laustin@geosyntec.com jgoodman@geosyntec.com
Denise Duffy & Associates	Denise Duffy Diana Staines	Dduffy@ddaplanning.com DStaines@ddaplanning.com
EOA, Inc	Jill Bicknell Vishakha Atre	jcbicknell@eoainc.com vatre@eoainc.com

APPENDIX C
Water Recovery Project Feasibility Matrix

						1. WATER SUPPLY	2. PLANNING LEVEL COST	3. EASE OF IMPLEMENTATION							
													Project Coordination		
WRS Project ID/ SWRP db_index[1]	Included Stakeholder Projects[2]	Project Category[3]	Owner[4]	Project Name[5]	Jurisdiction[6]	Net Recovered Water Volume (AFY)[7]	Unit Project Cost ($/AF)[8]	Financial - Total Capital Cost ($)[9]	Portion Diverted to Sanitary Sewer as Wet Weather Runoff (none, some, most)10	Complexity of Location due to Permitting and Land Acquisition (lower, medium, higher)[11]	Potential Water Quality Constraints (yes, no)[12]	Water Loss Considerations Associated with Hydrogeology (yes, no)[13]	Sanitary Sewer Diversion Destination (CAWD or M1W)[14]	Catchment Name[15]	Number of Identified Project Opportunities in Catchment[16]
CU_076		Capture and Use	CITY OF CARMEL BY THE SEA		CARMEL BY-THE-SEA	0-5	$10,000+	$100k-$1M	none	Higher	no	no	na	CM-41	2
CU_077	Park Branch Library - Devendorf Rainwater Capture	Capture and Use	CITY OF CARMEL BY THE SEA		CARMEL BY-THE-SEA	0-5	$10,000+	$1M-$10M	none	Higher	no	no	na	CM-42	1
CU_078		Capture and Use	DIOCESE OF MONTEREY EDUCATION &		CARMEL BY-THE-SEA	5-10	$10,000+	$1M-$10M	none	Higher	no	no	na	Carmel River	36
DSS_08	4th Avenue Dry Weather Diversion Pilot; South Carmel Dry Weather Diversion; Scenic Road Dry-Weather Diversion	Diversion to Sanitary Sewer		Scenic & 8th Pump Station	CARMEL BY-THE-SEA	20-100	$2,000-$5,000	$1M-$10M	none	Higher	no	no	CAWD	na	na
DSS_09	Scenic Road Dry-Weather Diversion	Diversion to Sanitary Sewer		Bay & Scenic Pump Station	CARMEL BY-THE-SEA	0-5	$2,000-$5,000	<$100k	none	Higher	no	no	CAWD	na	na
DSS_10		Diversion to Sanitary Sewer		R6PS_2	CARMEL BY-THE-SEA	0-5	$2,000-$5,000	<$100k	none	Higher	no	no	CAWD	na	na
CU_084		Capture and Use	CITY OF DEL REY OAKS CITY HALL		DEL REY OAKS	5-10	$10,000+	$10M+	none	Medium	no	no	na	CM-07	41
CU_planned_42	Non-Potable Well Water Conveyance System (with Aquifer and Well System Testing/Evaluations)	Capture and Use	MONTEREY PENINSULA AIRPORT DIST		DEL REY OAKS	0-5	$10,000+	$100k-$1M	none	Lower	no	no	na	CM-07	41
LR_08		Lakes / Reservoirs	na	Monterey Peninsula Regional	DEL REY OAKS	20-100	<$800	$100k-$1M	some	Higher	no	no	M1W	CM-07	41
LR_planned_79	New Detention Behind Safeway	Lakes / Reservoirs	CITY OF DEL REY OAKS		DEL REY OAKS	20-100	<$800	$100k-$1M	some	Higher	no	no	M1W	CM-07	41
CU_005		Capture and Use	CITY OF MONTEREY		MONTEREY	0-5	$10,000+	$100k-$1M	none	Medium	no	no	na	CM-21	6
CU_016		Capture and Use	CITY OF MONTEREY		MONTEREY	0-5	$10,000+	$100k-$1M	none	Higher	no	no	na	CM-15	7
CU_017		Capture and Use	CITY OF MONTEREY		MONTEREY	0-5	$10,000+	$1M-$10M	none	Medium	no	no	na	CM-15	7
CU_018		Capture and Use	MONTEREY SCHOOL DIST		MONTEREY	0-5	$10,000+	$1M-$10M	none	Medium	no	no	na	CM-15	7
CU_019		Capture and Use	CITY OF MONTEREY		MONTEREY	0-5	$10,000+	<$100k	none	Medium	no	no	na	CM-15	7
CU_020		Capture and Use	CITY OF MONTEREY		MONTEREY	0-5	$10,000+	<$100k	none	Medium	no	no	na	CM-15	7
CU_021		Capture and Use	CITY OF MONTEREY		MONTEREY	0-5	$10,000+	$1M-$10M	none	Medium	no	no	na	CM-15	7
CU_022		Capture and Use	CITY OF MONTEREY		MONTEREY	0-5	$10,000+	$100k-$1M	none	Medium	no	no	na	CM-15	7
CU_023		Capture and Use	MONTEREY CITY SCHOOL DIST		MONTEREY	0-5	$10,000+	$1M-$10M	none	Medium	no	no	na	CM-13	3
CU_024		Capture and Use	CITY OF MONTEREY		MONTEREY	0-5	$10,000+	$1M-$10M	none	Medium	no	no	na	CM-11	11
CU_025		Capture and Use	MONTEREY CITY SCHOOL DIST		MONTEREY	0-5	$10,000+	$1M-$10M	none	Medium	no	no	na	CM-11	11
CU_026		Capture and Use	MONTEREY CITY SCHOOL DIST		MONTEREY	0-5	$10,000+	$1M-$10M	none	Medium	no	no	na	CM-11	11
CU_027		Capture and Use	CITY OF MONTEREY		MONTEREY	0-5	$10,000+	$1M-$10M	none	Medium	no	no	na	CM-11	11
CU_028		Capture and Use	MONTEREY UNION HIGH SCHOOL		MONTEREY	0-5	$10,000+	$1M-$10M	none	Medium	no	no	na	CM-11	11
CU_029		Capture and Use	CITY OF MONTEREY		MONTEREY	0-5	$10,000+	$1M-$10M	none	Medium	no	no	na	CM-13	3
CU_030		Capture and Use	CITY OF MONTEREY		MONTEREY	0-5	$10,000+	$100k-$1M	none	Medium	no	no	na	CM-13	3
CU_031		Capture and Use	CITY OF MONTEREY		MONTEREY	0-5	$10,000+	$100k-$1M	none	Medium	no	no	na	CM-11	11
CU_032		Capture and Use	CITY OF MONTEREY		MONTEREY	0-5	$10,000+	$1M-$10M	none	Medium	no	no	na	CM-11	11
CU_033		Capture and Use	DIOCESE OF MONTEREY EDUCATION &		MONTEREY	0-5	$10,000+	$1M-$10M	none	Medium	no	no	na	CM-10	7
CU_034		Capture and Use	ROMAN CATHOLIC BISHOPS OF MTY		MONTEREY	10-20	$10,000+	$10M+	none	Medium	no	no	na	CM-10	7
CU_035		Capture and Use	CITY OF MONTEREY		MONTEREY	20-100	$10,000+	$10M+	none	Medium	no	no	na	CM-10	7
CU_036		Capture and Use	MTY PENINSULA JR COLLEGE DIST		MONTEREY	10-20	$10,000+	$10M+	none	Medium	no	no	na	CM-10	7
CU_037		Capture and Use	CITY OF MONTEREY		MONTEREY	5-10	$10,000+	$10M+	none	Higher	no	no	na	CM-10	7
CU_038		Capture and Use	U S NAVY GENERAL LINE SCHOOL		MONTEREY	20-100	$10,000+	$10M+	none	Medium	no	no	na	CM-09	9
CU_039		Capture and Use	CITY OF MONTEREY		MONTEREY	0-5	$10,000+	$1M-$10M	none	Medium	no	no	na	CM-09	9
CU_040		Capture and Use	MONTEREY PENINSULA UNIFIED		MONTEREY	0-5	$10,000+	$1M-$10M	none	Medium	no	no	na	CM-09	9
CU_041		Capture and Use	CITY OF MONTEREY		MONTEREY	0-5	$10,000+	<$100k	none	Medium	no	no	na	CM-09	9
CU_042		Capture and Use	CITY OF MONTEREY		MONTEREY	0-5	$10,000+	$1M-$10M	none	Higher	no	no	na	CM-07	41
CU_043		Capture and Use	SANTA CATALINA SCHOOL		MONTEREY	5-10	$10,000+	$1M-$10M	none	Medium	no	no	na	CM-09	9
CU_044		Capture and Use	PEBBLE BEACH COMPANY	Del Monte Golf Course	MONTEREY	20-100	$2,000-$5,000	$1M-$10M	none	Lower	no	no	na	CM-10	7
CU_045		Capture and Use	CITY OF MONTEREY		MONTEREY	0-5	$10,000+	$1M-$10M	none	Medium	no	no	na	CM-09	9
CU_046		Capture and Use	CITY OF MONTEREY		MONTEREY	0-5	$10,000+	<$100k	none	Medium	no	no	na	CM-09	9
CU_085		Capture and Use	U S A	Monterey Pines Golf Club	MONTEREY	20-100	$2,000-$5,000	$1M-$10M	none	Lower	no	no	na	CM-09	9
CU_planned_02	Pacific Grove Drainage Stormdrain Retrofit	Capture and Use	GOVT LAND		MONTEREY	0-5	$10,000+	$1M-$10M	none	Higher	no	no	na	CM-11	11
CU_planned_03	Hilltop Passive Irrigation System	Capture and Use	GOVT LAND		MONTEREY	5-10	$10,000+	$1M-$10M	none	Higher	no	no	na	CM-11	11
CU_planned_04	Library Drainage Stormdrain Retrofit	Capture and Use	GOVT LAND		MONTEREY	0-5	$10,000+	$100k-$1M	none	Lower	no	no	na	CM-11	11
CU_planned_09	Soldier Field Passive Irrigation System	Capture and Use	GOVT LAND		MONTEREY	10-20	$10,000+	$10M+	none	Lower	no	no	na	CM-14	1
DSS_03		Diversion to Sanitary Sewer		Reeside (Pump Station #7)	MONTEREY	10-20	$2,000-$5,000	$100k-$1M	none	Higher	no	no	M1W	na	na
DSS_04	City of Monterey Tunnel & Calle Principal Storm Water Diversion	Diversion to Sanitary Sewer	MONTEREY ONE WATER	Monterey Pump Station	MONTEREY	100+	$2,000-$5,000	$1M-$10M	none	Higher	no	no	M1W	na	na
DSS_planned_51	Hartnell Gulch Creek Restoration and Storm Water Diversion	Diversion to Sanitary Sewer	CITY OF MONTEREY		MONTEREY	20-100	$800-$2,000	$1M-$10M	some	Higher	yes	no	M1W	CM-11	11
DSS_planned_60	Pacific Grove-Monterey ASBS Wet-Dry Weaterth Storm Water Capture and Diversion Project	Diversion to Sanitary Sewer	CITY OF MONTEREY	Pump Station #11	MONTEREY	100+	$800-$2,000	$1M-$10M	some	Higher	no	no	M1W	na	na
INF_099		Infiltration to a Water Supply Aquifer	COMMUNITY HOSPITAL RYAN RANCH		MONTEREY	0-5	$10,000+	$100k-$1M	none	Medium	no	yes	na	CM-07	41
INF_100		Infiltration to a Water Supply Aquifer	COMMUNITY HOSPITAL PROPERTIES		MONTEREY	0-5	$5,000-$10,000	$100k-$1M	none	Medium	no	yes	na	CM-07	41
INF_101		Infiltration to a Water Supply Aquifer	O DRISCOLL PAUL D & MARGARET M TRS		MONTEREY	0-5	$5,000-$10,000	$100k-$1M	none	Medium	no	yes	na	CM-07	41
INF_102		Infiltration to a Water Supply Aquifer	HALPERN JAMES A & CHERYL HALPERN TRS		MONTEREY	0-5	$10,000+	$100k-$1M	none	Medium	no	yes	na	CM-07	41
INF_103		Infiltration to a Water Supply Aquifer	HARRIS COURT ASSOCIATES LLC		MONTEREY	0-5	$10,000+	$100k-$1M	none	Medium	no	yes	na	CM-07	41
INF_104		Infiltration to a Water Supply Aquifer	CITY OF MONTEREY		MONTEREY	20-100	$5,000-$10,000	$1M-$10M	none	Medium	no	yes	na	CM-07	41
INF_105		Infiltration to a Water Supply Aquifer	CITY OF MONTEREY		MONTEREY	10-20	$5,000-$10,000	$1M-$10M	none	Medium	no	yes	na	CM-07	41
INF_106		Infiltration to a Water Supply Aquifer	MONTEREY PENINSULA UNIFIED SCHOOL DIST		MONTEREY	5-10	$2,000-$5,000	$100k-$1M	none	Medium	no	yes	na	CM-07	41
INF_107		Infiltration to a Water Supply Aquifer	CITY OF MONTEREY		MONTEREY	0-5	$10,000+	<$100k	none	Medium	no	yes	na	CM-07	41
INF_108		Infiltration to a Water Supply Aquifer	CITY OF MONTEREY		MONTEREY	0-5	$10,000+	$100k-$1M	none	Medium	no	yes	na	CM-07	41
INF_109		Infiltration to a Water Supply Aquifer	CITY OF MONTEREY		MONTEREY	0-5	$10,000+	$1M-$10M	none	Medium	no	yes	na	CM-07	41
INF_110		Infiltration to a Water Supply Aquifer	CITY OF MONTEREY		MONTEREY	0-5	$10,000+	$100k-$1M	none	Medium	no	yes	na	CM-07	41
LR_03	Lake Del Monte Outflow Diversion; Lake Del Monte Outfall Replacement; Del Monte Lake Storm Water Diversion	Lakes / Reservoirs	na	Lake Del Monte	MONTEREY	100+	<$800	$100k-$1M	Most	Higher	yes	no	M1W	CM-09	9
LR_04	Lake El Estero/Whasherwomen's Pond Storm Water Diversion; Pearl Street/Figurao Box Culvert Diversion; Navy Lake and Washerwomen's Pond Outlet	Lakes / Reservoirs	na	Lake El Estero	MONTEREY	100+	<$800	$100k-$1M	Most	Higher	yes	no	M1W	CM-10	7
LR_12	Laguna Grande Well Upgrades; Laguna Grande Water Recovery	Lakes / Reservoirs	na	Roberts Lakes / Laguna Grande	MONTEREY	100+	<$800	$100k-$1M	Most	Higher	yes	no	M1W	CM-07	41
CU_planned_24	MRSWMP Cistern Rebate Program	Capture and Use	Multiple		na	0-5	$10,000+	$100k-$1M	none	Lower	no	no	na	na	na
CU_planned_31	Monterey Bay-Friendly Landscaping Rebate Program	Capture and Use	Multiple		na	0-5	$10,000+	<$100k	none	Lower	no	no	na	na	na
CU_003		Capture and Use	PACIFIC GROVE UNIFIED SCHOOL		PACIFIC GROVE	0-5	$10,000+	$100k-$1M	none	Medium	no	no	na	CM-35	4
CU_004		Capture and Use	CITY OF PACIFIC GROVE		PACIFIC GROVE	0-5	$10,000+	$1M-$10M	none	Medium	no	no	na	CM-35	4
CU_006		Capture and Use	CITY OF PACIFIC GROVE		PACIFIC GROVE	0-5	$10,000+	<$100k	none	Medium	no	no	na	CM-21	6
CU_007		Capture and Use	PACIFIC GROVE HIGH SCHOOL DIST		PACIFIC GROVE	5-10	$10,000+	$1M-$10M	none	Medium	no	no	na	CM-21	6
CU_008		Capture and Use	PACIFIC GROVE SCHOOL DIST		PACIFIC GROVE	5-10	$10,000+	$1M-$10M	none	Medium	no	no	na	CM-21	6
CU_009		Capture and Use	PACIFIC GROVE UNIFIED SCHOOL		PACIFIC GROVE	10-20	$10,000+	$1M-$10M	none	Medium	no	no	na	CM-35	4
CU_010		Capture and Use	CITY OF PACIFIC GROVE		PACIFIC GROVE	0-5	$10,000+	$1M-$10M	none	Medium	no	no	na	CM-33	2
CU_011		Capture and Use	PACIFIC GROVE UNIFIED SCHOOL DISTRICT		PACIFIC GROVE	0-5	$10,000+	$100k-$1M	none	Medium	no	no	na	CM-33	2
CU_012		Capture and Use	CITY OF PACIFIC GROVE		PACIFIC GROVE	0-5	$10,000+	$1M-$10M	none	Higher	no	no	na	CM-23	1
CU_013		Capture and Use	CITY OF PACIFIC GROVE		PACIFIC GROVE	0-5	$10,000+	<$100k	none	Higher	no	no	na	CM-22	1
CU_014		Capture and Use	CITY OF PACIFIC GROVE		PACIFIC GROVE	0-5	$10,000+	$1M-$10M	none	Higher	no	no	na	CM-20	1
CU_015		Capture and Use	CITY OF PACIFIC GROVE		PACIFIC GROVE	0-5	$10,000+	$1M-$10M	none	Higher	no	no	na	CM-24	1

						1. WATER SUPPLY	2. PLANNING LEVEL COST	3. EASE OF IMPLEMENTATION							
													Project Coordination		
WRS Project ID/ SWRP db_index[1]	Included Stakeholder Projects[2]	Project Category[3]	Owner[4]	Project Name[5]	Jurisdiction[6]	Net Recovered Water Volume (AFY)[7]	Unit Project Cost ($/AF)[8]	Financial - Total Capital Cost ($)[9]	Portion Diverted to Sanitary Sewer as Wet Weather Runoff (none, some, most)10	Complexity of Location due to Permitting and Land Acquisition (lower, medium, higher)[11]	Potential Water Quality Constraints (yes, no)[12]	Water Loss Considerations Associated with Hydrogeology (yes, no)[13]	Sanitary Sewer Diversion Destination (CAWD or M1W)[14]	Catchment Name[15]	Number of Identified Project Opportunities in Catchment[16]
CU_087		Capture and Use	CITY OF PACIFIC GROVE	Pacific Grove Golf Links	PACIFIC GROVE	5-10	$10,000+	$1M-$10M	none	Higher	no	no	na	CM-29	2
CU_planned_33	Urban Greening Plan	Capture and Use	Multiple		PACIFIC GROVE	10-20	$10,000+	$10M+	none	Higher	no	no	na	CM-21	6
DSS_01		Diversion to Sanitary Sewer	MONTEREY ONE WATER	Pump Station #16	PACIFIC GROVE	10-20	$2,000-$5,000	$100k-$1M	none	Higher	no	no	M1W	na	na
DSS_02		Diversion to Sanitary Sewer	MONTEREY ONE WATER	Pump Station #15.5	PACIFIC GROVE	0-5	$2,000-$5,000	$100k-$1M	none	Higher	no	no	M1W	na	na
LR_02	David Ave Reservoir	Lakes / Reservoirs	na	David Ave Reservoir	PACIFIC GROVE	5-10	$800-$2,000	$100k-$1M	Most	Higher	no	no	M1W	CM-21	6
LR_05		Lakes / Reservoirs	na	Glen of Pacific Grove	PACIFIC GROVE	5-10	$800-$2,000	<$100k	Most	Higher	no	no	M1W	CM-35	4
LR_11		Lakes / Reservoirs	na	Pacific Grove Golf Links	PACIFIC GROVE	5-10	$800-$2,000	$100k-$1M	Most	Higher	no	no	M1W	CM-29	2
CU_073		Capture and Use	CITY OF SAND CITY		SAND CITY	0-5	$10,000+	$100k-$1M	none	Higher	no	no	na	CM-06	69
INF_036		Infiltration to a Water Supply Aquifer	DBO DEVELOPMENT NO 30		SAND CITY	0-5	$10,000+	$100k-$1M	none	Higher	no	yes	na	CM-06	69
INF_037		Infiltration to a Water Supply Aquifer	DBO DEVELOPMENT NO 30		SAND CITY	0-5	$10,000+	$100k-$1M	none	Higher	no	yes	na	CM-06	69
CU_048		Capture and Use	FPG CALIFORNIA INC		SEASIDE	0-5	$10,000+	$100k-$1M	none	Lower	no	no	na	CM-05	11
CU_049	Project "A2" from campus Storm Water Master plan	Capture and Use	CALIFORNIA STATE UNIVERSITY MONTEREY BAY		SEASIDE	10-20	$10,000+	$10M+	none	Medium	no	no	na	CM-03	1
CU_054	Former Fort Ord Stormwater Outfall Closure	Capture and Use	CITY OF SEASIDE		SEASIDE	20-100	$800-$2,000	$1M-$10M	none	Lower	no	no	na	CM-05	11
CU_059		Capture and Use	CITY OF SEASIDE		SEASIDE	0-5	$10,000+	$1M-$10M	none	Medium	no	no	na	CM-06	69
CU_067		Capture and Use	MONTEREY PEN UNIFIED SCH DIST		SEASIDE	5-10	$10,000+	$10M+	none	Medium	no	no	na	CM-07	41
CU_068		Capture and Use	CITY OF SEASIDE CITY HALL		SEASIDE	0-5	$10,000+	$1M-$10M	none	Medium	no	no	na	CM-07	41
CU_069		Capture and Use	CITY OF SEASIDE		SEASIDE	0-5	$10,000+	$1M-$10M	none	Medium	no	no	na	CM-07	41
CU_072		Capture and Use	CITY OF SEASIDE		SEASIDE	0-5	$10,000+	$1M-$10M	none	Medium	no	no	na	CM-07	41
CU_074		Capture and Use	MONTEREY PENINSULA REGIONAL PARK DISTRICT		SEASIDE	0-5	$10,000+	$100k-$1M	none	Higher	no	no	na	CM-07	41
DSS_05		Diversion to Sanitary Sewer		Pump Station (adjacent to Laguna Grande)	SEASIDE	0-5	$2,000-$5,000	<$100k	none	Higher	no	no	M1W	na	na
DSS_06	Del Monte Blvd Storm Drain Diversion	Diversion to Sanitary Sewer	MONTEREY ONE WATER	Seaside Pump Station #23	SEASIDE	20-100	$2,000-$5,000	$1M-$10M	none	Higher	no	no	M1W	na	na
INF_001		Infiltration to a Water Supply Aquifer	CITY OF SEASIDE THE		SEASIDE	10-20	$5,000-$10,000	$1M-$10M	none	Medium	no	yes	na	CM-02	1
INF_002	Former Fort Ord Stormwater Outfall Closure	Infiltration to a Water Supply Aquifer	MONTEREY PENINSULA UNIFIED		SEASIDE	10-20	$2,000-$5,000	$1M-$10M	none	Medium	no	yes	na	CM-04	6
INF_003	Former Fort Ord Stormwater Outfall Closure	Infiltration to a Water Supply Aquifer	MONTEREY PENINSULA UNIFIED		SEASIDE	20-100	$5,000-$10,000	$1M-$10M	none	Medium	no	yes	na	CM-04	6
INF_004	Former Fort Ord Stormwater Outfall Closure	Infiltration to a Water Supply Aquifer	CHARTWELL SCHOOL		SEASIDE	10-20	$5,000-$10,000	$1M-$10M	none	Medium	no	yes	na	CM-04	6
INF_005	Former Fort Ord Stormwater Outfall Closure	Infiltration to a Water Supply Aquifer	CHARTWELL SCHOOL		SEASIDE	5-10	$5,000-$10,000	$1M-$10M	none	Medium	no	yes	na	CM-04	6
INF_006	Former Fort Ord Stormwater Outfall Closure	Infiltration to a Water Supply Aquifer	CITY OF SEASIDE		SEASIDE	0-5	$10,000+	<$100k	none	Medium	no	yes	na	CM-04	6
INF_007	Former Fort Ord Stormwater Outfall Closure	Infiltration to a Water Supply Aquifer	CITY OF SEASIDE		SEASIDE	0-5	$10,000+	<$100k	none	Medium	no	yes	na	CM-04	6
INF_008		Infiltration to a Water Supply Aquifer	CITY OF SEASIDE		SEASIDE	10-20	$2,000-$5,000	$100k-$1M	none	Medium	no	yes	na	CM-05	11
INF_009	Seaside High School Bioretention Project	Infiltration to a Water Supply Aquifer	MONTEREY PENINSULA UNIFIED SCHLDISTRICT		SEASIDE	10-20	$2,000-$5,000	$1M-$10M	none	Medium	no	yes	na	CM-05	11
INF_010	Seaside High School Bioretention Project	Infiltration to a Water Supply Aquifer	MONTEREY PENINSULA UNIFIED SCHOOL		SEASIDE	0-5	$5,000-$10,000	$100k-$1M	none	Medium	no	yes	na	CM-05	11
INF_011		Infiltration to a Water Supply Aquifer	CITY OF SEASIDE		SEASIDE	0-5	$10,000+	$100k-$1M	none	Medium	no	yes	na	CM-05	11
INF_012		Infiltration to a Water Supply Aquifer	SUNBAY RESORT ASSOCIATES NO 2 LLC		SEASIDE	0-5	$10,000+	$100k-$1M	none	Medium	no	yes	na	CM-05	11
INF_014		Infiltration to a Water Supply Aquifer	MONTEREY PENINSULA UNIFIED		SEASIDE	10-20	$2,000-$5,000	$1M-$10M	none	Medium	no	yes	na	CM-05	11
INF_015		Infiltration to a Water Supply Aquifer	MONTEREY PENINSULA UNIFIED		SEASIDE	10-20	$2,000-$5,000	$1M-$10M	none	Medium	no	yes	na	CM-05	11
INF_016		Infiltration to a Water Supply Aquifer	BBI BUILDING LLC		SEASIDE	0-5	$5,000-$10,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_017		Infiltration to a Water Supply Aquifer	CITY OF SEASIDE THE		SEASIDE	0-5	$10,000+	<$100k	none	Medium	no	yes	na	CM-05	11
INF_018		Infiltration to a Water Supply Aquifer	ORD TERRACE SCHOOL		SEASIDE	0-5	$5,000-$10,000	$100k-$1M	none	Medium	no	yes	na	CM-05	11
INF_019		Infiltration to a Water Supply Aquifer	MAHROOM FAMILY PARTNERSHIP LP		SEASIDE	10-20	$800-$2,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_020		Infiltration to a Water Supply Aquifer	ISHII GALEN H TR ET AL		SEASIDE	10-20	$800-$2,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_021		Infiltration to a Water Supply Aquifer	ISHII GALEN H TR ET AL		SEASIDE	10-20	$800-$2,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_022		Infiltration to a Water Supply Aquifer	SEASIDE SCHOOL DIST		SEASIDE	20-100	$800-$2,000	$1M-$10M	none	Medium	no	yes	na	CM-06	69
INF_023		Infiltration to a Water Supply Aquifer	CITY OF SEASIDE		SEASIDE	20-100	$2,000-$5,000	$1M-$10M	none	Medium	no	yes	na	CM-06	69
INF_025		Infiltration to a Water Supply Aquifer	CITY OF SEASIDE		SEASIDE	5-10	$800-$2,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_026		Infiltration to a Water Supply Aquifer	CITY OF SEASIDE		SEASIDE	5-10	$800-$2,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_027		Infiltration to a Water Supply Aquifer	CITY OF SEASIDE		SEASIDE	5-10	$800-$2,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_028		Infiltration to a Water Supply Aquifer	CITY OF SEASIDE		SEASIDE	10-20	$800-$2,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_029		Infiltration to a Water Supply Aquifer	CITY OF SEASIDE		SEASIDE	10-20	$800-$2,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_030		Infiltration to a Water Supply Aquifer	CITY OF SEASIDE		SEASIDE	20-100	$2,000-$5,000	$1M-$10M	none	Medium	no	yes	na	CM-06	69
INF_031		Infiltration to a Water Supply Aquifer	THE CITY OF SEASIDE		SEASIDE	0-5	$10,000+	<$100k	none	Medium	no	yes	na	CM-06	69
INF_032		Infiltration to a Water Supply Aquifer	BASSETT LINDA LEE TR		SEASIDE	0-5	$10,000+	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_033		Infiltration to a Water Supply Aquifer	CITY OF SEASIDE		SEASIDE	10-20	$2,000-$5,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_034		Infiltration to a Water Supply Aquifer	CITY OF SEASIDE		SEASIDE	10-20	$800-$2,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_035		Infiltration to a Water Supply Aquifer	CITY OF SEASIDE		SEASIDE	5-10	$800-$2,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_038		Infiltration to a Water Supply Aquifer	CALIFORNIA GOLD DEVELOPMENT CORPORATION		SEASIDE	0-5	$10,000+	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_039		Infiltration to a Water Supply Aquifer	MADISON TRUST COMPANY CUSTODIAN		SEASIDE	5-10	$2,000-$5,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_040		Infiltration to a Water Supply Aquifer	MC ADAMS MICHAEL GENE II		SEASIDE	0-5	$2,000-$5,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_041		Infiltration to a Water Supply Aquifer	CITY OF SEASIDE		SEASIDE	5-10	$2,000-$5,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_042		Infiltration to a Water Supply Aquifer	CITY OF SEASIDE		SEASIDE	5-10	$2,000-$5,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_043		Infiltration to a Water Supply Aquifer	CROCKETT SHERYL TURRENTINE ET AL		SEASIDE	10-20	$2,000-$5,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_044		Infiltration to a Water Supply Aquifer	CROCKETT SHERYL TURRENTINE ET AL		SEASIDE	5-10	$2,000-$5,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_045		Infiltration to a Water Supply Aquifer	VALDEZ JOSE ROSARIO & NAZARIO P VALDEZ		SEASIDE	0-5	$2,000-$5,000	$100k-$1M	none	Medium	no	yes	na	CM-07	41
INF_046		Infiltration to a Water Supply Aquifer	BAKER ELIZABETH W & MICHAEL O		SEASIDE	5-10	$2,000-$5,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_047		Infiltration to a Water Supply Aquifer	CITY OF SEASIDE		SEASIDE	5-10	$2,000-$5,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_048		Infiltration to a Water Supply Aquifer	MONTECRISTO CAPITAL INC		SEASIDE	10-20	$2,000-$5,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_049		Infiltration to a Water Supply Aquifer	COUNTY OF MONTEREY		SEASIDE	5-10	$800-$2,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_050		Infiltration to a Water Supply Aquifer	COUNTY OF MONTEREY		SEASIDE	5-10	$800-$2,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_051		Infiltration to a Water Supply Aquifer	COUNTY OF MONTEREY		SEASIDE	5-10	$800-$2,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_052		Infiltration to a Water Supply Aquifer	COUNTY OF MONTEREY		SEASIDE	5-10	$2,000-$5,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_053		Infiltration to a Water Supply Aquifer	COUNTY OF MONTEREY		SEASIDE	5-10	$2,000-$5,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_054		Infiltration to a Water Supply Aquifer	COUNTY OF MONTEREY		SEASIDE	10-20	$800-$2,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_055		Infiltration to a Water Supply Aquifer	COUNTY OF MONTEREY		SEASIDE	10-20	$800-$2,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_056		Infiltration to a Water Supply Aquifer	CITY OF SEASIDE		SEASIDE	10-20	$800-$2,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_057		Infiltration to a Water Supply Aquifer	HAGENBUCH RICKY C		SEASIDE	0-5	$2,000-$5,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_058		Infiltration to a Water Supply Aquifer	HAGENBUCH RICKY C		SEASIDE	5-10	$2,000-$5,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_059		Infiltration to a Water Supply Aquifer	HAGENBUCH RICKY C		SEASIDE	5-10	$2,000-$5,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_060		Infiltration to a Water Supply Aquifer	VEGA NELSON ALVELO TR		SEASIDE	10-20	$2,000-$5,000	$1M-$10M	none	Medium	no	yes	na	CM-06	69
INF_061		Infiltration to a Water Supply Aquifer	BICKEL WILLIAM TR		SEASIDE	5-10	$2,000-$5,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_062		Infiltration to a Water Supply Aquifer	HINDS BROTHERS CALIFORNIA LLC		SEASIDE	0-5	$10,000+	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_063		Infiltration to a Water Supply Aquifer	HINDS BROTHERS CALIFORNIA LLC		SEASIDE	0-5	$10,000+	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_064		Infiltration to a Water Supply Aquifer	ABRAMONTE MADELINE L ET AL		SEASIDE	10-20	$800-$2,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_065		Infiltration to a Water Supply Aquifer	FLORES PAUL H & LINDA S TRS ET AL		SEASIDE	0-5	$10,000+	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_066		Infiltration to a Water Supply Aquifer	CORONA KATHERINE D TR ET AL		SEASIDE	0-5	$10,000+	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_067		Infiltration to a Water Supply Aquifer	CORONA RAYMOND K		SEASIDE	0-5	$10,000+	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_068		Infiltration to a Water Supply Aquifer	RAY GERALD C TR		SEASIDE	5-10	$2,000-$5,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_069		Infiltration to a Water Supply Aquifer	SEASIDE SCHOOL DIST		SEASIDE	20-100	$2,000-$5,000	$1M-$10M	none	Medium	no	yes	na	CM-06	69
INF_070		Infiltration to a Water Supply Aquifer	CITY OF SEASIDE		SEASIDE	5-10	$800-$2,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_071		Infiltration to a Water Supply Aquifer	CITY OF SEASIDE		SEASIDE	5-10	$800-$2,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_072		Infiltration to a Water Supply Aquifer	CITY OF SEASIDE		SEASIDE	5-10	$800-$2,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_073		Infiltration to a Water Supply Aquifer	NEW HOPE BAPTIST CHURCH OF SEASIDE		SEASIDE	10-20	$800-$2,000	$100k-$1M	none	Medium	no	yes	na	CM-07	41
INF_074		Infiltration to a Water Supply Aquifer	AILING HOUSE PEST CONTROL		SEASIDE	5-10	$2,000-$5,000	$100k-$1M	none	Medium	no	yes	na	CM-07	41

						1. WATER SUPPLY	2. PLANNING LEVEL COST	3. EASE OF IMPLEMENTATION							
													Project Coordination		
WRS Project ID/ SWRP db_index[1]	Included Stakeholder Projects[2]	Project Category[3]	Owner[4]	Project Name[5]	Jurisdiction[6]	Net Recovered Water Volume (AFY)[7]	Unit Project Cost ($/AF)[8]	Financial - Total Capital Cost ($)[9]	Portion Diverted to Sanitary Sewer as Wet Weather Runoff (none, some, most)10	Complexity of Location due to Permitting and Land Acquisition (lower, medium, higher)[11]	Potential Water Quality Constraints (yes, no)[12]	Water Loss Considerations Associated with Hydrogeology (yes, no)[13]	Sanitary Sewer Diversion Destination (CAWD or M1W)[14]	Catchment Name[15]	Number of Identified Project Opportunities in Catchment[16]
INF_075		Infiltration to a Water Supply Aquifer	AUBURNS HOUSE MONTESSORI SCHOOL LLC		SEASIDE	5-10	$2,000-$5,000	$100k-$1M	none	Medium	no	yes	na	CM-07	41
INF_076		Infiltration to a Water Supply Aquifer	CITY OF SEASIDE		SEASIDE	20-100	$800-$2,000	$1M-$10M	none	Medium	no	yes	na	CM-07	41
INF_077		Infiltration to a Water Supply Aquifer	CITY OF SEASIDE		SEASIDE	0-5	$10,000+	<$100k	none	Medium	no	yes	na	CM-07	41
INF_078		Infiltration to a Water Supply Aquifer	CENTRAL CALIFORNIA CONF ASSOC		SEASIDE	0-5	$10,000+	$100k-$1M	none	Medium	no	yes	na	CM-07	41
INF_079		Infiltration to a Water Supply Aquifer	ABRAMONTE MADELINE L TR		SEASIDE	0-5	$10,000+	$100k-$1M	none	Medium	no	yes	na	CM-07	41
INF_080		Infiltration to a Water Supply Aquifer	1533 KIMBALL AVE LLC		SEASIDE	10-20	$2,000-$5,000	$1M-$10M	none	Medium	no	yes	na	CM-07	41
INF_081		Infiltration to a Water Supply Aquifer	GUNIA DOLORES TR		SEASIDE	5-10	$2,000-$5,000	$100k-$1M	none	Medium	no	yes	na	CM-07	41
INF_082		Infiltration to a Water Supply Aquifer	CITY OF SEASIDE		SEASIDE	5-10	$2,000-$5,000	$100k-$1M	none	Medium	no	yes	na	CM-07	41
INF_083		Infiltration to a Water Supply Aquifer	CITY OF SEASIDE CITY HALL		SEASIDE	10-20	$800-$2,000	$100k-$1M	none	Medium	no	yes	na	CM-07	41
INF_084		Infiltration to a Water Supply Aquifer	CITY OF SEASIDE		SEASIDE	10-20	$2,000-$5,000	$1M-$10M	none	Medium	no	yes	na	CM-07	41
INF_085		Infiltration to a Water Supply Aquifer	CITY OF SEASIDE		SEASIDE	5-10	$5,000-$10,000	$100k-$1M	none	Medium	no	yes	na	CM-07	41
INF_086		Infiltration to a Water Supply Aquifer	MONTEREY CITY SCHOOL DIST		SEASIDE	0-5	$5,000-$10,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_087		Infiltration to a Water Supply Aquifer	CITY OF SEASIDE		SEASIDE	0-5	$2,000-$5,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_088		Infiltration to a Water Supply Aquifer	CITY OF SEASIDE		SEASIDE	5-10	$2,000-$5,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_089		Infiltration to a Water Supply Aquifer	CITY OF SEASIDE		SEASIDE	0-5	$2,000-$5,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_090		Infiltration to a Water Supply Aquifer	CITY OF SEASIDE		SEASIDE	10-20	$2,000-$5,000	$1M-$10M	none	Medium	no	yes	na	CM-06	69
INF_091		Infiltration to a Water Supply Aquifer	MONTEREY CITY SCHOOL DIST		SEASIDE	20-100	$2,000-$5,000	$1M-$10M	none	Medium	no	yes	na	CM-06	69
INF_092		Infiltration to a Water Supply Aquifer	CITY OF SEASIDE		SEASIDE	10-20	$800-$2,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_093		Infiltration to a Water Supply Aquifer	CITY OF SEASIDE		SEASIDE	10-20	$2,000-$5,000	$1M-$10M	none	Medium	no	yes	na	CM-06	69
INF_094		Infiltration to a Water Supply Aquifer	MONTEREY CITY SCHOOL DISTRICT		SEASIDE	10-20	$2,000-$5,000	$1M-$10M	none	Medium	no	yes	na	CM-06	69
INF_095		Infiltration to a Water Supply Aquifer	CITY OF SEASIDE		SEASIDE	10-20	$2,000-$5,000	$1M-$10M	none	Medium	no	yes	na	CM-06	69
INF_096		Infiltration to a Water Supply Aquifer	CITY OF SEASIDE		SEASIDE	10-20	$2,000-$5,000	$1M-$10M	none	Medium	no	yes	na	CM-06	69
INF_097		Infiltration to a Water Supply Aquifer	CITY OF SEASIDE		SEASIDE	10-20	$2,000-$5,000	$1M-$10M	none	Medium	no	yes	na	CM-06	69
INF_098		Infiltration to a Water Supply Aquifer	CITY OF SEASIDE		SEASIDE	5-10	$2,000-$5,000	$100k-$1M	none	Medium	no	yes	na	CM-06	69
INF_DW_SEA		Infiltration to a Water Supply Aquifer	na	Dry Well Catch Basin Retrofit Program - Seaside Aquifer	SEASIDE	20-100	$5,000-$10,000	$10M+	none	Higher	no	yes	na	na	na
INF_planned_19	Del Monte Manor Park Infiltration	Infiltration to a Water Supply Aquifer	DEL MONTE MANOR INC		SEASIDE	10-20	$2,000-$5,000	$1M-$10M	none	Lower	no	yes	na	CM-06	69
CU_075		Capture and Use	ROBERT LOUIS STEVENSON SCHOOL		UNINCORPORATED	0-5	$10,000+	$1M-$10M	none	Higher	no	no	na	CM-41	2
CU_079		Capture and Use	CARMEL UNIFIED SCHOOL DISTRICT		UNINCORPORATED	20-100	$10,000+	$10M+	none	Medium	no	no	na	Carmel River	36
CU_080		Capture and Use	THE TRUST FOR PUBLIC LAND	Rancho Canada Golf Club	UNINCORPORATED	20-100	$2,000-$5,000	$1M-$10M	none	Lower	no	no	na	Carmel River	36
CU_081		Capture and Use	WEINMAN LOIS TR	Quail Lodge Resort and Golf Club	UNINCORPORATED	20-100	$2,000-$5,000	$1M-$10M	none	Lower	no	no	na	Carmel River	36
CU_082		Capture and Use	HARDING PETER MARTIN & MARGARET LOUIS TRS		UNINCORPORATED	0-5	$10,000+	$1M-$10M	none	Medium	no	no	na	Carmel River	36
CU_083		Capture and Use	CARMEL UNIFIED SCHOOL DIST		UNINCORPORATED	0-5	$10,000+	$100k-$1M	none	Medium	no	no	na	Carmel River	36
CU_planned_01	Pebble Beach Drainage Storm Drain Retrofit	Capture and Use	GOVT LAND		UNINCORPORATED	0-5	$10,000+	$1M-$10M	none	Higher	no	no	na	CM-37	1
DSS_07	Former Fort Ord Stormwater Outfall Closure	Diversion to Sanitary Sewer	MONTEREY ONE WATER	Fort Ord Treatment Plant Pump Station	UNINCORPORATED	20-100	$2,000-$5,000	$1M-$10M	none	Higher	no	no	M1W	na	na
INF_111		Infiltration to a Water Supply Aquifer	NORTH SHORE TOWER COMPANY LLC		UNINCORPORATED	0-5	$10,000+	<$100k	none	Medium	no	yes	na	Carmel River	36
INF_112		Infiltration to a Water Supply Aquifer	NORTH SHORE TOWER COMPANY LLC		UNINCORPORATED	0-5	$10,000+	<$100k	none	Medium	no	yes	na	Carmel River	36
INF_113		Infiltration to a Water Supply Aquifer	SYCAMORE STABLES LLC		UNINCORPORATED	0-5	$10,000+	$100k-$1M	none	Medium	no	yes	na	Carmel River	36
INF_114		Infiltration to a Water Supply Aquifer	MAINO PATRICIA TR		UNINCORPORATED	10-20	$10,000+	$1M-$10M	none	Medium	no	yes	na	Carmel River	36
INF_115		Infiltration to a Water Supply Aquifer	KAMINSKE ROY TR ET AL		UNINCORPORATED	5-10	$5,000-$10,000	$1M-$10M	none	Medium	no	yes	na	Carmel River	36
INF_116		Infiltration to a Water Supply Aquifer	TAVAKOLIAN MOJTABA & MOHAMADPOUR-JASEM NASSIME		UNINCORPORATED	5-10	$2,000-$5,000	$100k-$1M	none	Medium	no	yes	na	Carmel River	36
INF_117		Infiltration to a Water Supply Aquifer	PICARD JOHN R & RUTH F TRS		UNINCORPORATED	5-10	$2,000-$5,000	$100k-$1M	none	Medium	no	yes	na	Carmel River	36
INF_118		Infiltration to a Water Supply Aquifer	MANNING MARGARET ANN TR		UNINCORPORATED	5-10	$2,000-$5,000	$100k-$1M	none	Medium	no	yes	na	Carmel River	36
INF_119		Infiltration to a Water Supply Aquifer	MANNING MARGARET ANN TR		UNINCORPORATED	5-10	$2,000-$5,000	$100k-$1M	none	Medium	no	yes	na	Carmel River	36
INF_120		Infiltration to a Water Supply Aquifer	MANNING MARGARET ANN TR		UNINCORPORATED	5-10	$2,000-$5,000	$100k-$1M	none	Medium	no	yes	na	Carmel River	36
INF_121		Infiltration to a Water Supply Aquifer	MANNING MARGARET ANN TR		UNINCORPORATED	5-10	$2,000-$5,000	$100k-$1M	none	Medium	no	yes	na	Carmel River	36
INF_122		Infiltration to a Water Supply Aquifer	ONE LANTERN LLC		UNINCORPORATED	0-5	$5,000-$10,000	$100k-$1M	none	Medium	no	yes	na	Carmel River	36
INF_123		Infiltration to a Water Supply Aquifer	CARMEL UNIFIED SCHOOL DIST		UNINCORPORATED	5-10	$5,000-$10,000	$1M-$10M	none	Medium	no	yes	na	Carmel River	36
INF_124		Infiltration to a Water Supply Aquifer	CANADA WOODS LLC		UNINCORPORATED	10-20	$5,000-$10,000	$1M-$10M	none	Medium	no	yes	na	Carmel River	36
INF_125		Infiltration to a Water Supply Aquifer	CANADA WOODS LLC		UNINCORPORATED	5-10	$5,000-$10,000	$1M-$10M	none	Medium	no	yes	na	Carmel River	36
INF_126		Infiltration to a Water Supply Aquifer	WOLTER PROPERTIES LP		UNINCORPORATED	0-5	$5,000-$10,000	$100k-$1M	none	Medium	no	yes	na	Carmel River	36
INF_127		Infiltration to a Water Supply Aquifer	WOLTER PROPERTIES LP		UNINCORPORATED	0-5	$10,000+	$100k-$1M	none	Medium	no	yes	na	Carmel River	36
INF_128		Infiltration to a Water Supply Aquifer	WOLTER PROPERTIES LP		UNINCORPORATED	0-5	$5,000-$10,000	$100k-$1M	none	Medium	no	yes	na	Carmel River	36
INF_129		Infiltration to a Water Supply Aquifer	WOLTER PROPERTIES LP		UNINCORPORATED	0-5	$10,000+	$100k-$1M	none	Medium	no	yes	na	Carmel River	36
INF_130		Infiltration to a Water Supply Aquifer	CANADA WOODS LLC		UNINCORPORATED	0-5	$10,000+	$100k-$1M	none	Medium	no	yes	na	Carmel River	36
INF_131		Infiltration to a Water Supply Aquifer	ALGM LLC		UNINCORPORATED	0-5	$10,000+	$100k-$1M	none	Medium	no	yes	na	Carmel River	36
INF_DW_CV		Infiltration to a Water Supply Aquifer	na	Dry Well Catch Basin Retrofit Program - Carmel Valley Aquifer	UNINCORPORATED	20-100	$2,000-$5,000	$1M-$10M	none	Higher	no	yes	na	na	na
INF_planned_17	Carmel River Floodplain Restoration and Environmental Enhancement (CRFREE)	Infiltration to a Water Supply Aquifer	BIG SUR LAND TRUST THE		UNINCORPORATED	10-20	$10,000+	$10M+	none	Higher	yes	yes	na	Carmel River	36
INF_planned_71	Whalers Cove Parking Lot Stormwater BMP Project	Infiltration to a Water Supply Aquifer	STATE OF CALIFORNIA		UNINCORPORATED	0-5	$10,000+	$100k-$1M	none	Higher	no	yes	na	BP-2	1
INF_TRIB_1		Infiltration to a Water Supply Aquifer	THE TRUST FOR PUBLIC LAND		UNINCORPORATED	10-20	$5,000-$10,000	$1M-$10M	none	Medium	yes	yes	na	Carmel River	36
INF_TRIB_2		Infiltration to a Water Supply Aquifer	ONE LANTERN LLC, WRIGHT RONALD DOUGLAS		UNINCORPORATED	0-5	$10,000+	$100k-$1M	none	Medium	yes	yes	na	Carmel River	36
INF_TRIB_3		Infiltration to a Water Supply Aquifer	LUTES LEO GORDON & KATHLEEN		UNINCORPORATED	10-20	$5,000-$10,000	$1M-$10M	none	Medium	yes	yes	na	Carmel River	36
INF_TRIB_4		Infiltration to a Water Supply Aquifer	KAMINSKE ROY TR ET AL, TAVAKOLIAN MOJTABA & MOHAMADPOUR-JASEM NASSIME		UNINCORPORATED	5-10	$5,000-$10,000	$1M-$10M	none	Medium	yes	yes	na	Carmel River	36
INF_TRIB_5		Infiltration to a Water Supply Aquifer	CANADA WOODS LLC, WOLTER PROPERTIES LP, ALGM LLC		UNINCORPORATED	20-100	$5,000-$10,000	$10M+	none	Medium	yes	yes	na	Carmel River	36
INF_TRIB_6		Infiltration to a Water Supply Aquifer	MAINO PATRICIA TR, MOODY MICHAEL M TR		UNINCORPORATED	5-10	$5,000-$10,000	$1M-$10M	none	Medium	yes	yes	na	Carmel River	36
LR_01		Lakes / Reservoirs	na	County and Private Pond	UNINCORPORATED	20-100	$2,000-$5,000	$1M-$10M	Most	Higher	no	no	M1W	CM-07	41
LR_06		Lakes / Reservoirs	na	Laguna Seca	UNINCORPORATED	20-100	<$800	$100k-$1M	none	Higher	no	yes	na	CM-07	41
LR_07		Lakes / Reservoirs	na	Laguna Seca Golf Ranch	UNINCORPORATED	20-100	<$800	<$100k	none	Higher	no	no	na	CM-07	41
LR_10		Lakes / Reservoirs	na	Nicklaus Club - Monterey	UNINCORPORATED	5-10	<$800	<$100k	none	Higher	no	no	na	CM-07	41
LR_13		Lakes / Reservoirs	na	Santa Lucia Conservancy	UNINCORPORATED	10-20	<$800	<$100k	none	Higher	no	no	na	Carmel River	36
LR_14		Lakes / Reservoirs	na	Los Padres Reservoir	UNINCORPORATED	100+	$10,000+	$10M+	none	Higher	no	no	na	Carmel River	36

Notes:

[1]Unique index key for Water Recovery Study and Stormwater Resource Plan projects using project category as prefix - Capture and Use (CU), Infiltration to a Water Supply Aquifer (INF), Diversion to Sanitary Sewer (DSS), and Lakes and Reservoirs (LR). Used for database management when referring to a specific Water Recovery Study and Stormwater Resouce Plan project.

[2]Named stakeholder project is a part of the project opportunity identified.

[3]Project Category

Capture and Use - includes potential projects that collect and store runoff for irrigation demand onsite.

Infiltration to Water Supply Aquifer - includes opportunities to capture and percolate runoff into groundwater basins used for water supply.

Lake / Reservoir - includes potential projects where existing surface water impoundments with substantial tributary area can detain and recover additional runoff via infiltration to a water supply aquifer, capture and use, and/or diversion to the sanitary sewer system.

Diversion to Sanitary Sewer - includes potential projects where storm drains or streams can be retrofitted to divert runoff into the sanitary sewer system for treatment and reuse.

[4]Parcel owner name, as received from the Monterey County Assessor's Office on November 17, 2017.

[5]Name of the project -- applies only to Lake / Reservoir, Diversion to Sanitary Sewer projects, and golf courses.

[6]Jurisdiction within which project is located (i.e., all projects physically located within the City of Seaside have a "SEASIDE" jurisdiction designation).

[7]The estimated amount of annual runoff that could potentially be recovered at the project site to augment water supply, provided as range (acre-feet per year). Ranges provided include 0 - 5 ac-ft/yr; 5 - 10 ac-ft/yr; 10 - 20 ac-ft/yr; 20 - 100 ac-ft/yr; and 100+ ac-ft/yr. Estimated Net Recovery Volume was calculated assuming there are no other Water Recovery Study projects implemented in the area tributary to the project.

						1. WATER SUPPLY	2. PLANNING LEVEL COST	3. EASE OF IMPLEMENTATION							
													Project Coordination		
WRS Project ID/ SWRP db_index[1]	Included Stakeholder Projects[2]	Project Category[3]	Owner[4]	Project Name[5]	Jurisdiction[6]	Net Recovered Water Volume (AFY)[7]	Unit Project Cost ($/AF)[8]	Financial - Total Capital Cost ($)[9]	Portion Diverted to Sanitary Sewer as Wet Weather Runoff (none, some, most)10	Complexity of Location due to Permitting and Land Acquisition (lower, medium, higher)[11]	Potential Water Quality Constraints (yes, no)[12]	Water Loss Considerations Associated with Hydrogeology (yes, no)[13]	Sanitary Sewer Diversion Destination (CAWD or M1W)[14]	Catchment Name[15]	Number of Identified Project Opportunities in Catchment[16]

[8]Planning level estimate of unit project cost (dollars per acre-foot runoff volume recovered per year) for an assumed design life of 30 years provided as range. Ranges provided include <$800/ac-ft (lower range for traditional water supply); $800 - $2,000/ac-ft (upper range for traditional water supply); $2,000 - $5,000/ac-ft (range for desalination); $5,000 - $10,000/ac-ft; and $10,000+/ac-ft. Planning level cost estimates include capital and operational costs for pre-treatment, storage, pumps, electrical power, purchase/lease of private property, and sewer connection fees, where applicable.

[9]Total estimated planning level capital cost (dollars) for the project, provided as a range, with an assumed design life of 30 years. Ranges provided include <$100k; $100k - $1M; $1M - $10M; and $10M+.

[10]Assumed portion of runoff diverted to the sanitary sewer as wet weather runoff - none, some (less than half), or most (more than half).

[11]Complexity of project implementation at location due to potential permitting and land acquisition (lower, medium, or higher).

[12]Includes projects identified to have potential water quality constraints, such as high salinity or total suspended solids, which would limit the ability to treat stormwater or dry weather runoff at the Regional Treatment Plant. This field may not identify all potential water quality constraints present.

[13]Project includes water loss considerations associated with hydrologeology, identified as infiltration projects that overlie a water supply aquifer.

[14]Final destination of projects with sanitary sewer diversions at either the Carmel Area Wastewater District or Monterey One Water. Applies to Diversion to Sanitary Sewer and Lakes and Reservoir projects. (Projects with the same wastewater treatment plant destination could be combined to create a regional water supply recovery and reclamation system; they were not combined for the purposes of this study).

[15]Name of catchment within which project is located. Catchments were delineated using TELR and NHD+ catchments and are defined based on outlets to the ocean. Projects within the same catchment may be combined to create a regional water supply recovery and reclamation system. *Note that if multiple projects are implemented within the same catchment the estimated Water Supply Volume Recovered could be affected.*

[16]Number of identified project opportunities in the catchment.

APPENDIX D
List of Public Parcel Owners Screened for Potential City Hall Buildings and Schools

Land Use Code	Owner
7A	CALIFORNIA STATE UNIVERSITY MONTEREY BAY
	CALIVORNIA STATE UNIVERSITY MONTEREY BAY
	CARMEL BY THE SEA PUBLIC
	CARMEL SCHOOL DIST
	CARMEL UNIFIED SCHOOL DIST
	CARMEL UNIFIED SCHOOL DISTRICT
	CARMEL UNIFIED SCOOL DISTRICT
	CARMELO SCHOOL DISTRICT
	CITY OF CARMEL
	CITY OF CARMEL BY THE SEA
	CITY OF CARMEL-BY-THE-SEA
	CITY OF DEL REY OAKS
	CITY OF DEL REY OAKS CITY HALL
	CITY OF DEL REY OAKS THE
	CITY OF MARINA
	CITY OF MONTEREY
	CITY OF MONTEREY THE
	CITY OF PACIFIC GROVE
	CITY OF SAND
	CITY OF SAND CITY
	CITY OF SEASIDE
	CITY OF SEASIDE CITY HALL
	CITY OF SEASIDE THE
	COUNTY OF MONTEREY
	COUNTY OF MONTEREY THE
	CSUMB
	MARINA CITY OF
	MONTEREY CITY SCHOOL DIST
	MONTEREY CITY SCHOOL DISTRICT
	MONTEREY COUNTY
	MONTEREY PEN UNIFIED SCH DIST
	MONTEREY PENINSUAL UNIFIED SCHOOL DISTRICT
	MONTEREY PENINSULA COMMUNITY COLLEGE DISTRICT
	MONTEREY PENINSULA UNIFIED
	MONTEREY PENINSULA UNIFIED SCHLDISTRICT
	MONTEREY PENINSULA UNIFIED SCHOOL
	MONTEREY PENINSULA UNIFIED SCHOOL DIST
	MONTEREY SCHOOL DIST
	MONTEREY UNION HIGH SCHOOL
	MTY CITY SCHOOL DIST & MTY
	MTY PENINSULA JR COLLEGE DIST
	ORD TERRACE SCHOOL
	PACIFIC GROVE HIGH SCHOOL DIST
	PACIFIC GROVE SCHOOL DIST
	PACIFIC GROVE UNIFIED SCHOOL
	PACIFIC GROVE UNIFIED SCHOOL DISTRICT
	SAND CITY CITY HALL
	SEASIDE SCHOOL DIST
	THE CITY OF MONTEREY
	THE CITY OF SAND CITY
	THE CITY OF SEASIDE
	TRUSTEES OF THE CALIFORNIA STATE UNIVERSITY
	U S NAVY GENERAL LINE SCHOOL
7B	CITY OF CARMEL-BY-THE-SEA
	CITY OF MONTEREY
	CITY OF MONTEREY & COUNTY OF MONTEREY
	CITY OF SEASIDE

APPENDIX E
Suggested Shortlist of Water Recovery Projects

Appendix E: Suggested shortlist of 26 projects which have the highest estimated net recovered water volume (>20 AFY) and lowest unit project cost (<$5,000/AF).

WRS Project ID	Includes Stakeholder Project	Project Category	Owner	Project Name	Jurisdiction	Net Recovered Water Volume (AFY)	Unit Project Cost ($/AF)	Financial - Total Capital Cost ($)
Net Recovered Water Volume 100+ AFY								
LR_03	Lake Del Monte Outflow Diversion; Lake Del Monte Outfall Replacement; Del Monte Lake Storm Water Diversion	Lake / Reservoir	na	Lake Del Monte	MONTEREY	100+	<$800	$100k-$1M
LR_04	Lake El Estero/Whasherwomen's Pond Storm Water Diversion; Pearl Street/Figurao Box Culvert Diversion; Navy Lake and Washerwomen's Pond Outlet	Lake / Reservoir	na	Lake El Estero	MONTEREY	100+	<$800	$100k-$1M
LR_12	Laguna Grande Well Upgrades; Laguna Grande Water Recovery	Lake / Reservoir	na	Roberts Lakes / Laguna Grande	MONTEREY	100+	<$800	$100k-$1M
DSS_planned_60	Pacific Grove-Monterey ASBS Wet-Dry Weaterth Storm Water Capture and Diversion Project	Diversion to Sanitary Sewer	na	Pump Station #11	MONTEREY	100+	$800-$2,000	$1M-$10M
DSS_04	City of Monterey Tunnel & Calle Principal Storm Water Diversion	Diversion to Sanitary Sewer	MONTEREY ONE WATER	Monterey Pump Station	MONTEREY	100+	$2,000-$5,000	$1M-$10M
Net Recovered Water Volume 20-100 AFY								
LR_06		Lake / Reservoir	na	Laguna Seca	UNINCORPORATED	20-100	<$800	$100k-$1M
LR_07		Lake / Reservoir	na	Laguna Seca Golf Ranch	UNINCORPORATED	20-100	<$800	<$100k
LR_08		Lake / Reservoir	na	Monterey Peninsula Regional	DEL REY OAKS	20-100	<$800	$100k-$1M
LR_planned_79	New Detention Behind Safeway	Lake / Reservoir	CITY OF DEL REY OAKS		DEL REY OAKS	20-100	<$800	$100k-$1M
CU_054		Capture and Use	CITY OF SEASIDE		SEASIDE	20-100	$800-$2,000	$1M-$10M
DSS_08	4th Avenue Dry Weather Diversion Pilot; South Carmel Dry Weather Diversion; Scenic Road Dry-Weather Diversion	Diversion to Sanitary Sewer	na	Scenic & 8th Pump Station	CARMEL BY-THE-SEA	20-100	$2,000-$5,000	$1M-$10M
DSS_planned_51	Hartnell Gulch Creek Restoration and Storm Water Diversion	Diversion to Sanitary Sewer	CITY OF MONTEREY		MONTEREY	20-100	$800-$2,000	$1M-$10M
INF_022		Infiltration to a Water Supply Aquifer	SEASIDE SCHOOL DIST		SEASIDE	20-100	$800-$2,000	$1M-$10M
INF_076		Infiltration to a Water Supply Aquifer	CITY OF SEASIDE		SEASIDE	20-100	$800-$2,000	$1M-$10M
CU_044		Capture and Use	PEBBLE BEACH COMPANY	Del Monte Golf Course	MONTEREY	20-100	$2,000-$5,000	$1M-$10M
CU_080		Capture and Use	THE TRUST FOR PUBLIC LAND	Rancho Canada Golf Club	UNINCORPORATED	20-100	$2,000-$5,000	$1M-$10M
CU_081		Capture and Use	WEINMAN LOIS TR	Quail Lodge Resort and Golf Club	UNINCORPORATED	20-100	$2,000-$5,000	$1M-$10M
CU_085		Capture and Use	U S A	Monterey Pines Golf Club	MONTEREY	20-100	$2,000-$5,000	$1M-$10M
DSS_06	Del Monte Blvd Storm Drain Diversion	Diversion to Sanitary Sewer	MONTEREY ONE WATER	Seaside Pump Station #23	SEASIDE	20-100	$2,000-$5,000	$1M-$10M
DSS_07		Diversion to Sanitary Sewer	MONTEREY ONE WATER		UNINCORPORATED	20-100	$2,000-$5,000	$1M-$10M
INF_023		Infiltration to a Water Supply Aquifer	CITY OF SEASIDE		SEASIDE	20-100	$2,000-$5,000	$1M-$10M
INF_030		Infiltration to a Water Supply Aquifer	CITY OF SEASIDE		SEASIDE	20-100	$2,000-$5,000	$1M-$10M
INF_069		Infiltration to a Water Supply Aquifer	SEASIDE SCHOOL DIST		SEASIDE	20-100	$2,000-$5,000	$1M-$10M
INF_091		Infiltration to a Water Supply Aquifer	MONTEREY CITY SCHOOL DIST		SEASIDE	20-100	$2,000-$5,000	$1M-$10M
INF_DW_CV		Infiltration to a Water Supply Aquifer	na	Dry Well Catch Basin Retrofit Program - Carmel Valley Aquifer	UNINCORPORATED	20-100	$2,000-$5,000	$1M-$10M
LR_01		Lake / Reservoir	na	County and Private Pond	UNINCORPORATED	20-100	$2,000-$5,000	$1M-$10M

APPENDIX E
Project Database

APPENDIX E: PROJECT DATABASE

This Appendix includes the Monterey Peninsula SWRP Project Database as a separate Excel file titled, “Appendix E_MontereyPeninsulaSWRP ProjectDatabase (07-22-19).xlsx.”

The project request sent to cooperating entities, interested parties, and stakeholders to identify planned projects in the region is provided on the next page.

* * * *

Required: General Facility Information					Required for Regional Projects: Facility Drainage Area Information - estimate area in acres, as list of APN values, or indicate that a GIS shapefile has been provided					Optional: Additional Project Information				Optional: Facility Sizing Information (If known)					Optional: Facility Benefits (indicate "true" for all that apply)					Optional: Notes
Project Name	Project Jurisdiction or Proponents	Project Location (APN or list of APNs separated by commas; or indicate if provided in GIS file, with file name)	Facility Type (Select)	Facility Type (write in if "other" selected)	Drainage Area (acres)	Drainage Area (as list of APNs, separated by commas)	Drainage Area in GIS Shapefile (T/F)	Drainage Area GIS Shapefile name	Imperviousness of Drainage Area (as %)	Project Description	Planning Stage (select)	Anticipated Completion Date (mm/yy)	Project Scale (select)	Facility Infiltration Information	Underlying Soil Type (select)	Facility Sizing Criteria (select)	Facility Sizing Criteria (description)	Facility Volume (acft)	Water Quality	Water Supply	Flood Management	Environmental	Community	Other Comments/ Notes?

APPENDIX F
Project Concept Designs

APPENDIX F: PROJECT CONCEPT DESIGNS

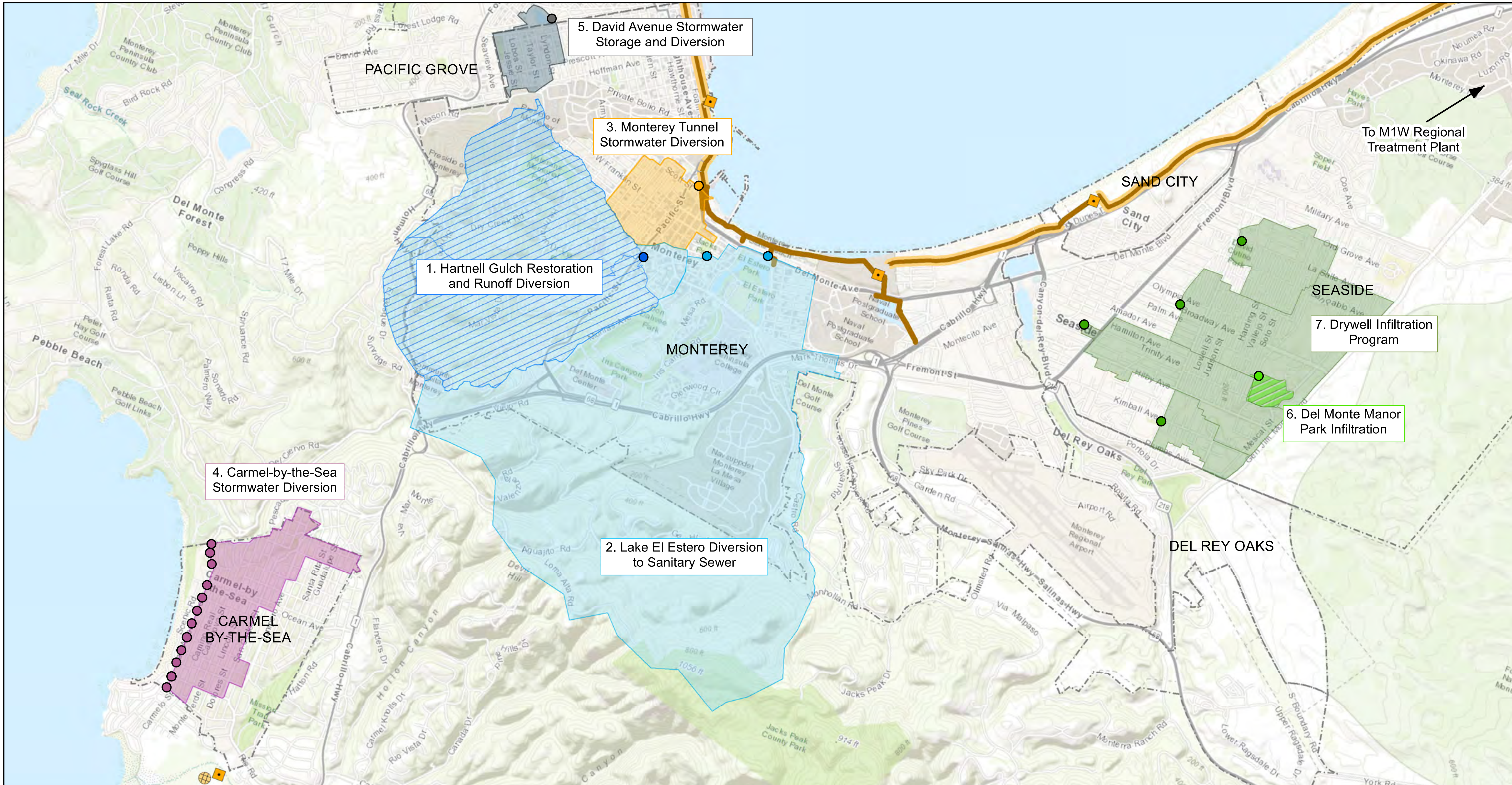
This appendix presents proposed project concept designs for six of the seven project opportunities selected for concept design. Projects were selected as summarized in SWRP section 6.3. All seven selected projects are summarized in Table F-1. The page number of this appendix corresponding to each concept design is also provided.

Table F-1: Monterey Peninsula Stormwater Resource Plan Project Concepts

Permittee	Project Name	Project Type	Page Number
Monterey	1. Hartnell Gulch Restoration and Runoff Diversion	Stream restoration and diversion to the sanitary sewer	App. G
Monterey	2. Lake El Estero Diversion to Sanitary Sewer	Lake capture and diversion to the sanitary sewer	F-3
Monterey	3. Monterey Tunnel Stormwater Diversion	Diversion from the storm drain network to the sanitary sewer	F-10
Carmel-by-the-Sea	4. Carmel-by-the-Sea Stormwater Diversion	Diversion from surface ditches and the storm drain network to the sanitary sewer	F-14
Pacific Grove and Monterey	5. Pacific Grove Monterey ASBS Watershed – David Avenue Stormwater Storage and Diversion	Stormwater capture and storage under a new community park and diversion to the sanitary sewer	F-20
Seaside	6. Del Monte Manor Park Infiltration	Bioswale and a bioretention facility in a housing complex park	F-28
Seaside (with regional partners)	7. Dry Well Aquifer Recharge Program	Distributed dry well program to infiltrate runoff from residential neighborhoods to water supply aquifers in the Seaside Groundwater Basin	F-40

The proposed project concept for project 1, Hartnell Gulch Restoration and Runoff Diversion is provided in Appendix G. Concept designs for projects 2 through 7 are provided in this appendix.

An overview map of the proposed project locations and the drainage areas is provided as Figure 1. A description of the development of the concept project designs, including sizing information and quantification of project benefits, is provided in Section 6.4 of the Monterey Peninsula SWRP.



Proposed Project Locations

- 1. Hartnell Gulch Restoration and Runoff Diversion
- 2. Lake El Estero Diversion to Santiary Sewer
- 3. Monterey Tunnel Stormwater Diversion
- 4. Carmel-by-the-Sea Stormwater Diversion
- 5. David Avenue Stormwater Storage and Diversion
- 6. Del Monte Manor Park Infiltration
- 7. Drywell Infiltration Program

Proposed Project Drainage Area

- 1. Hartnell Gulch Restoration and Runoff Diversion
- 2. Lake El Estero Diversion to Sanitary Sewer
- 3. Monterey Tunnel Stormwater Diversion
- 4. Carmel-by-the-Sea Stormwater Diversion
- 5. David Avenue Stormwater Storage and Diversion
- 6. Del Monte Manor Park Infiltration
- 7. Drywell Infiltration Program
- Pump Station

- Carmel Area Wasterwater Treatment Facility
- M1W Interceptor Pipeline - Gravity
- M1W Interceptor Pipeline - Pressurized
- City Limits

N

0 1 Miles

Monterey Peninsula SWRP
Concept Project Locations
Overview Map

Monterey Peninsula Stormwater Resource Plan

Geosyntec consultants | Monterey One Water Providing Cooperative Water Solutions

Oakland, CA | September 2018

Figure 1

P:\GIS\Monterey Trash\Project\Trash Figures\WW2285\City of Monterey 2018\Overview of All Projects 091918.mxd 9/19/2018 10:47:40 PM

2. LAKE EL ESTERO DIVERSION TO SANITARY SEWER

SITE DESCRIPTION

Jurisdiction:	City of Monterey
Location:	Northern boundary of Lake El Estero, near the intersection of Del Monte Ave and Camino Aguajito
Land Owner:	City of Monterey
Catchment[1]:	CM-10 and CM-11

PROJECT CONCEPT

The proposed Lake El Estero Diversion Project in the City of Monterey consists of two components: reconnection of a box culvert at Pearl and Figueroa Street (west of the lake) to divert runoff from Hartnell Gulch watershed to Lake El Estero; and diversion of lake water on the north side of Lake El Estero to sanitary sewer. The combined drainage area (i.e., Hartnell Gulch watershed and Lake El Estero watershed), located in the City of Monterey, is shown on Figure 2A. The Lake El Estero watershed (2,418 acres) includes residential, commercial, institutional, and undeveloped areas tributary to Lake El Estero (CM-10) and the Hartnell Gulch watershed (1,186 acres) includes residential and undeveloped areas tributary to Hartnell Gulch (CM-11). Drainage in the Hartnell Gulch watershed flows northeastward toward the City center and borders the western edge of the Lake El Estero watershed along Munras Avenue, which becomes Abrego Street to the north. The Lake El Estero watershed flows northward toward the lake. One of the three primary creek channels in the Lake El Estero watershed flows into Laguna Mirada and the other two primary creek channels flow into Washerwoman's Pond. Laguna Mirada and Washerwoman's Pond flow into Lake El Estero through the City of Monterey's underground storm drain network. Currently, a pump station at the north end of Lake El Estero conveys high flows to Monterey Bay so that the lake does not overtop during the wet season.

The locations of the proposed box culvert connection to divert Hartnell Gulch drainage to the lake and the lake sanitary sewer diversion are shown on Figure 2B. The Project would utilize the existing storage capacity of Lake El Estero to detain both wet and dry weather runoff for diversion when demand for recycled water is greatest. Stored lake water would be diverted to the sanitary sewer from April to October for recycling at the Monterey One Water Regional Treatment Plant (RTP) to augment water supply. A pump is proposed to be installed within the existing pump house on the north side of Lake El Estero to pump lake water to a sanitary sewer manhole, located between Del Monte Avenue and Lake El Estero, which connects to the 21-inch diameter gravity sewer main on Del Monte Ave.

[1] See Monterey Peninsula Water Recovery Study Report, Appendix D, Figure 2A Catchment Detail Map.

The greatest water supply benefit using current infrastructure at the RTP is to treat and recycle runoff from the Project drainage area during the dry season, April to October[2], adding to the current lake water recovery mechanisms. Water is currently recovered from Lake El Estero via capture and use because park space and a cemetery surrounding the lake are irrigated with the lake water. If stormwater runoff could be recovered during the wet season, with prior authorization of M1W, then approximately three times the volume of runoff could potentially be recovered through this project. The proposed pump could be designed to accommodate either dry season or wet and dry season pumping. Payment of an adopted interruptible rate would apply.

Additional information for the Lake El Estero pump configuration, an aerial image, and pump house detail are provided as Figure 2C and 2D.

Proposed project is conceptual and subject to change based on future feasibility assessment, funding availability, and/or other information.

DESIGN INFORMATION

Tributary Drainage Area (TDA):	3,671 acres
TDA Imperviousness:	13.6%
TDA Urbanized Area:	2,384 acres
Average Annual Wet Weather Runoff:	500 to 670 acre-feet
Available Live Storage in Lake:	61 acre-feet
Dry Weather Seepage Runoff:	49 acre-feet (April to October)
Dry Weather Nuisance Runoff:	53 to 76 acre-feet (April to October)
Existing Annual Irrigation Use of Lake Water:	39 acre-feet
Sanitary Sewer Diversion Pump Rate:	2,400 gallons per minute

PROJECT BENEFITS

Net Water Volume Recovered:	110 to 140 acre-feet/year
Water Quality Benefits:	Treatment of pollutants in diverted urban stormwater and dry weather flows that currently discharge to Monterey Bay.
Flood Management Benefits:	None anticipated.
Natural Drainage System Benefits:	Removal of urban stormwater and dry weather flows that currently discharge to Monterey Bay, thereby partially restoring natural drainage patterns.
Habitat or Open Space Benefits:	Diversion to the sanitary sewer is anticipated to reduce overflow volumes from the Lake to the beach.
Community Benefits:	Drainage area within the Hartnell Gulch watershed contains a Disadvantaged Community (DAC).

[2] It is less desirable to divert during the wet season with the current infrastructure in place because there are other ample stormwater sources being included into the Pure Water Monterey project.

COST ESTIMATE

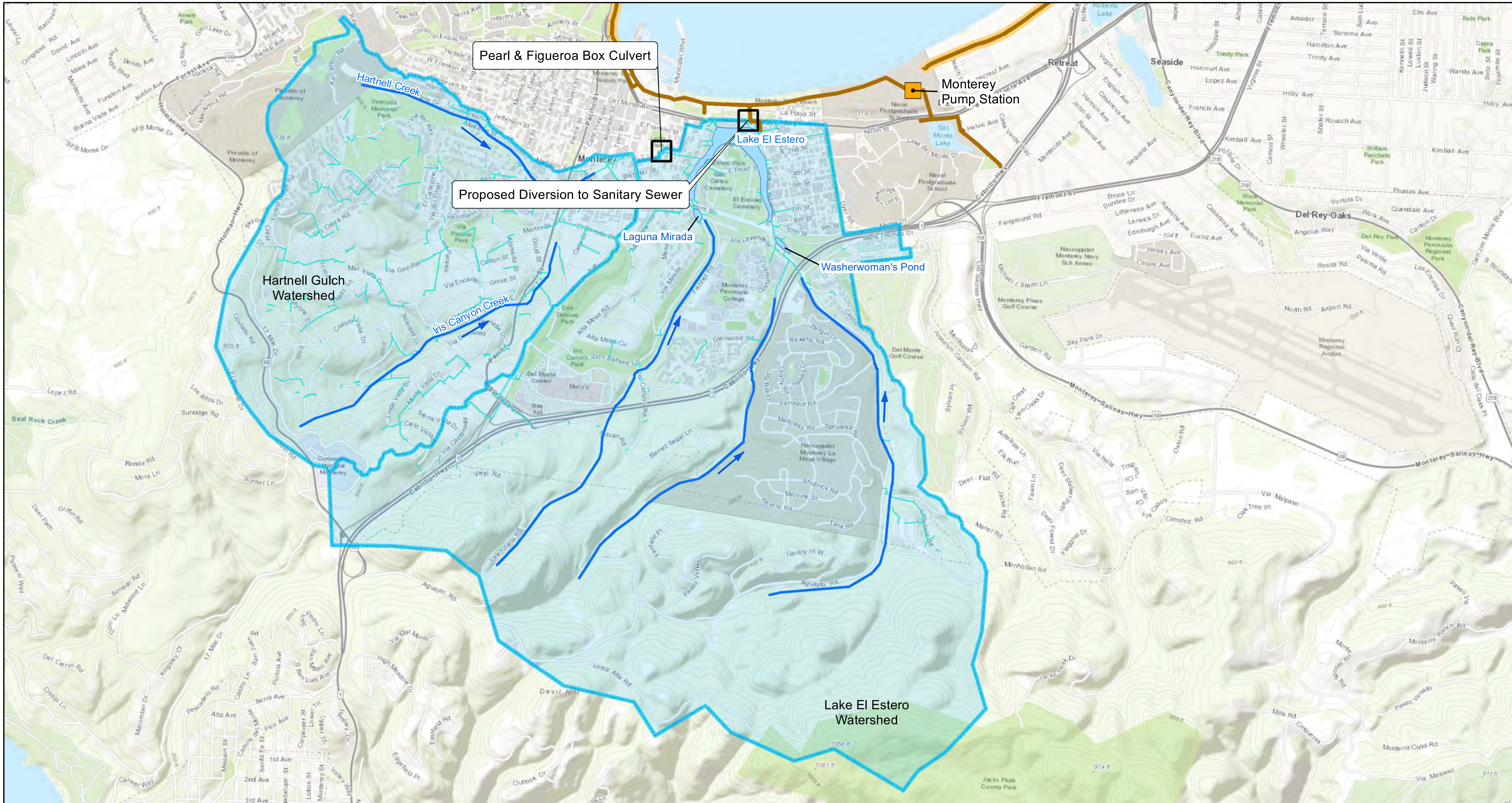
Cost estimate is based on the estimated cost of construction for the Lake El Estero Diversion Structure - Pump Option (MRWPCA, 2017)[3] and adjusted to provide costs in 2018 dollars.

DESCRIPTION	COST
Capital Cost	$320,000
Annual Operations and Maintenance Cost[4]	$67,000 per year
Estimated Life Cycle Annual Cost[5]	**$85,000 per year**
Unit Project Cost of Recovered Water	**$620 to $750 per acre-foot**

[3] Monterey Regional Water Pollution Control Agency (MRWPCA). 2017. Pure Water Monterey Groundwater Replenishment Project Consolidated Final Environmental Impact Report. State Clearinghouse No. 2013051094. Addendum No. 3. October 24.

[4] Includes sewer connection fees at the Regional Treatment Plan for the dry season, only.

[5] Assumes 30-year design life at 4% interest rate.



Legend

- El Estero Project Drainage Area
- Project Map Extent
- Stream

Existing Infrastructure

- M1W Interceptor Pipeline - Pressurized
- M1W Interceptor Pipeline - Gravity
- Storm Drain
- Pump Station

N

0 4,000 Feet

Lake El Estero Diversion to Sanitary Sewer
Monterey, CA
Catchment Map

Monterey Peninsula Stormwater Resource Plan

Geosyntec consultants | Monterey One Water Providing Cooperative Water Solutions | **Figure**

Oakland, CA | September 2018 | **2A**

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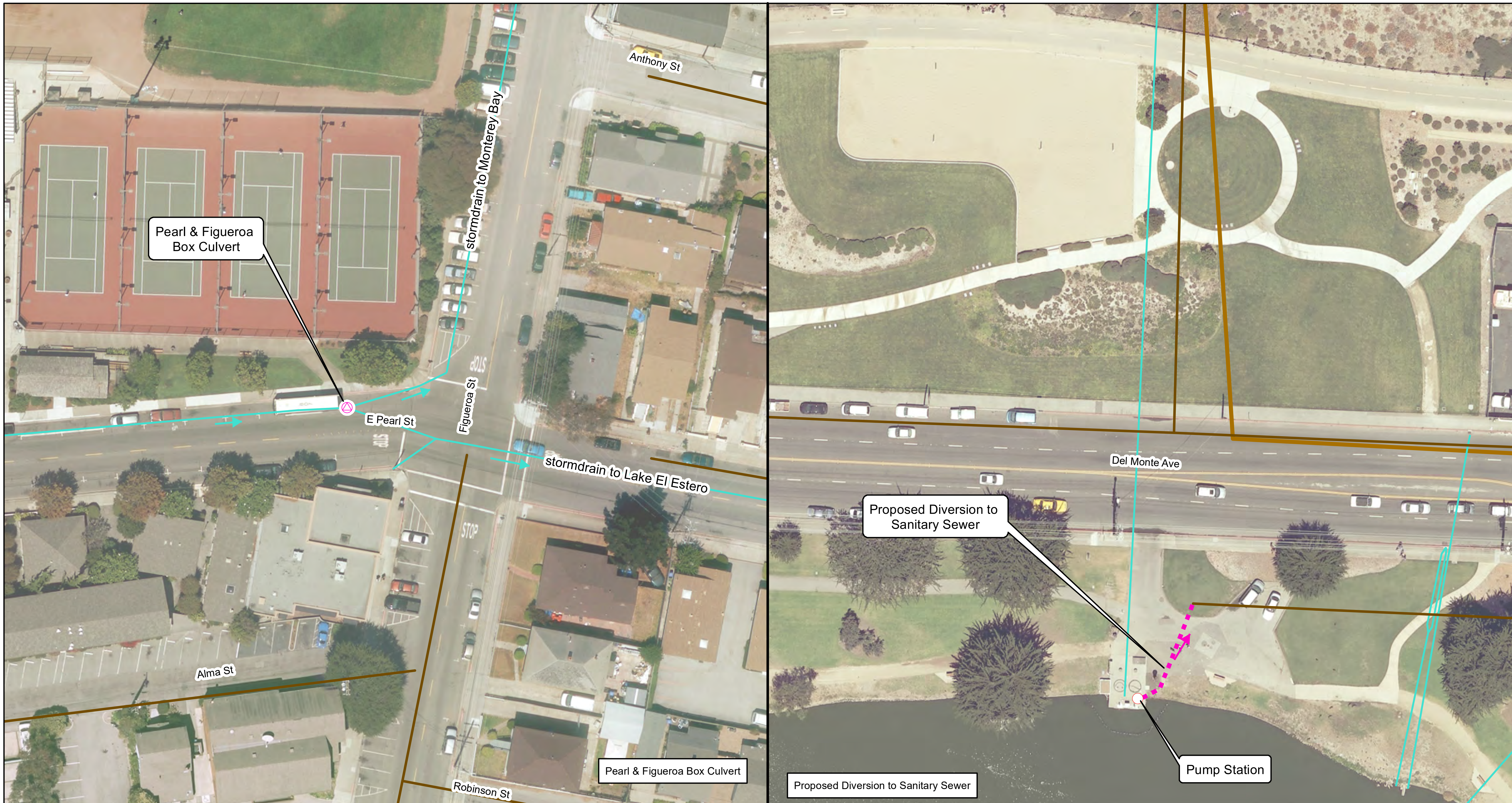

Legend

Existing Infrastructure

- Storm Drain
- Sanitary Sewer
- M1W Interceptor Pipeline - Gravity

Proposed Infrastructure

- Diversion Structure
- Pump
- Discharge to Sanitary Sewer

N

0 100 Feet

Lake El Estero Diversion to Sanitary Sewer
Monterey, CA
Project Map

Monterey Peninsula Stormwater Resource Plan

Geosyntec consultants | Monterey One Water Providing Cooperative Water Solutions

Oakland, CA | September 2018

Figure 2B

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Figure 3 - Lake El Estero Water Intake Pump Option

Schaaf & Wheeler

Figure 2C
Lake El Estero Pump Option
(Source: Figure 3 from Appendix R of the Pure Water Monterey Groundwater Replenishment Project Consolidated EIR, 2016)

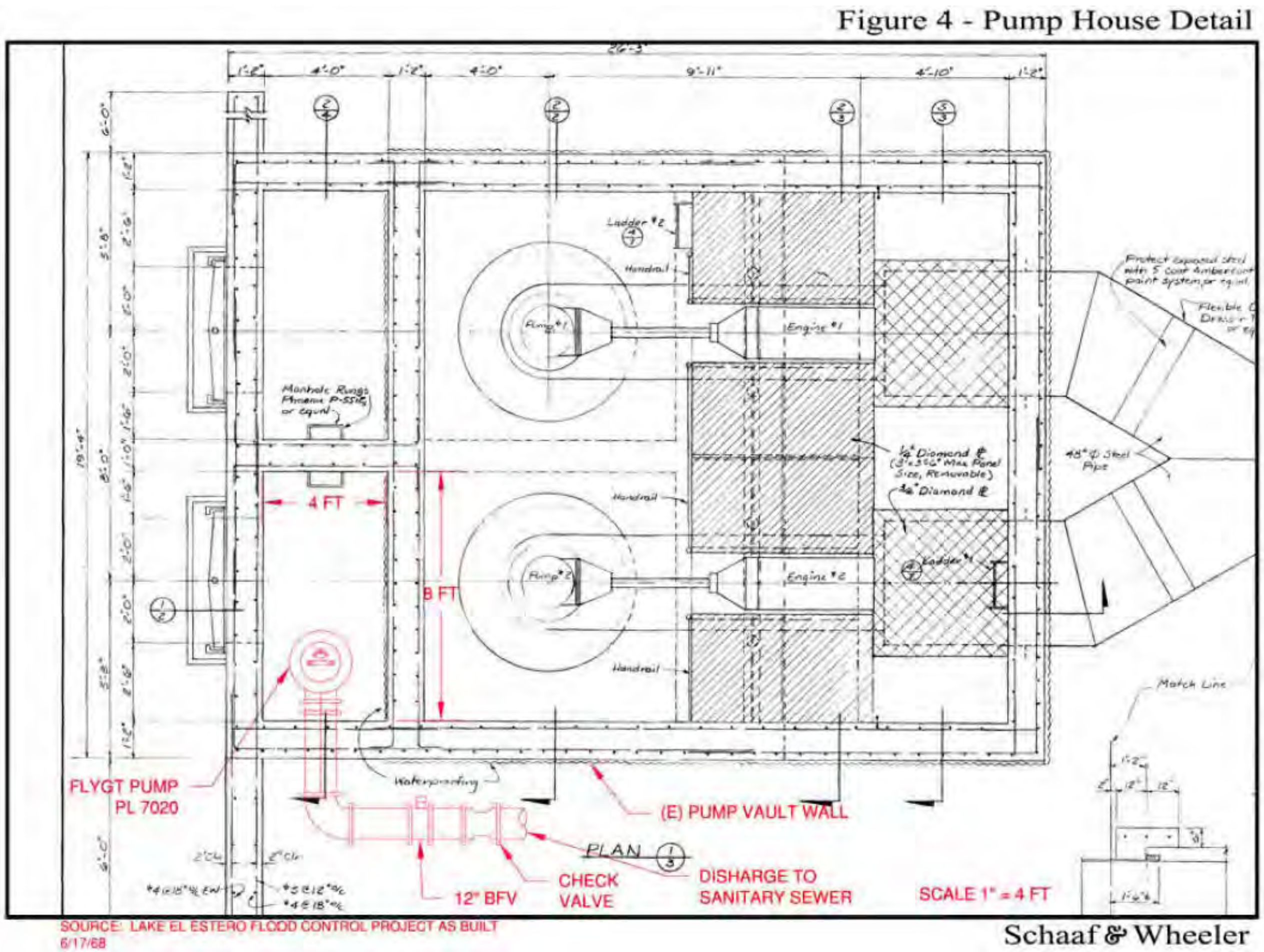


Figure 2D
Lake El Estero Pump House Detail
(Source: Figure 4 from Appendix R of the Pure Water Monterey Groundwater Replenishment Project Consolidated EIR, 2016)

3. MONTEREY TUNNEL STORMWATER DIVERSION PROJECT

SITE DESCRIPTION

Jurisdiction:	City of Monterey
Location:	Northernmost segment of Oliver Street south of Fisherman's Wharf
Land Owner:	City of Monterey right-of-way
Catchment[1]:	CM-13

PROJECT CONCEPT

The proposed Monterey Tunnel Stormwater Diversion Project is located at Oliver Street and Scott Street in the City of Monterey. The drainage catchment to this diversion location is shown on Figure 3A. The catchment includes residential and commercial areas bounded by the Presidio of Monterey to the north, Washington Street to the east, Madison Street and Pearl Street to the south, and Clay Street to the west. Runoff from the upgradient residential area in the western portion of the catchment primarily flows eastward toward Calle Principal and then flows northward toward Fisherman's Wharf. Runoff from the commercial area in the eastern portion of the catchment primarily flows northward toward Fishman's Wharf. Currently, the catchment discharges to Monterey Bay through two ("twin") 51-inch diameters pipes north of Fisherman's Wharf. The project location is on the northernmost segment of Oliver Street, adjacent to Fisherman's Wharf.

The Monterey Tunnel project would involve diverting dry weather flows (April to October), including groundwater seepage (currently not quantified), to the sanitary sewer for recycling at the Monterey One Water Regional Treatment Plant to augment water supply. Dry weather flows from the catchment would be diverted from the 60-inch storm drain system on Oliver Street to the 24-inch sanitary sewer main behind the Custom House Museum, as shown on Figure 3B. A flow diversion structure will redirect dry weather flows via gravity from the storm drain to a proposed new pipe located in the right-of-way along Oliver Street. The proposed pipe would convey flows north and then east to connect with the sanitary sewer main, following the direction of Oliver Street. Because of the coastal location of this project, an assessment of the archeological, cultural, historical, and Native American resources would be completed in future phases of the project.

Proposed project is conceptual and subject to change based on future feasibility assessment, funding availability, and/or other information.

[1] See Monterey Peninsula Water Recovery Study Report, Appendix D, Figure 2A Catchment Detail Map.

DESIGN INFORMATION

Tributary Drainage Area (TDA):	152 acres
TDA Imperviousness:	69%
TDA Urbanized Area:	152 acres
Dry Weather Seepage Runoff:	6 acre-feet (April to October)
Dry Weather Nuisance Runoff:	4 to 6 acre-feet (April to October)
Length of Diversion Pipeline:	230 feet

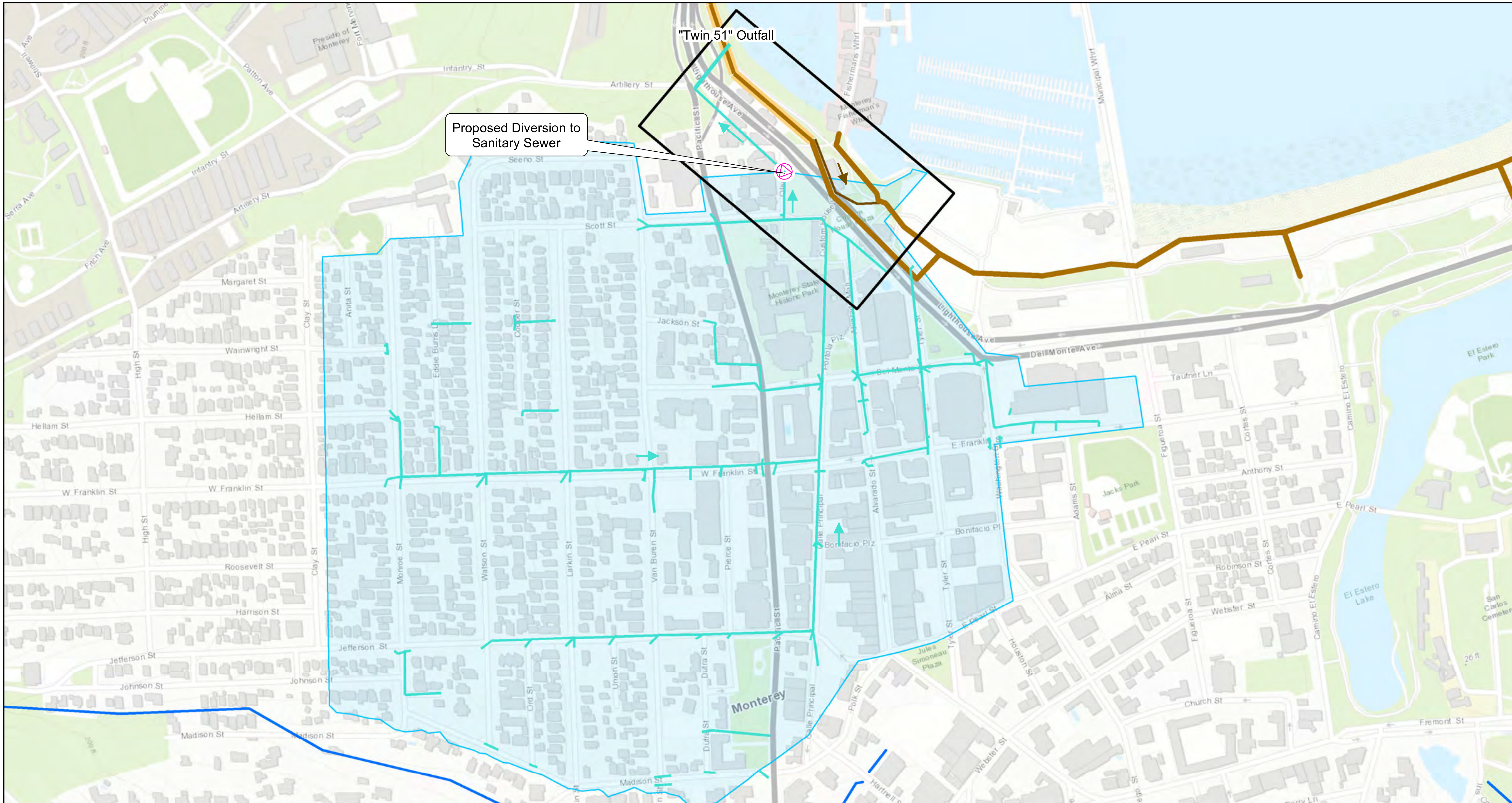
PROJECT BENEFITS

Net Recovered Water Volume:	10 to 12 acre-feet per year (April to October)
Water Quality Benefits	Treatment of pollutants in dry weather flows that currently discharge to Monterey Bay.
Flood Management Benefits:	None anticipated.
Natural Drainage System Benefits:	Removal of dry weather flows that currently discharge to Monterey Bay, thereby partially restoring natural drainage patterns.
Habitat or Open Space Benefits:	Diversion to the sanitary sewer will reduce dry season runoff from the 51-inch outflow pipes that discharge to the beach.
Community Benefits:	Diversion to the sanitary sewer will reduce dry season runoff from the 51-inch outflow pipes that discharge to the beach.

COST ESTIMATE

DESCRIPTION	COST
Capital Cost	$190,000
Annual Operations and Maintenance Cost[2]	$8,000 per year
Estimated Life Cycle Annual Cost[3]	**$19,000 per year**
Unit Project Cost of Recovered Water	**$1,600 to $1,900 per acre-foot**

[2] Includes sewer connection fees at the Regional Treatment Plan for the dry season, only.
[3] Assumes 30-year design life at 4% interest rate.



Legend

- Monterey Tunnel Project Drainage Area
- Project Map Extent

Existing Infrastructure

- M1W Interceptor Pipeline - Pressurized
- M1W Interceptor Pipeline - Gravity
- Sanitary Sewer
- Storm Drain

Proposed Control Measures

- Gravity Diversion Structure

N

Monterey Tunnel Stormwater Diversion
Monterey, CA
Catchment Map
Monterey Peninsula Stormwater Resource Plan

Geosyntec consultants | Monterey One Water Providing Cooperative Water Solutions | **Figure 3A**

Oakland, CA | September 2018

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Legend

Monterey Tunnel Project Drainage Area

Existing Infrastructure

M1W Interceptor Pipeline - Pressurized

M1W Interceptor Pipeline - Gravity

Sanitary Sewer

Storm Drain

Proposed Control Measures

Gravity Diversion Structure

Diversion

Monterey Tunnel Stormwater Diversion
Monterey, CA
Project Map
Monterey Peninsula Stormwater Resource Plan

Geosyntec consultants | Monterey One Water Providing Cooperative Water Solutions

Oakland, CA | September 2018

Figure 3B

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4. CARMEL-BY-THE-SEA STORMWATER DIVERSION PROJECT

SITE DESCRIPTION

Jurisdiction:	City of Carmel-by-the-Sea and Carmel Area Wastewater District
Location:	San Antonio Avenue from Second Avenue south to Santa Lucia Avenue
Land Owner:	City of Carmel-by-the-Sea
Catchment[1]:	CM-42
Numbers of Diversions to Sanitary Sewer:	12

PROJECT CONCEPT

The proposed Carmel-by-the-Sea Stormwater Diversion Project consists of runoff diversions from the existing storm drain located along San Antonio Avenue between Second Avenue south to Santa Lucia Avenue in Carmel-by-the-Sea. The proposed diversion locations and the tributary drainage area is shown on Figure 4A. The drainage area includes residential and commercial areas within the portion of Carmel-by-the-Sea that is bounded by Second Avenue, First Avenue, Vista Avenue and Alta Avenue to the north, San Antonio Avenue to the west, Santa Lucia Avenue to the south, and San Carlos Street, Junipero Avenue, Torres Street, and Monterey Street to the east. Runoff from the tributary catchment area primarily flows westward within surface drainage ditches, shallow pipes at street intersections, and subsurface storm drain pipes within the right-of-way. Currently, collected runoff ultimately discharges into Carmel Bay at multiple locations along Carmel Beach.

The project consists of diverting dry weather runoff (captured between April to October) and the wet weather first flush stormwater runoff event (conservatively estimated as the runoff volume generated from the 85th percentile rainfall event) to the Pebble Beach sanitary sewer main for recycling at the Carmel Area Wastewater District (CAWD) Treatment Plant. The Pebble Beach sanitary sewer main terminates at CAWD Influent Pump Station, which pumps flows directly to the Treatment Plant. Recycled flows are used to augment water supply for irrigation purposes at the Pebble Beach golf courses located in Del Monte Forest (see Figure 1).

Flows would be diverted from the tributary drainage area at intersections along San Antonio Avenue as shown on Figure 4B. Surface runoff would be redirected via gravity from existing storm drains or shallow subsurface pipes using newly installed diversion pipes to the 27-inch diameter sanitary sewer main located below San Antonio Avenue (examples shown on Figure 4C), which discharges to the Pebble Beach sanitary sewer main. Pretreatment for trash and sediment would be installed at each diversion location to address regulatory requirements for trash control and to minimize stormwater solids entering the sewer system. Diversions would occur by installing an automated control system within existing storm drain and/or sanitary sewer manholes. A control

[1] See Monterey Peninsula Water Recovery Study Report, Appendix D, Figure 2A Catchment Detail Map.

valve and check valve would be installed on the diversion pipeline to ensure that the connection to the sewer main is functional only when desired (e.g., seasonally). The system could be adaptively managed based on observations of storm size, runoff volume, and pipe capacity. Any flows which exceed the diversion capacity when the diversion connection is functional would bypass the diversion structure and flow along the current drainage path, discharging to Carmel Bay.

A future expansion to this project could include capture and treatment of additional stormwater runoff for reuse. The potential project expansion would consist of constructing a new dedicated stormwater pipeline under San Antonio Avenue and a new dedicated stormwater holding tank at the CAWD facility at Rio Park (proposed to be located south of Larson Field). The tributary drainage area associated with this potential project expansion is shown on Figure 4A as a dashed gray line.

Proposed project is conceptual and subject to change based on future feasibility assessment, funding availability, and/or other information.

DESIGN INFORMATION

Tributary Drainage Area (TDA):	309 acres
TDA Imperviousness:	18%
TDA Urbanized Area:	303 acres
First Flush Runoff:	3 acre-feet/year (approximately 6% of annual runoff)
Dry Weather Runoff:	8 to 11 acre-feet (April to October)

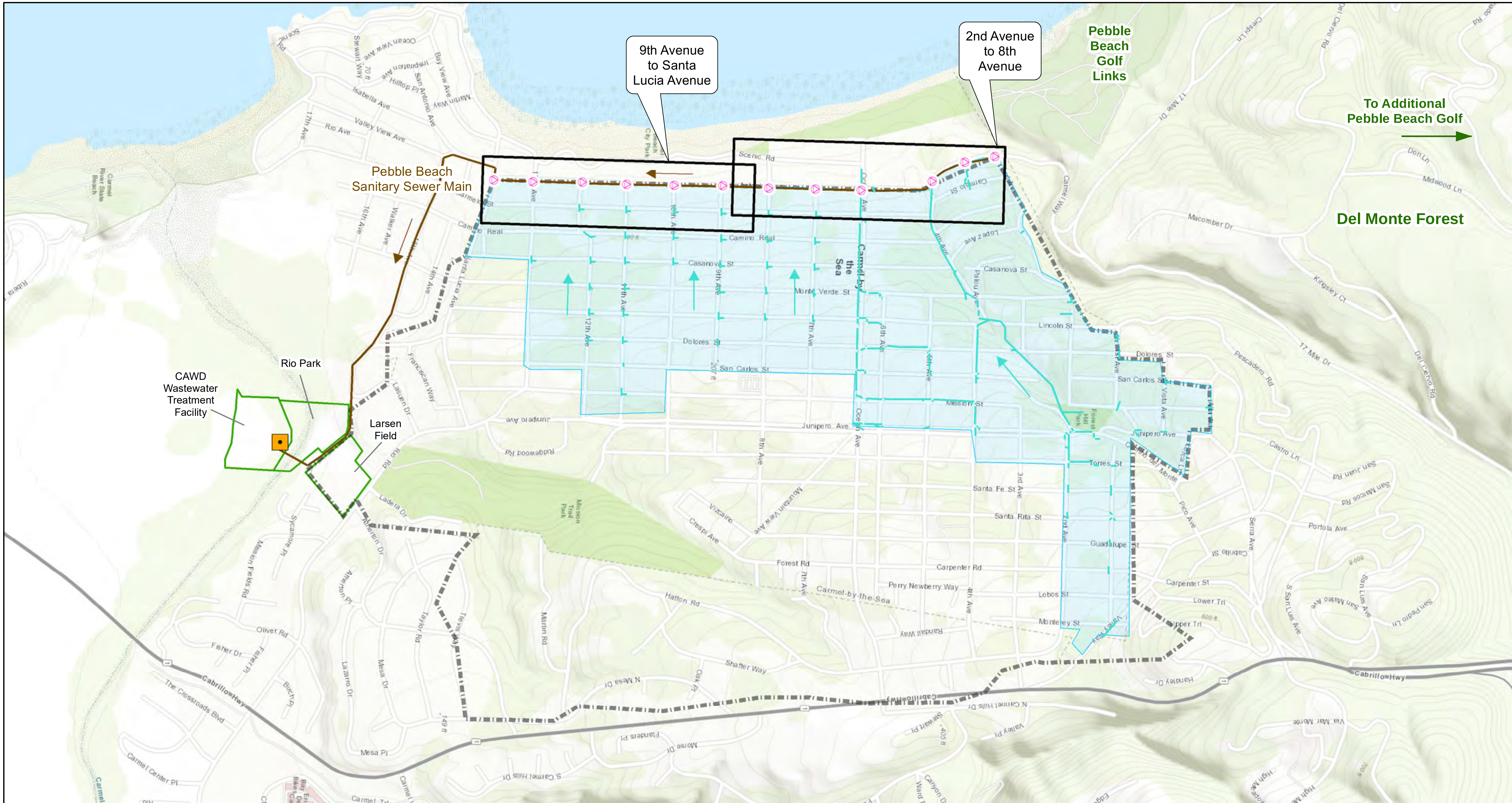
PROJECT BENEFITS

Net Recovered Water Volume:	11 to 14 acre-feet/year
Water Quality Benefits	Treatment of pollutants in urban stormwater and dry weather flows that currently discharge to the Carmel Bay ASBS region.
Flood Management Benefits:	None anticipated.
Natural Drainage System Benefits:	Removal of urban stormwater and dry weather flows that currently discharge to the Carmel Bay ASBS region, thereby partially restoring natural drainage patterns.
Habitat or Open Space Benefits:	Diversion to the sanitary sewer will reduce runoff to the beach and the Carmel Bay ASBS region.
Community Benefits:	Diversion to the sanitary sewer will reduce runoff to the beach and the Carmel Bay ASBS and will augment water supply at the Pebble Beach Golf courses in Del Monte Forest.

COST ESTIMATE

DESCRIPTION	COST
Capital Cost	$750,000
Annual Operations and Maintenance Cost[2]	$32,000 per year
Estimated Life Cycle Annual Cost[3]	**$75,000 per year**
Unit Project Cost of Recovered Water	**$5,300 to $6,900 per acre-foot**

[2] The cost of treatment at the Carmel Area Wastewater Treatment Plant would be paid for by the City of Carmel-by-the-Sea or the Pebble Beach Company, if applicable.
[3] Assumes 30-year design life at 4% interest rate.



Legend

- Carmel-by-the-Sea Project Drainage Area
- Rio Park Project Expansion Drainage Area
- Project Map Extent
- Parcel Boundary

Existing Infrastructure

- Pebble Beach Sanitary Sewer
- Storm Drain
- CAWD Influent Pump Station

Proposed Control Measure

- Gravity Diversion Structure

N

0 1,500 Feet

Carmel-by-the-Sea Stormwater Diversion Project
Carmel-by-the-Sea, CA
Catchment Map
Monterey Peninsula Stormwater Resource Plan

Geosyntec consultants

Monterey One Water
Providing Cooperative Water Solutions

Oakland, CA | September 2018

Figure 4A

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Legend

Carmel-by-the-Sea Project Drainage Area

Existing Infrastructure

Sanitary Sewer

Storm Drain

Proposed Control Measure

Gravity Diversion Structure

N

0 300 Feet

Carmel-by-the-Sea Stormwater Diversion Project
Carmel-by-the-Sea, CA
Project Map

Monterey Peninsula Stormwater Resource Plan

Geosyntec consultants

Monterey One Water Providing Cooperative Water Solutions

Figure 4B

Oakland, CA | September 2018

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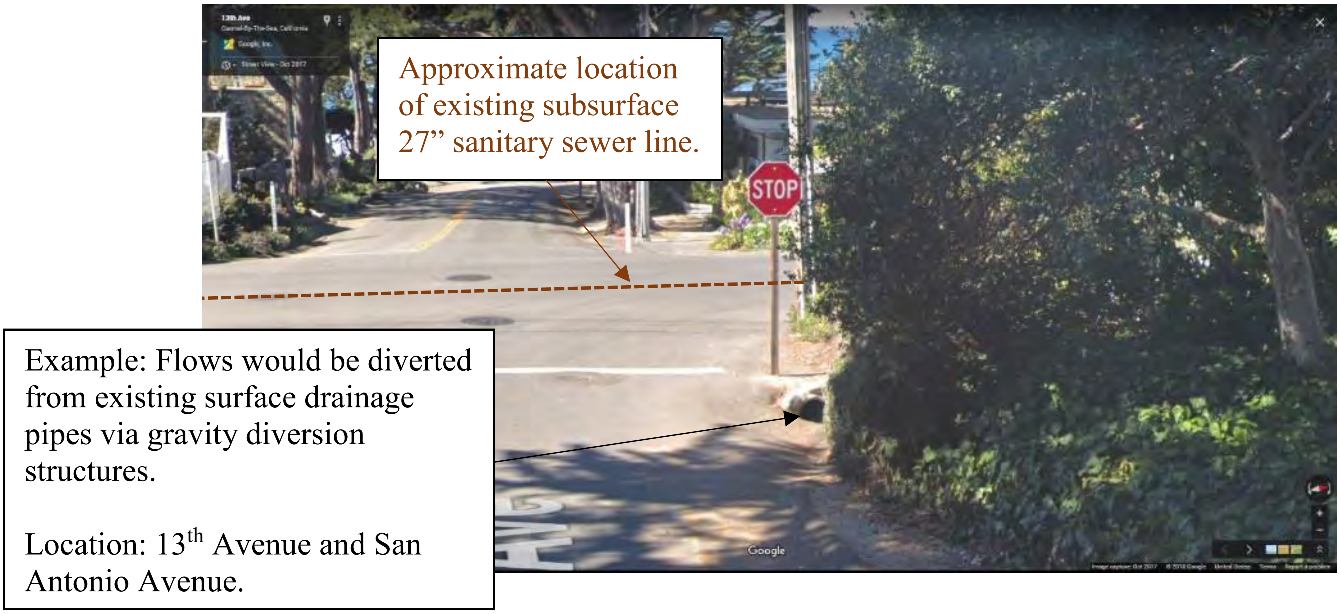


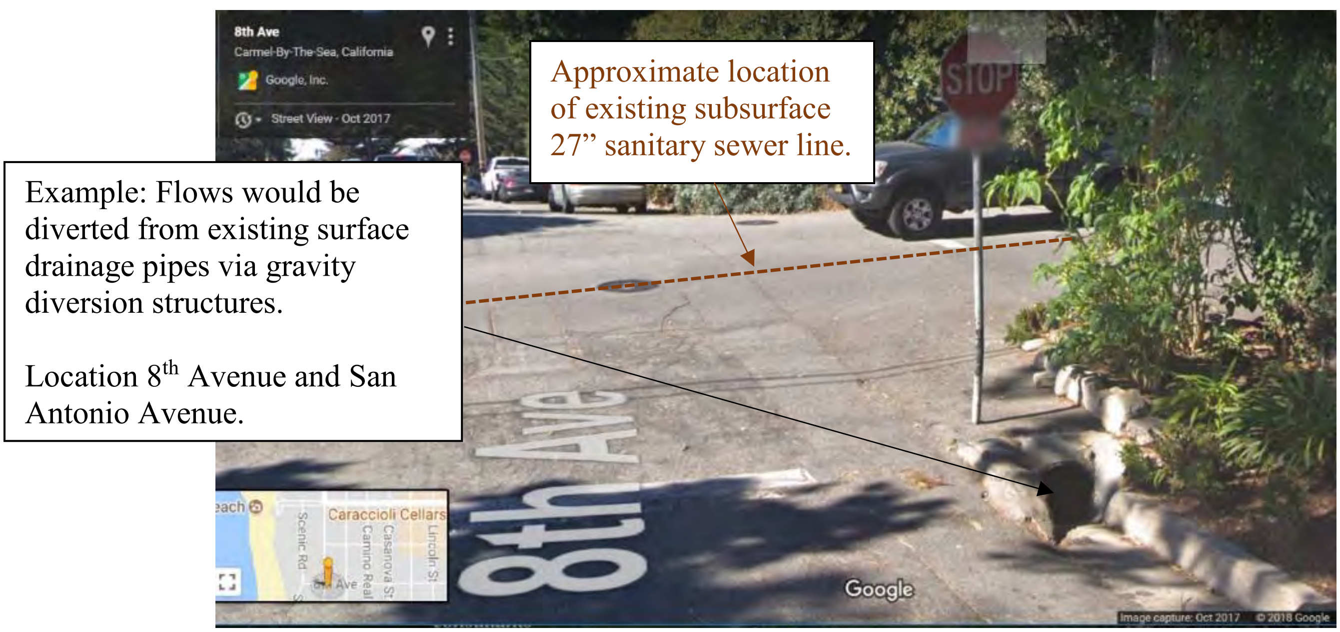


Figure 4C
Carmel-By-The-Sea Existing Diversion Opportunity Examples
(Source: Google Maps Street View)

5. PACIFIC GROVE MONTEREY ASBS WATERSHED – DAVID AVENUE STORMWATER STORAGE AND DIVERSION

SITE DESCRIPTION

Jurisdiction:	City of Pacific Grove
Location:	David Avenue Reservoir, north of David Avenue, south of Hillcrest Avenue, west of Carmel Avenue
Land Owner:	California American Water Company
Catchment[1]:	CM-21

PROJECT CONCEPT

The proposed Pacific Grove Monterey ASBS Watershed-David Avenue Stormwater Storage and Diversion Project is located in Pacific Grove at the Monterey and Pacific Grove City boundary (Terry Street in Monterey and Carmel Avenue in Pacific Grove). The Project's tributary drainage area, shown on Figure 5A, primarily includes an approximately 80-acre residential area south of David Avenue in Monterey, but also includes a small portion of a residential area west of David Avenue Reservoir in Pacific Grove. Stormwater runoff in the tributary drainage area generally flows to the north.

The proposed Project consists of capturing and detaining wet and dry weather runoff in a subsurface storage tank constructed within the existing David Avenue Reservoir in Pacific Grove. The site would be backfilled and brought to grade, providing a publicly-owned surface above the storage tank that could be used for other purposes such as a community park.

The Project would include diversion of runoff by gravity from the storm drain line at the City boundary to the subsurface storage tank within the existing David Avenue Reservoir. Runoff would be detained during the wet season in the subsurface storage tank and metered out during the dry season via one of three potential pipe routes through Pacific Grove or Monterey (selected pipe route to be determined). Piped runoff would be diverted to the Monterey One Water (M1W) Interceptor Pipeline and recycled at the M1W Regional Treatment Plant (RTP) for water supply augmentation. The potential pipe routes, shown on Figure 5A and 5B, have been ranked in order of preference by the Cities of Pacific Grove and Monterey and M1W. The routes include:

1. Discharge via gravity from David Avenue Reservoir to the existing storm drain line in Pacific Grove that flows from Carmel Avenue to Pine Avenue via 14th Street. At Pine Avenue and 14th street, discharge would be diverted via proposed pipe along Pine Avenue to the 19th Street storm drain system. Runoff would reach the M1W Interceptor Pipeline via the Lover's Point Diversion system and M1W Lift Station 13. Evaluation of project benefits for this route are included in the tables provided.

[1] See Monterey Peninsula Water Recovery Study Report, Appendix D, Figure 2A Catchment Detail Map.

2. Discharge from David Avenue Reservoir to the existing 8-inch sewer main on David Avenue at Terry Street in Monterey, if capacity is available. From David Avenue and Pine Street, flows would continue by gravity in the existing sewer system and ultimately flow from north to south down Wave Street to M1W Lift Station 7. Overflows from the underground storage tank would discharge to an existing storm drain at Carmel Avenue. Detailed capacity and feasibility evaluations would be required to determine the viability of this route if it were to become the preferred course.

3. Discharge from David Avenue Reservoir to the existing City of Pacific Grove sewer main system on 2nd Street and Eardley Avenue in Pacific Grove. If capacity is available, flows would flow down Eardley and enter the M1W Interceptor Pipeline at Lift Station 11. Lift Station 11 pumps to Lift Station 12, which then pumps to Lift Station 13. Lift Stations 11 and 12 would cycle more frequently, so there would be no impact to Lift Station 13. Overflows from the underground storage tank would discharge to an existing storm drain at Carmel Avenue, similar to route 2.

The greatest water supply benefit from the Project using current infrastructure at the RTP would be treating and recycling Project discharge during the dry season, April to October[2]. However, if stormwater runoff captured by the Project could be directed to the RTP during the wet season, with prior authorization of M1W, then approximately two to three times the volume of discharge could potentially be recovered for water supply augmentation. Payment of an adopted interruptible rate would apply.

A typical stormwater diversion detail is provided as Figure 5C. A concept of a below grade storage tank is shown as Figure 5D. An example concept of an above grade and a bowl-shaped park is shown as Figure 5E.

DESIGN INFORMATION

Tributary Drainage Area (TDA):	101 acres
TDA Imperviousness:	67%
TDA Urbanized Area:	99 acres
Subsurface Storage Tank Footprint | Depth | Volume:	1.0 acre | 11 feet | 11 acre-feet
Average Annual Wet Weather Runoff:	50 to 63 acre-feet
Dry Weather Runoff:	3 to 4 acre-feet (April to October)
Inflow Diversion Rate to the Subsurface Storage Tank[3]:	3,200 gallons per minute
Outflow Diversion Rate from the Subsurface Storage Tank[4]:	300 gallons per minute
Total Length of Proposed Pipeline[5]:	2,250 feet

[2] It is less desirable to divert during the wet season with the current infrastructure in place because there are other ample stormwater sources being included into the Pure Water Monterey project.
[3] Estimated based on flow from the 85th percentile storm (personal communication, Wallace Group, 5 June 2018).
[4] Diversion rate estimated based on excess capacity of the M1W Interceptor Pipeline with other potential runoff diversions and the dry weather runoff rate.
[5] Includes proposed storm drain on Pine Avenue for Route #1.

PROJECT BENEFITS

Net Water Volume Recovered[6]:	14 to 29 acre-feet per year
Water Quality Benefits:	Reduction of 2,500 to 5,700 pounds of sediment per year[7] and reduction of dry and wet weather runoff to the Pacific Grove ASBS.
Flood Management Benefits:	Minimal.
Natural Drainage System Benefits:	Removal of urban stormwater and dry weather flows that currently discharges to the Pacific Grove ASBS region, thereby partially restoring natural drainage patterns.
Habitat or Open Space Benefits:	The project would include the development of a new park, increasing the total area of open space in the community.
Community Benefits:	The project would provide access to a new community park.

COST ESTIMATE[8]

DESCRIPTION	COST
Capital Cost	$9,800,000
Annual Operations and Maintenance Cost	$25,000 per year
Estimated Life Cycle Annual Cost[9]	**$590,000 per year**
Unit Project Cost of Recovered Water	**$20,000 to $44,000 per acre-foot**

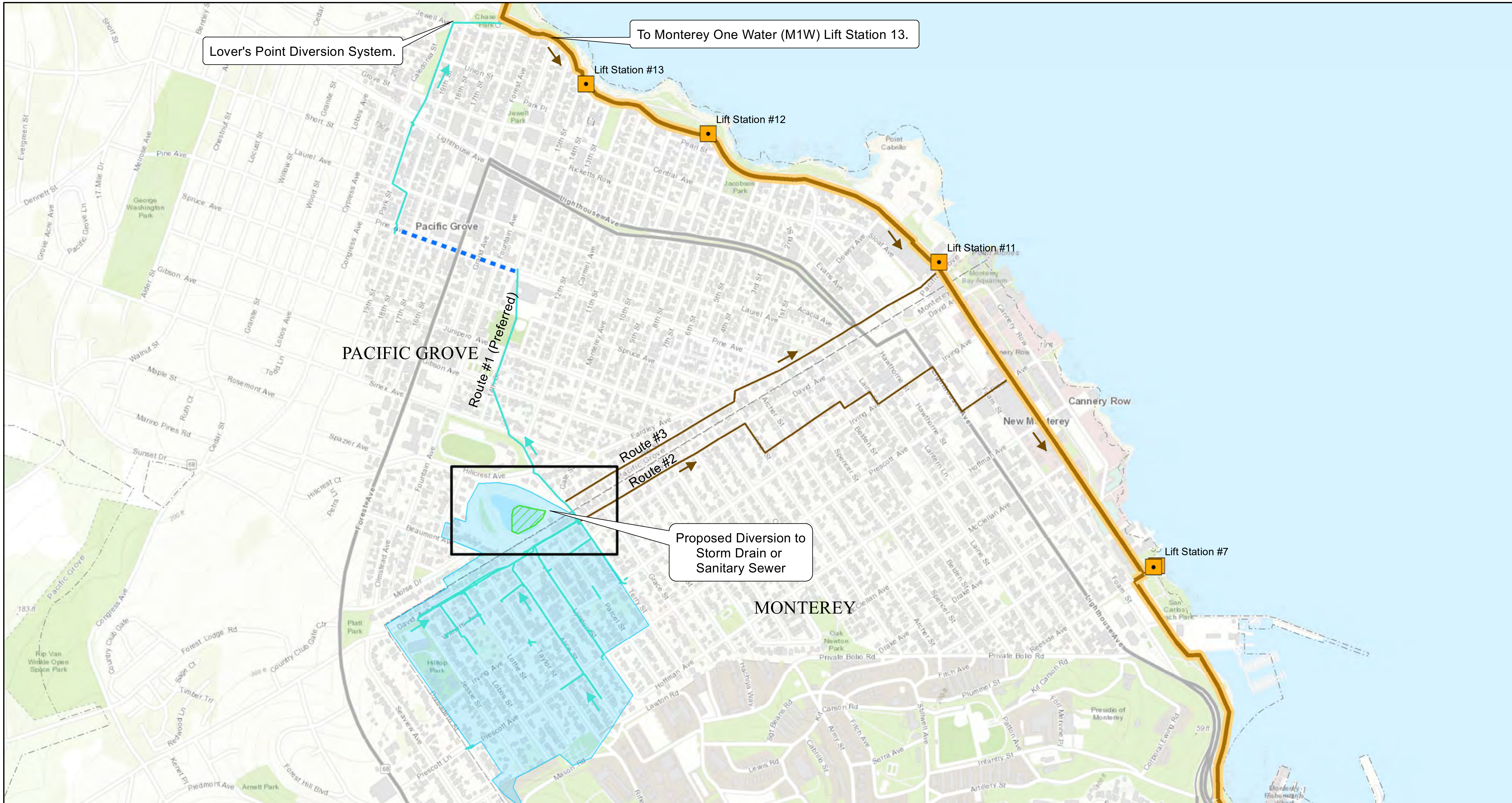
Proposed project is conceptual and subject to change based on future feasibility assessment, funding availability, and/or other information.

[6] The Pure Water Monterey project is currently able to accept recovered runoff via diversion to the sanitary sewer in the dry season only. If runoff could be recovered during the wet season, then water supply benefits from the project would increase.

[7] Pollutant loading rate calculated from TELR pollutant loading rates for the TELR catchments associated with the project drainage area.

[8] Cost estimate includes the subsurface storage unit, landscaping and park costs, pipeline costs, (including storm drain work on Pine Avenue for Route #1), and associated diversion costs.

[9] Assumes 30-year design life at 4% interest rate.



Legend

- David Avenue Project Drainage Area
- David Avenue Reservoir
- Project Map Extent
- City Limits

Existing Infrastructure

- M1W Interceptor Pipeline - Pressurized
- M1W Lift Station
- Sanitary Sewer
- Storm Drain

- Proposed Storm Drain

N

0 2,200 Feet

Pacific Grove Monterey ASBS Watershed
David Avenue Stormwater Storage and Diversion
Pacific Grove, CA
Catchment Map
Monterey Peninsula Stormwater Resource Plan

Geosyntec consultants | Monterey One Water Providing Cooperative Water Solutions | **Figure** **5A**

Oakland, CA | September 2018

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Legend

City Limits

David Avenue Reservoir Rim

Subsurface Storage Facility Footprint

Existing Infrastructure

Sanitary Sewer

Storm Drain

Proposed Control Measure

Inlet Structure

Gravity Diversion Structure

Inlet Pipe

Diversion Pipe

Outflow Pipe

N

0 150 Feet

Pacific Grove Monterey ASBS Watershed
David Avenue Stormwater Storage and Diversion
Pacific Grove, CA
Project Map
Monterey Peninsula Stormwater Resource Plan

Geosyntec consultants

Monterey One Water
Providing Cooperative Water Solutions

Figure

5B

Oakland, CA	September 2018

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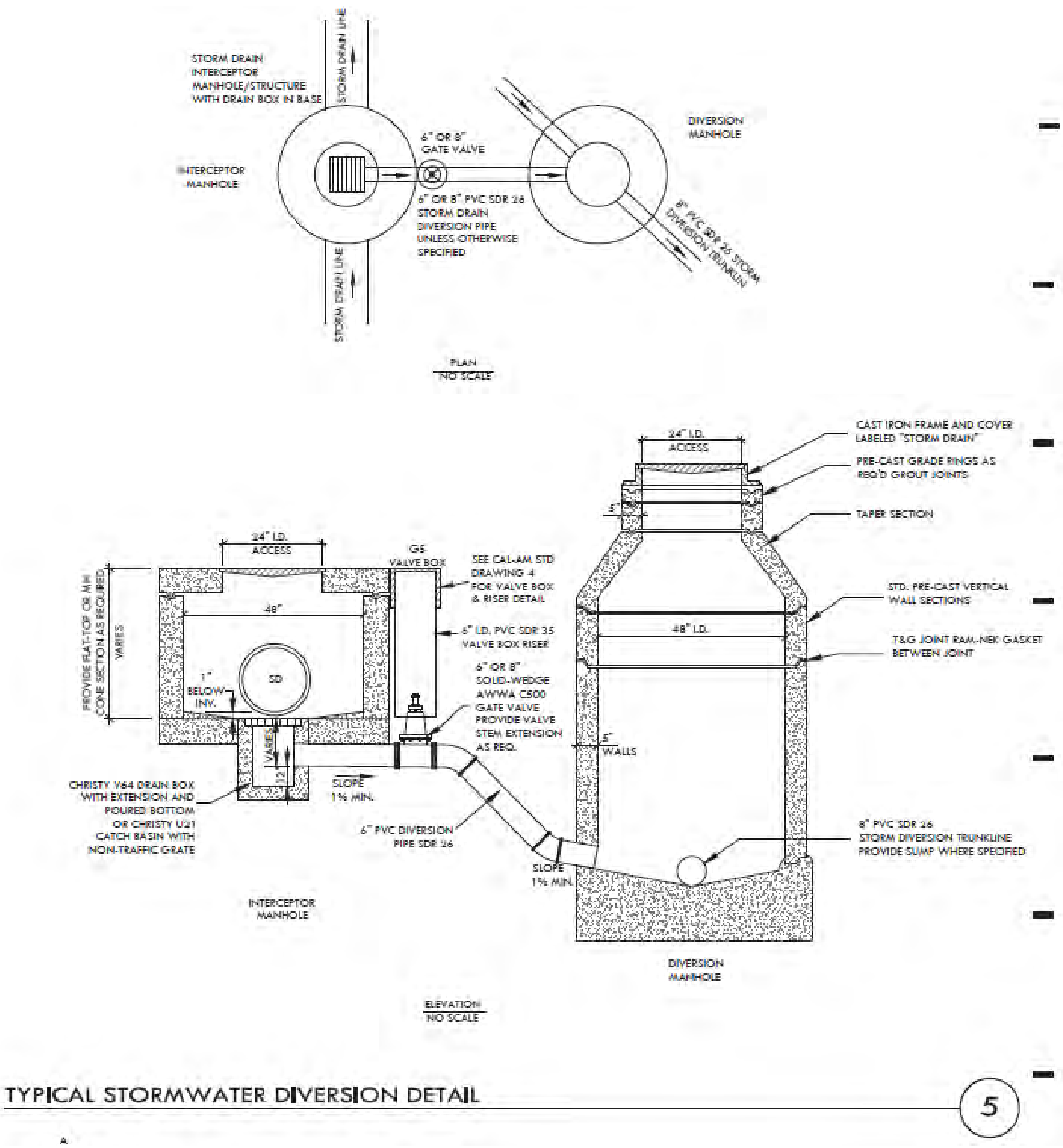


Figure 5C
Typical Stormwater Diversion Detail
Source: Pacific Grove ASBS Stormwater Management, Sheet 3.7, Fall Creek Engineering, 2014.

Figure 5D
Example Subsurface Storage Tank
Source: Personal communication, City of Pacific Grove, 31 May 2018

September 2018	**Monterey Peninsula Stormwater Resource Plan**	Geosyntec consultants

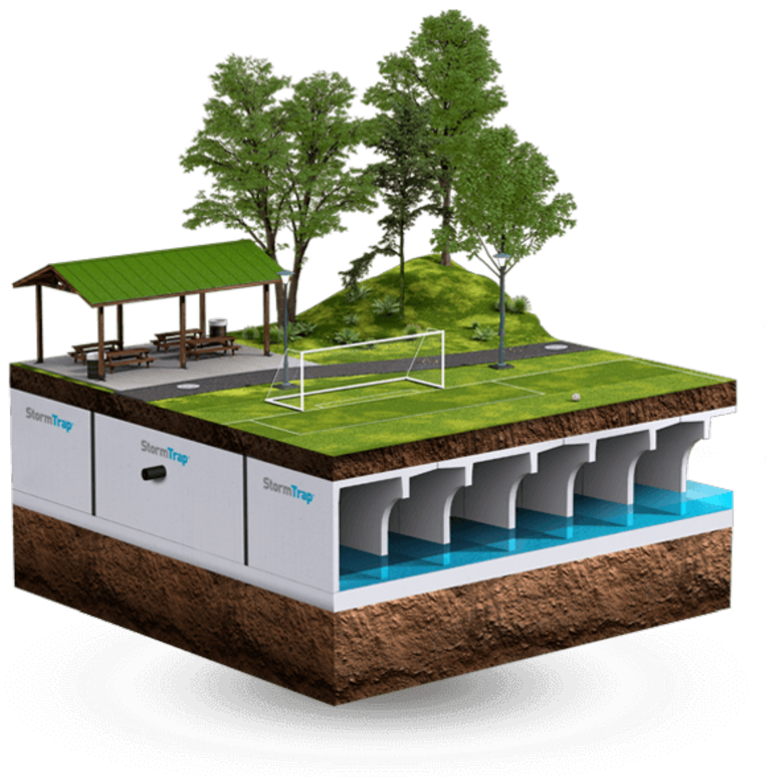


Figure 5E
Concept for Above Grade and Bowl-Shaped Park
(Source: Personal communication, City of Pacific Grove, 31 May 2018 and StormTrap, www.StormTrap.com)

September 2018	**Monterey Peninsula Stormwater Resource Plan**	Geosyntec consultants

6. DEL MONTE MANOR PARK INFILTRATION PROJECT

SITE DESCRIPTION

Jurisdiction:	City of Seaside
Location:	Del Monte Manor Park
APN(s):	01263601002000
Land Owner:	Del Monte Manor Inc.
Catchment[1]:	CM-06
Parcel Size:	14 acres
Soil Type:	Hydrologic Soil Group (HSG) A

PROJECT CONCEPT

The Del Monte Manor Park Infiltration Project, located within an affordable family rental housing complex in the City of Seaside, will retrofit a portion of the housing complex's park in its southeastern corner with stormwater treatment facilities. The facilities would be installed to help mitigate flooding issues at the intersection of Yosemite Street and Sonoma Avenue in Seaside, treat and infiltrate runoff, and improve the aesthetics of the park. The tributary drainage area consists of a residential area extending north of Wanda Avenue, east of Yosemite Street, west of Skyview Drive and Ancon Street, and the southern portion of Del Monte Manor parcel. Runoff from the Yosemite Street and Sonoma Avenue intersection would also be collected and treated by the facilities, assuming grades allow for it. A catchment map is shown on Figure 6A.

The project would reduce urban runoff pollutant loads by routing runoff from a majority of the catchment from the existing storm drain located within Sonoma Avenue to a proposed pre-treatment swale and bioretention facility treatment train. Smaller flows (up to approximately 50% of the average annual runoff produced from the drainage area) would be diverted from the existing storm drain through a proposed diversion pipe. The proposed pre-treatment swale would be installed adjacent to Sonoma Avenue's northern sidewalk, and the proposed bioretention facility would be installed at the southwestern corner of the Del Monte Manor property. The proposed location of the bioretention is currently a low point which floods frequently during storm events when the existing undersized storm drain surcharges. This configuration is shown on the project map, Figure 6B.

The swale and bioretention facility would utilize native plants providing aesthetic and educational benefits. The swale would function as pre-treatment for the bioretention facility, which would retain and infiltrate stormwater into the underlying fast-draining native dune sand. Overflow from the bioretention facility would be piped to the existing storm drain in Yosemite Street, which drains to the north toward Broadway. The infiltration project could be implemented in conjunction with upsizing of storm drains in the Yosemite Street and Sonoma Avenue intersection, to best alleviate current flood conveyance deficiencies. However, such storm drain improvements are not included

[1] See Monterey Peninsula Water Recovery Study Report, Appendix D, Figure 2A Catchment Detail Map.

as part of this project at this time. Design of the project will require further investigation due to the absence of soil investigation/percolation testing, utility mapping and field verification.

Street views of the proposed location of the swale and bioretention facility are shown on Figure 6C. Conceptual illustrations and example photographs of vegetated swales are provided on Figures 6D and 6E, respectively. Conceptual illustrations and example photographs of bioretention facilities are provided on Figures 6F and 6G, respectively.

Following the 2006 Adjudication Decision that governs management of the Seaside Groundwater Basin, implementation of this project would require obtaining a permit from the Seaside Basin Watermaster to store water, via recharge, in(to) the Seaside Groundwater Basin. This permit is obtained through filing a Watermaster Storage Application. The Wastermaster has the authority to take the necessary actions to prevent contaminants from entering the groundwater supplies of the Seaside Basin, which present a significant threat to the groundwater quality of the Seaside Basin, whether or not the threat is immediate. A copy of the Watermaster Storage Application to store and recover non-native water from the Seaside Groundwater Basin is provided as Attachment A.

DESIGN INFORMATION

Tributary Drainage Area (TDA):	25 acres
TDA Imperviousness:	56 %
TDA Urbanized Area:	25 acres
Average Annual Wet Weather Runoff:	10 to 13 acre-feet
Dry Weather Runoff:	1 acre-foot
Bioretention Facility Footprint:	2400 square feet
Bioretention Facility Depth:	6 feet
Bioretention Media Depth:	3 feet
Annual Runoff Captured and Treated[2]:	49%

PROJECT BENEFITS

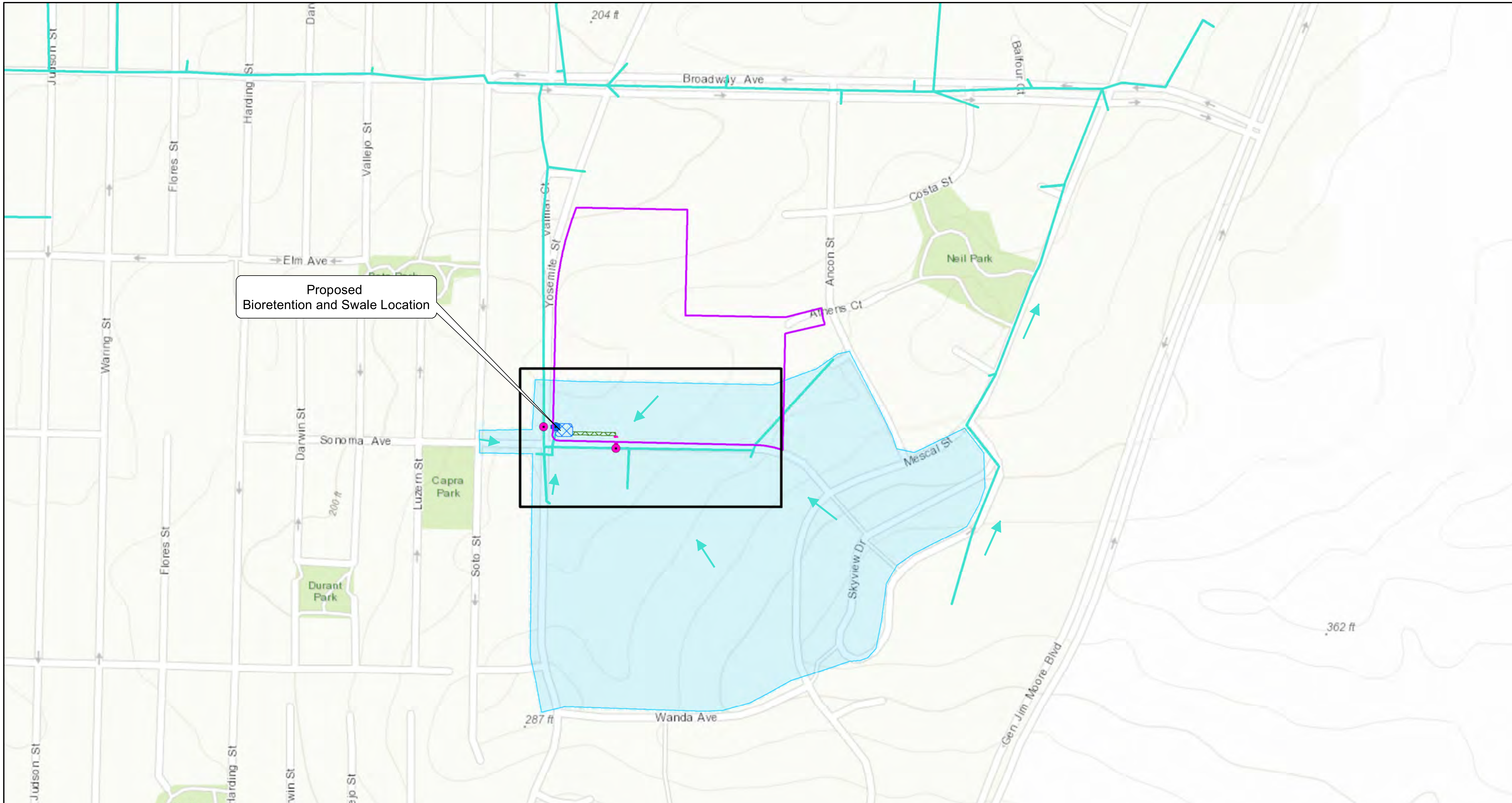
Pollutant Loads Reduced[3]:	930 pounds/year
Water Supply Benefits:	The project provides indirect benefits by infiltrating 7 acre-feet per year of urban runoff above a potable water supply aquifer.
Flood Management Benefits:	Flooding in the area will be improved through the retention and attenuation of runoff during storm events.
Natural Drainage System Benefits:	Removal of urban stormwater and dry weather flows that are currently discharged to the Pacific Ocean, thereby partially restoring natural drainage patterns.
Habitat or Open Space Benefits:	The open space area at the housing complex will be improved as a result of flood management.
Community Benefits:	The facility will be open to the public and will utilize native plants and provide informational signage. The drainage area to the project location contains a Disadvantaged Community (DAC).

[2] Assumed soil percolation rate is 1 inch per hour.
[3] Pollutant loading rate calculated from TELR for the TELR catchment associated with the project drainage area.

COST ESTIMATE

DESCRIPTION	COST
Capital Cost	$330,000
Annual Operations and Maintenance Cost	$4,700 per year[4]
Estimated Life Cycle Annual Cost[5]	**$24,000 per year**
Unit Project Cost of Recovered Water	**$3,300 to $3,500 per acre-foot**

[4] Estimate includes annual operations and maintenance of the pre-treatment swale, bioretention, and storm drain pipe.
[5] Assumes 30-year design life at 4% interest rate.



Legend

Parcel Boundary
Del Monte Manor Project Drainage Area
Project Map Extent

Existing Stormwater Infrastructure

Storm Drain

Proposed Control Measures

Overflow Pipe
Diverson
Bioretention
Swale
Manhole
Outlet Structure

N

0 700 Feet

Del Monte Manor Park Infiltration Project
City of Seaside, CA
Catchment Map
Monterey Peninsula Stormwater Resource Plan

Geosyntec consultants
Monterey One Water Providing Cooperative Water Solutions

Oakland, CA | September 2018

Figure 6A

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Legend

Del Monte Manor Project Drainage Area

Existing Stormwater Infrastructure
- Storm Drain

Proposed Control Measures
- Manhole
- Outlet Structure
- Overflow Pipe
- Diverson Pipe
- Pre-treatment Swale
- Infiltrating Bioretention Facility

N

0 100 Feet

Del Monte Manor Park Infiltration Project
City of Seaside, CA
Project Map
Monterey Peninsula Stormwater Resource Plan

Geosyntec consultants | Monterey One Water Providing Cooperative Water Solutions

Oakland, CA | June 2018

Figure 6B

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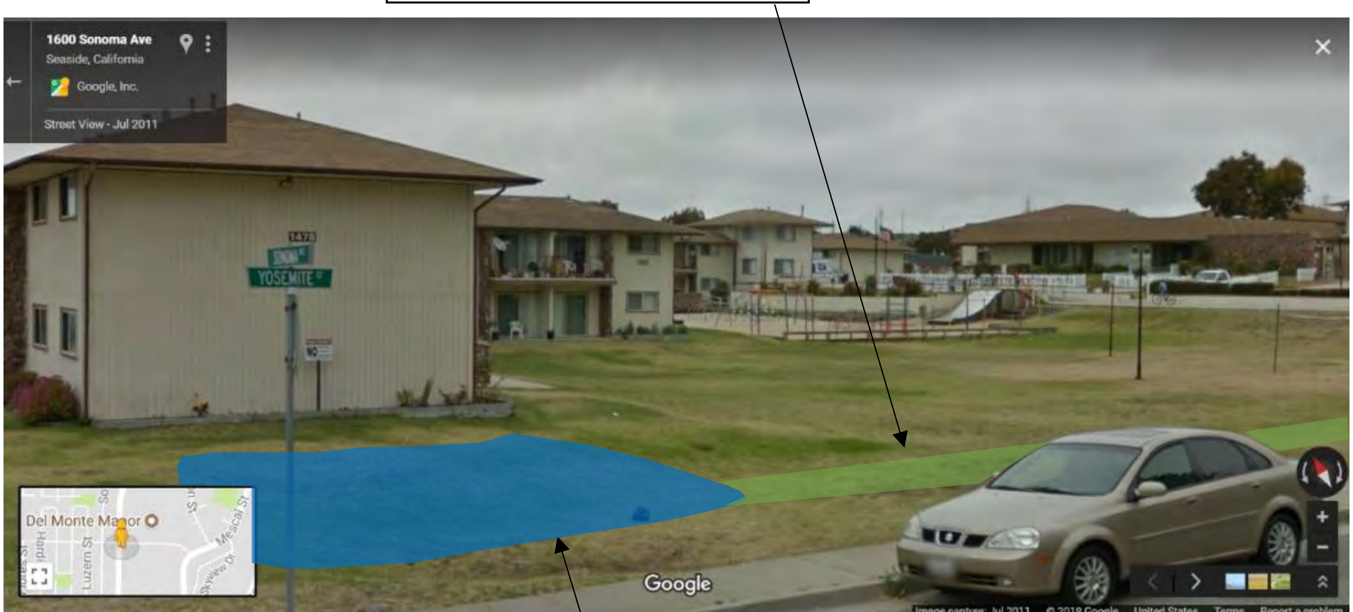
Bioswale Proposed Location

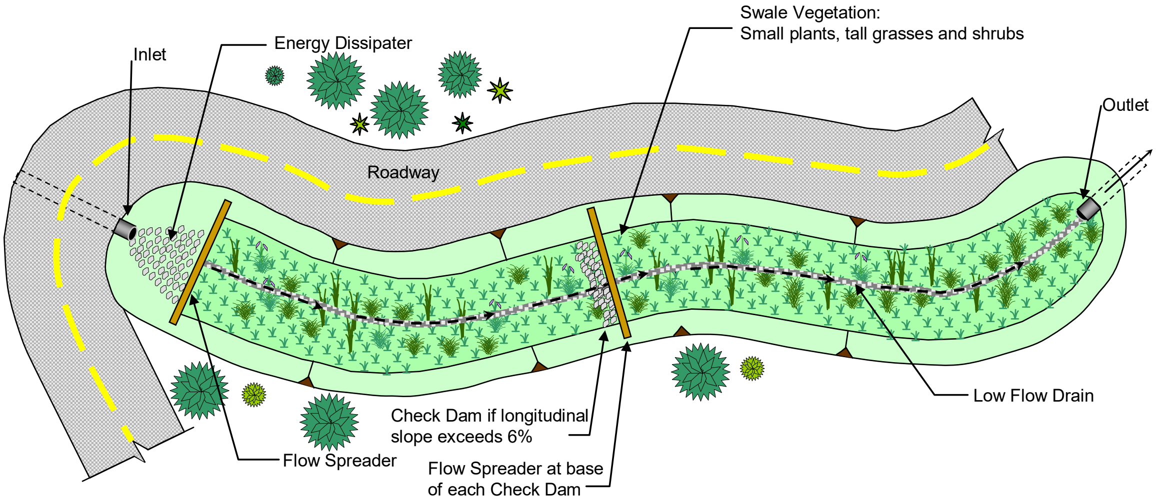


Rain Garden Proposed Location

Figure 6C
Del Monte Manor Proposed Bioswale and Rain Garden Locations
(Source: Google Maps Street View)

September 2018	**Monterey Peninsula Stormwater Resource Plan**	Geosyntec consultants

Plan View



Profile

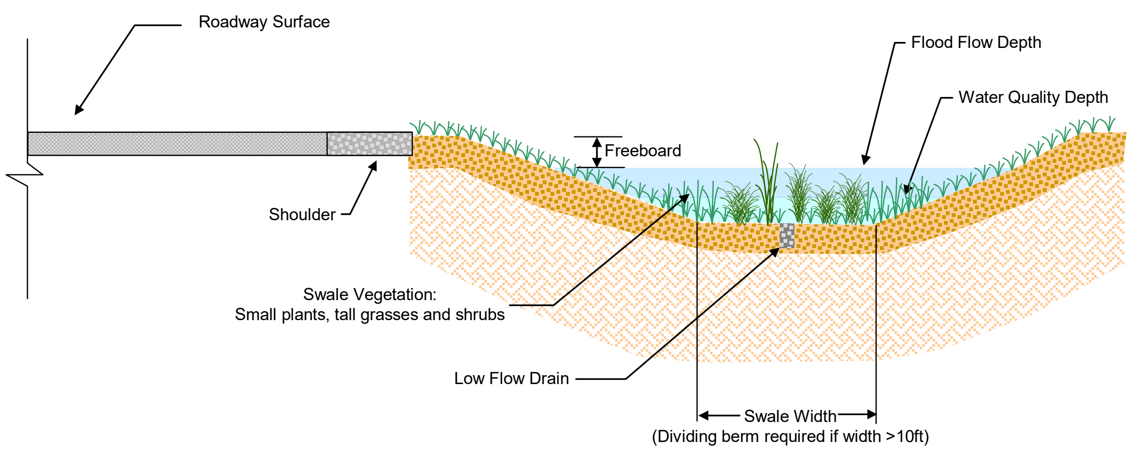


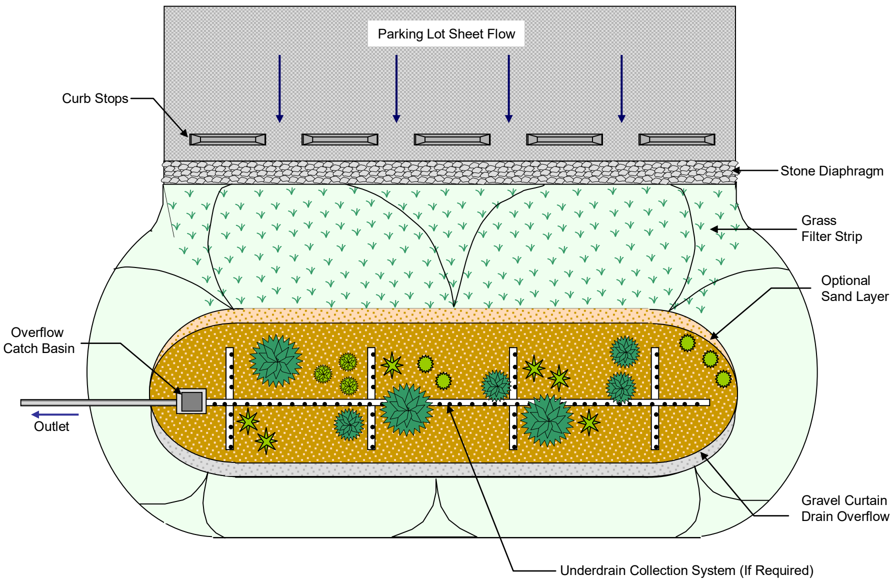
Figure 6D
Conceptual Illustration of a Vegetated Swale

September 2018	Monterey Regional Stormwater Resource Program	Geosyntec consultants

Figure 6E
Examples of Vegetated Swales

September 2018	**Monterey Regional Stormwater Resource Program**	Geosyntec consultants

Plan View



Profile

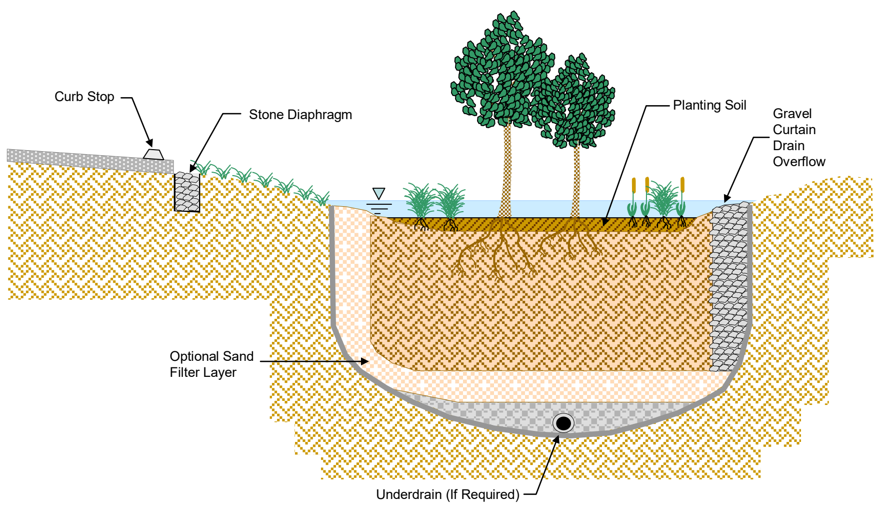


Figure 6F
Conceptual Illustration of a Bioretention Facility

September 2018	**Monterey Regional Stormwater Resource Program**	Geosyntec consultants

Figure 6G
Example Photos from Bioretention Facilities

APPLICATION TO STORE AND RECOVER NON-NATIVE WATER FROM THE SEASIDE GROUNDWATER BASIN

INSTRUCTIONS: This Application form is for use by Standard Producers in the Seaside Groundwater Basin (Seaside Basin) for the purpose of obtaining approval from the Seaside Basin Watermaster (Watermaster) to store Non-Native water in, and to subsequently recover that stored water from, the Seaside Basin. The application process is as described in Section III.L.3.j.xx of the Amended Decision of the Monterey County Superior Court, Case No. M66343, filed February 9, 2007.

____

Name of Standard Producer (Applicant)

Contact Information for Applicant:

Contact Person: ____

Address: ____

Telephone: ____

Proposed quantity of non-native water Applicant seeks to store through spreading or direct injection into the Seaside Basin (acre-feet per year):

____

Proposed location(s) where the spreading or direct injection of non-native water into the Seaside Basin will occur. If injection will be performed using one or more injection wells, provide indentifying information for those wells including the aquifer(s) into which the injection will occur. If spreading will be performed, provide coordinate location information, as well as any physical street address information for the proposed location.

____

____

____

____

Proposed location(s) where the stored water may be recovered. Provide identifying information for each well from which the stored water will be recovered, including the aquifer(s) from which recovery will occur.

Water quality characteristics of the non-native water proposed for spreading or direct injection into the Seaside Basin. Provide sufficient physical, chemical, and microbiological information about the water being proposed for storage, so that the Watermaster can determine whether or not storing such water will have any adverse water quality impacts on the Seaside Basin. Provide this information in the form of analytical results from a properly certified water testing laboratory, attached to this Application.

Also provide sufficient information to demonstrate to the Watermaster that the water quality characteristics of the water being proposed for storage will meet all of the requirements imposed on the Applicant by permits and/or approvals issued to the Applicant by the regulatory agency or agencies with jurisdiction.

Permits and approvals from regulatory agencies. Attach copies of all permits and approvals the applicant has received from regulatory agencies, which relate to the storage of water in the Seaside Basin. Such agencies will likely include some or all of the following:

- California Regional Water Quality Control Board
- California Department of Public Health
- County of Monterey Department of Health
- State Water Resources Control Board

7. DRYWELL AQUIFER RECHARGE PROGRAM

SITE DESCRIPTION

Jurisdiction:	City of Seaside
Location:	1. Southwest corner of the Noche Buena Street and Kimball Avenue intersection, adjacent to the entrance to William Pacchetti Park. 2. South central portion of Trinity Park on Trinity Avenue. 3. Right of way on Broadway Avenue, adjacent to the undeveloped parcel on the northwest corner of the San Lucas Street and Broadway Avenue intersection. 4. Western portion of David Cutino Park on La Salle Ave.
Land Owner:	Locations 1, 2, and 4: City of Seaside Location 3: Redevelopment Agency
Catchment[1]:	Locations 1 and 2: CM-07 Locations 3 to 4: CM-06

PROJECT CONCEPT

The Drywell Aquifer Recharge Program in the City of Seaside, with support from regional partners, will focus on using drywells to recharge urban runoff to the Seaside Groundwater Basin. The program focuses on treating and infiltrating runoff from residential areas within the City of Seaside. There are four proposed drywell locations included in this project: (1) Noche Buena Street and Kimball Avenue intersection; (2) South central portion of Trinity Park on Trinity Avenue; (3) San Lucas Street and Broadway Avenue intersection; and (4) Western portion of David Cutino Park on La Salle Ave. The drainage areas associated with each of the four proposed project locations are shown on Figure 7A. Runoff produced within all four drainage areas flows from the upgradient residential areas west of General Jim Moore Boulevard flows westward toward Monterey Bay within surface drainage ditches and/or storm drain pipes. Proposed drywells will infiltrate runoff that currently ultimately discharges to Monterey Bay at locations along Seaside Beach.

Proposed drywell locations were identified based on adequate depth to groundwater and proximity to the downgradient boundary of the residential neighborhoods, to maximize tributary drainage area and potential recovered runoff volume. Identified locations are on or adjacent to publicly-owned parcels where runoff could be diverted from adjacent surface streets (e.g. Location 1) or from the storm drain network via a gravity diversion pipe (e.g. Locations 2 through 4). Pretreatment would occur through a hydrodynamic separator or a subsurface settling chamber at each location. Pretreatment facilities would drain to a series of hydraulically connected drywells. The bottom depth of the drywells would be 10 feet above the groundwater table or higher. Flows that exceed the infiltration capacity of the drywells would bypass the facilities discharge along the current drainage path. Proposed drywells are estimated to capture approximately 8% of the average annual runoff from the combined drainage areas. An example drywell project that diverts runoff

[1] See Monterey Peninsula Water Recovery Study Report, Appendix D, Figure 2A Catchment Detail Map.

from a surface drainage ditch (Location 1) and an example project that diverts runoff from a subsurface storm drain pipe (Location 2) are shown on Figure 7B. The example project that diverts runoff from a subsurface storm drain pipe should be considered similar to the diversions proposed for Locations 3 and 4.

A drywell typical construction detail and specifications for the MaxWell® Plus drainage system by Torrent Resources Incorporated is provided as Figure 7C. The following documents are provided as attachments for additional information and reference regarding drywell typical construction details and drywell permitting and regulations in California:

- Attachment A. Drywell Stormwater BMP – Drywell Information, Detail, and Specifications for Enhanced Infiltration, from Geosyntec Consultants to Darla Inglis, Central Coast Low Impact Development Initiative (LIDI) Memorandum, September 2015.

- Attachment B. Dry Well Fact Sheet: Uses, Regulations, and Guidelines in California and Elsewhere. Office of Environmental Health Hazard Assessment, California Environmental Protection Agency.

Following the 2006 Adjudication Decision that governs management of the Seaside Groundwater Basin, implementation of this project would require obtaining a permit from the Seaside Basin Watermaster to store water, via recharge, in(to) the Seaside Groundwater Basin. This permit is obtained through filing a Watermaster Storage Application. The Wastermaster has the authority to take the necessary actions to prevent contaminants from entering the groundwater supplies of the Seaside Basin, which present a significant threat to the groundwater quality of the Seaside Basin, whether or not the threat is immediate. A copy of the Watermaster Storage Application to store and recover non-native water from the Seaside Groundwater Basin is provided as Attachment C.

Proposed project is conceptual and subject to change based on future feasibility assessment, funding availability, and/or other information.

DESIGN INFORMATION

Tributary Drainage Area (TDA):	860 acres
TDA Imperviousness:	60%
TDA Urbanized Area:	857 acres
Average Annual Wet Weather Runoff:	370 to 470 acre-feet
Dry Weather Runoff:	22 to 31 acre-feet (April to October)
Depth to Groundwater:	25 to 110 feet
Drywell Diameter:	4 feet
Hydraulic Conductivity:	1 inch per hour
Number of Drywells:	62
Estimated Percent Capture:	8%

PROJECT BENEFITS

Net Recovered Water Volume:	50 to 67 acre-feet per year
Sediment Load Reduced[2]:	4,800 pounds per year
Flood Management Benefits:	Infiltration at Location 1 would reduce street flooding on Kimball Avenue.
Natural Drainage System Benefits:	Removal of urban stormwater and dry weather flows that are currently discharged to the Pacific Ocean, thereby partially restoring natural drainage patterns.
Habitat or Open Space Benefits:	None anticipated.
Community Benefits:	None anticipated.

COST ESTIMATE

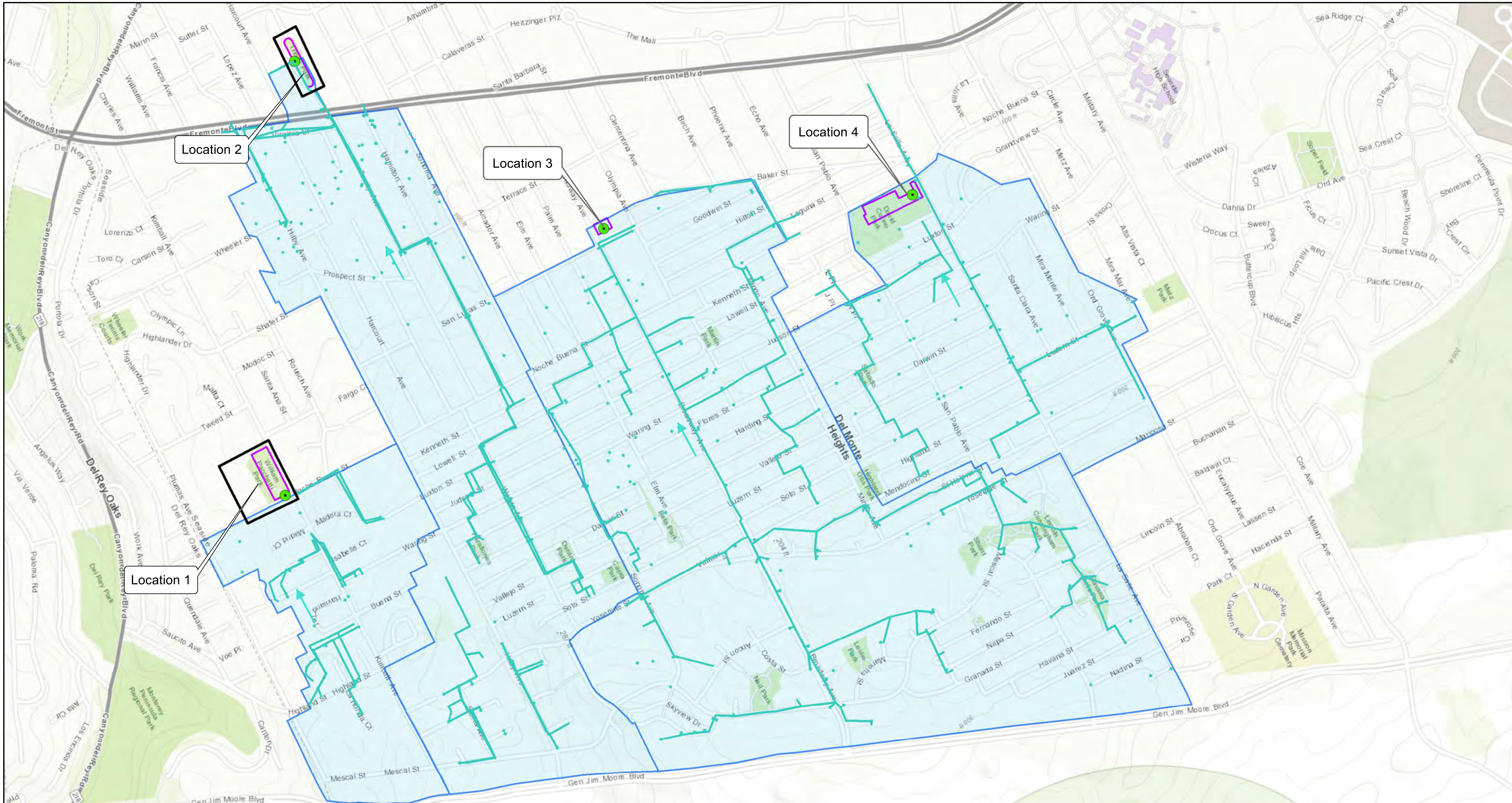
DESCRIPTION	COST
Capital Cost	$4,300,000[3]
Annual Operations and Maintenance Cost	$59,000 per year[4]
Estimated Life Cycle Annual Cost[5]	**$310,000 per year**
Unit Project Cost of Recovered Water	**$4,600 to $6,200 per acre-foot**

[2] Pollutant loading rate calculated from TELR pollutant loading rates for the TELR catchments associated with the project drainage area.

[3] Approximate capital cost per location are as follows: Location #1 = $660,000; Location #2 = $900,000; Location #3 = $480,000; Location #4 = $1,900,000.

[4] Estimate includes annual operations and maintenance of pre-treatment devices (i.e., hydrodynamic separator or a subsurface settling chamber), dry wells, and the pipe that connects the dry wells to one another.

[5] Assumes 30-year design life at 4% interest rate.



Legend

- Parcel Boundary
- Project Map Extent
- Seaside Dry Well Project Drainage Area

Proposed Control Measure

- Drywells with Pretreatment

0 1,600 Feet

Drywell Infiltration Program
City of Seaside, CA
Catchment Map
Monterey Peninsula Stormwater Resource Plan

Geosyntec consultants | Monterey One Water Providing Cooperative Water Solutions | Figure 7A

Oakland, CA | September 2018

Legend

Parcel Boundary

Existing Infrastructure

Storm Drain

Proposed Control Measure

Drywells with Pretreatment

Gravity Diversion Structure

Diversion

Drywell Infiltration Program
City of Seaside, CA
Example Projects Map
Monterey Peninsula Stormwater Resource Plan

Geosyntec consultants

Monterey One Water
Providing Cooperative Water Solutions

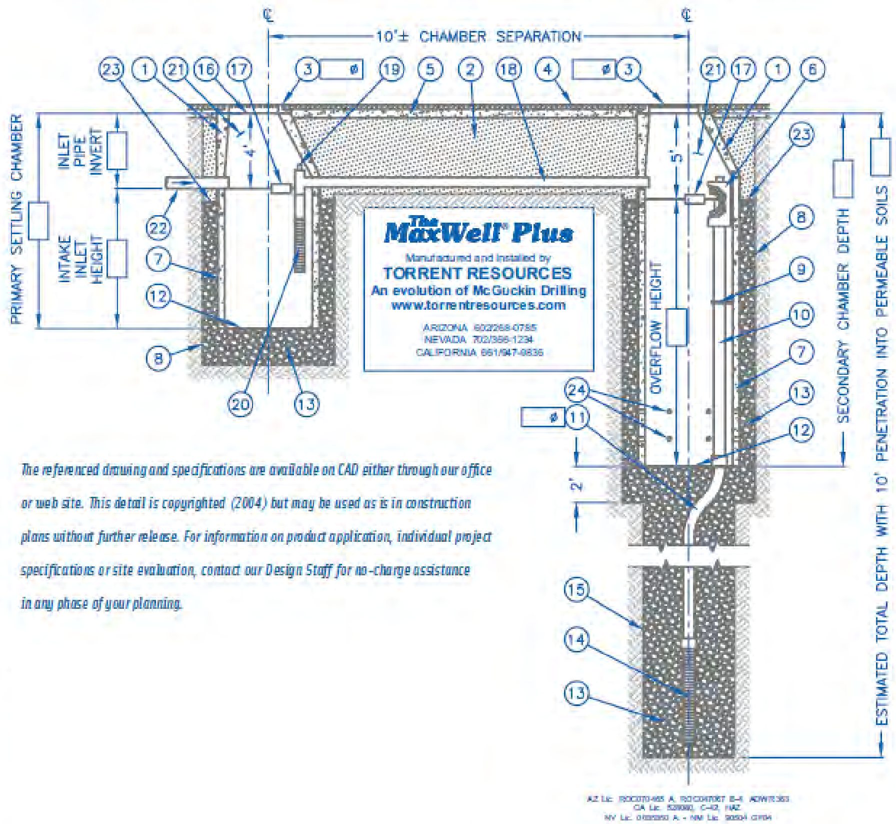
Figure 7B

Oakland, CA

September 2018

P:\GIS\MRWPCA\Project\Concept Projects\7. Dry Well- Seaside\Seaside_DryWells_Zoom_Sept2018.mxd 8/29/2018 10:41:43 AM

The MaxWell® Plus Drainage System Detail And Specifications



The referenced drawing and specifications are available on CAD either through our office or web site. This detail is copyrighted (2004) but may be used as is in construction plans without further release. For information on product application, individual project specifications or site evaluation, contact our Design Staff for no-charge assistance in any phase of your planning.

ITEM NUMBERS

1. **Manhole Cone** – Modified flat bottom.
2. **Stabilized Backfill** – 1-Sack Slurry.
3. **Bolted Ring & Grate/Cover** – Diameter as shown. Clean cast iron with wording "Storm Water Only" in raised letters. Bolted in 2 locations and secured to cone with mortar. Rim elevation ±0.02' of plans.
4. **Graded Basin or Paving** (by Others).
5. **Compacted Base Material** (by Others).
6. **PureFlo® Debris Shield** – Rolled 16 Ga. steel X 24" length with vented anti-siphon and internal .265" Max. SWO flattened expanded steel screen X 12" length. **Fusion bonded epoxy coated.**
7. **Pre-cast Liner** – 4000 PSI concrete 48" ID. X 54" OD. **Center in hole** and align sections to **maximize bearing surface.**
8. **Min. 6' Ø Drilled Shaft.**
9. **Support Bracket** – Formed 12 Ga. steel. **Fusion bonded epoxy coated.**
10. **Overflow Pipe** – Sch. 40 PVC mated to drainage pipe at base seal.
11. **Drainage Pipe** – ADS highway grade with TRI-A coupler. **Suspend pipe** during backfill operations to prevent buckling or breakage. Diameter as noted.
12. **Base Seal** – Geotextile or concrete slurry.
13. **Rock** – Washed, sized between 3/8" and 1-1/2" to **best complement soil conditions.**
14. **FloFast® Drainage Screen** – Sch. 40 PVC 0.120" slotted well screen with 32 slots per row/ft. Diameter varies 120" overall length with TRI-B coupler.
15. **Min. 4' Ø Shaft** – Drilled to **maintain permeability** of drainage soils.
16. **Fabric Seal** – U.V. Resistant Geotextile – **To be removed by customer** at project completion.
17. **Absorbent** – Hydrophobic Petrochemical Sponge. Min 128 oz. capacity.
18. **Connector Pipe** – 4" Ø Sch. 40 PVC.
19. **Anti-Siphon Vent** with flow regulator.
20. **Intake Screen** – Sch. 40 PVC 0.120" modified slotted well screen with 32 slots per row/ft. 48" overall length with TRI-C end cap.
21. **Freeboard Depth Varies** with inlet pipe elevation. Increase primary/secondary settling chamber depths as needed to maintain all inlet pipe elevations above connector pipe overflow.
22. **Optional Inlet Pipe** (by Others).
23. **Moisture Membrane** – 6 mil. Plastic. Place securely against eccentric cone and hole sidewall. Used in lieu of slurry in landscaped areas.
24. **Eight** – (8) **perforations per foot**, 2 row minimum.

Figure 7C
MaxWell® Plus Typical Drainage System Details and Specifications
(Source: Torrent Resources Incorporated, www.torrentresources.com)

Geosyntec consultants

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Memorandum

Date: September 2015

To: Darla Inglis, PhD, Central Coast Low Impact Development Initiative (LIDI)

From: Geosyntec Consultants, Inc.

Subject: Drywell Stormwater BMP - Drywell Information, Detail, and Specifications for Enhanced Infiltration
Geosyntec Project: LA0339

INTRODUCTION

This memorandum introduces a combined stormwater "Best Management Practice" (BMP) consisting of a biofiltration system (for flow-through treatment of stormwater, such as where infiltration is restricted) and drywell (to enhance infiltration). It also provides the justification and description for a standard design detail and specification for this type of system. Section 1 of this memorandum explains the need for engineering details and specifications for a system that will enhance the infiltration of captured stormwater, while also ensuring a minimum standard of water quality treatment to protect groundwater sources. This section explains why biofiltration is one of the most effective means of natural passive pretreatment available. Section 2 provides a summary of literature characterizing the risk of groundwater contamination from drywell injection of treated stormwater. Section 3 describes system components to address concerns of groundwater pollution and maintenance. Section 4 lists recommendations for further research to address knowledge gaps highlighted by this assessment.

1. THE NEED/VALUE OF THE ENGINEERING DETAILS AND SPECIFICATIONS

Biofiltration (also referred to as bioretention with underdrains) is a highly effective type of stormwater treatment BMP that is designed to detain, filter, treat and release stormwater. Primarily used to address urban stormwater runoff, biofiltration BMPs can reduce the volumes runoff rates and pollutant loads that can otherwise adversely impact receiving waters such as rivers, lakes, streams and the ocean. Recognizing that stormwater runoff is an underutilized water supply, there is growing interest in furthering the development of stormwater infiltration systems to help replenish groundwater resources (Los Angeles and San Gabriel Rivers Watershed Council, 2010; CASQA, 2015). Biofiltration systems are typically designed to allow infiltration in suitable conditions, however the amount of infiltration achieved by these systems may be limited by the footprint area of the biofiltration system and the infiltration rates of near-surface soils. Excess water is typically discharged through an underdrain into the storm sewer system and not infiltrated. Incorporation of a drywell component provides an opportunity to significantly increase the infiltration capacity of these systems. Drywells are designed to enhance infiltration and are commonly used for runoff management in various landuse settings. Drywells enhance infiltration by penetrating clay and other less permeable soil layers that otherwise limit infiltration at the surface, thus providing the potential for significantly greater stormwater runoff volume reduction and aquifer recharge. The term “injection well” is commonly used to describe both drywells and also mechanically powered injection wells. The engineering details and specifications described herein provide an important reference defining how “enhanced infiltration” configurations differ from injection wells. Most importantly, wells with mechanical injection can include direct injection into an aquifer with no vadose zone treatment, whereas the system described in this memorandum features additional vadose zone treatment. This additional treatment is important for a number of pollutants described below. Current injection well regulations as defined by the Environmental Protection Agency may require users to register and monitor the facilities, which may create a disincentive for use in stormwater management. Evaluation of dry wells for stormwater management may be warranted to better understand their context regulatory context. Having a clearly defined system is particularly important in the context of the California Office of Environmental Health Hazard Assessment’s (OEHHA) ongoing efforts to develop a regulatory framework for this type of work (OEHHA, 2015).

Combining biofiltration BMPs with drywells provides a system which helps optimize the multi-benefits of stormwater management (i.e. improved water quality and increased local water supply). Well-designed biofiltration systems can also provide pre-treatment for drywells, including providing treatment for suspended solids, particulate-bound pollutants, dissolved metals, pathogens, dissolved organics, and other constituents. Other BMPs such as vegetated swales, sediment basins, and permeable pavement also have potential to provide effective pre-treatment in combined BMP/drywell designs. This memorandum however only assesses the opportunities and risks specifically concerning the use of biofiltration systems with a drywell, and specifically within the context of typical pollutant loads found in urban stormwater runoff. It is important to note that other landuses such as heavy industry or agriculture may pose additional risks to groundwater contamination for which this system may not adequately address.

Conversely, in certain watersheds where low pollutant loads have been demonstrated, other BMP types such as vegetated swales may suffice in providing adequate pre-treatment.

Biofiltration alone provides water quality benefits including runoff volume and rate reduction and removal/treatment of common urban pollutants. By combining a biofiltration and dry well design, water resource benefits are optimized. As with any BMP design, the biofiltration/dry well technical details and specifications need to address potential risk. For example, as with any dry well design, care must be taken to limit the amount of sediment that enters the dry well. If media is not adequately retained in the biofilter, particles can wash out of the media and pose a clogging risk to the drywell. Second, removal of nutrients from stormwater is strongly dependent on the properties and sources of biofiltration media, and export of nutrients from media (i.e., negative removal efficiency) is a significant concern if materials are not carefully selected (Geosyntec Consultants and Wright Water Engineers, 2011; Roseen and Stone, 2013; Herrera, 2014, Herrera et al., 2015a, Herrera et al. 2015b). Finally, export of other pollutants, such as dissolved copper, has also been observed but is less common (Geosyntec Consultants and Wright Water Engineers, 2014; Roseen and Stone, 2013; Herrera et al. 2015b). Engineering details and specifications can help limit the potential for export of pollutants and associated impacts to drywell maintenance and groundwater quality.

2. PERCEIVED AND ASSESSED RISK OF GROUNDWATER CONTAMINATION FROM INFILTRATING STORMWATER.

While many stormwater BMPs are designed to infiltrate urban stormwater runoff, concerns have been raised as to whether there is an added risk of groundwater quality impact with drywells which provide a more direct conduit to groundwater. Therefore there is a need to provide a standardized BMP design that specifies pre-drywell treatment components to provide a minimum standard pollutant removal for the pollutants that are typically found in urban stormwater runoff. Priority pollutants in urban stormwater runoff generally include nutrients (i.e., nitrogen and phosphorus), heavy metals (e.g. cadmium, copper, lead and zinc), organics (i.e., petroleum hydrocarbons), pathogens (i.e., fecal coliforms, enterococcus), and suspended solids. The dissolved and colloidal (or planktonic, in the case of bacteria cells) fraction for each of these priority pollutants represents the greatest threat to groundwater quality given the effectiveness of biofiltration for removing particulate bound pollutants. However, typical dissolved concentrations of most urban stormwater pollutants are below drinking water standards (which are typically applicable to the beneficial use of underlying aquifers). An exception to this is bacteria and pathogens, where biofilter effluent concentrations are not expected to consistently meet drinking water standards, therefore vadose zone treatment is required to further mitigate this water quality issue.

Acknowledgment of the contamination risk to groundwater as a potential barrier to using enhanced stormwater infiltration techniques has prompted a number of studies to investigate contamination risks associated with stormwater infiltration BMPs, including drywells. Over all, studies however have found that treated stormwater infiltrated from BMPs does not pose a significant risk to impairment of groundwater quality and in some cases found to improve the quality of groundwater (Jurgens, 2008; Weiss, 2008, Los Angeles and San Gabriel Rivers Watershed Council, 2010). Studies found that nitrates in drinking water can pose human health risks, and tend to be poorly retained in BMPs due to high solubility (Pitt et al., 1999), however the amount of nitrates typically found in stormwater is less than the drinking water standard (U.S. EPA, 1999), and therefore nitrates are not considered a concern as long as nutrient hot spot areas are avoided (e.g., agriculture, nurseries) and sources of nitrates within biofiltration media are limited and controlled. Metals were found to largely be absorbed by BMPs, however there is a potential for breakthrough if the soil becomes saturated with contaminants, and satisfactory treatment depends on soil replacement at set intervals (i.e. a dedicated maintenance regime); typically maintenance intervals will be controlled by surface clogging of the biofilter rather than pollutant accumulation (Pitt and Clark, 2010). BMPs are known to remove bacteria through straining in the soils (Diez and Clausen, 2005; Rusciano and Obropta, 2007), however the treatment efficiency, and migratory potential for pathogens is highly variable (US EPA, 1999), and contamination of groundwater by pathogens has been documented (Pitt, 1999). However, any groundwater consumption as a potable water source requires treatment, and therefore bacteria contamination from stormwater infiltration is not deemed a threat to human health. Organic pollutants such as hydrocarbons are a concern for groundwater contamination since they are found to typically occur in quantities above regulatory levels (Shepp, 1996), have been shown to migrate into groundwater (Pitt et al, 1999), and can cause acute toxicity (U.S. EPA, 1999). Most hydrocarbons will be attenuated by soil in biofiltration systems (Hsieh and Davis, 2005), however, Wilson et al (1990) found that while undetected in stormwater samples, volatile organic sediments were present in dry-well sediments and groundwater samples, though at levels below the EPA human health criteria. Therefore the expected risk of groundwater contamination from stormwater infiltration is considered to be low for typical stormwater pollutants of concern.

3. OVERVIEW/DESCRIPTION OF THE ENGINEERING DETAILS

The following section describes the function of each component of design in terms of either addressing the water quality objective, the groundwater augmentation objective, and a "system fail" risk mitigation objective.

3.1 DESIGN ELEMENTS TO HELP PROTECT GROUNDWATER RESOURCES (BMP)

The biofiltration system consists of "soft infrastructure" and "hard infrastructure" components. The soft infrastructure includes vegetation within a filter media (e.g., bioretention soil media), and storage media (e.g., aggregate). The hard infrastructure includes an underdrain to discharge treated water to the drywell, an overflow control and hard engineered structures defining the boundary between the BMP and adjacent urban infrastructure. Other hard engineered structures such as inlets and curb retrofits relate to the site conditions and catchment hydrology but do not have a significant nexus to how well a BMP performs for protecting groundwater resources. The hard infrastructure elements are governed by local standard specifications and are not detailed in the following discussion.

- Vegetation used in biofiltration systems are typically reed species such as *Juncus* spp. and *Carex* spp. These species can tolerate extended wet and dry periods, help maintain porosity of media, provide uptake of nutrients and some other pollutants, and can play a role in symbiotic role with other organisms in media (i.e., microorganisms, fungus) (Read et al 2008). LIDI biofiltration technical specifications (LIDI 2013a) provides further details on irrigation and planting guidelines.

- The media bed supports plant growth, infiltration and provides treatment. The single media layer, often topped with a specified mulch, provides for planting and filtering. In other designs, a separate layer of planting media is placed in the top of the bed and is underlain by filter media which also provides treatment. Where planting media and filter media are the same layer, this layer should adhere to the more stringent of the LIDI technical standards for planting media and filter media.

    - Filter media, which is placed below the planting media in a layered design, is an engineered filter material known as the biofiltration soil media (BSM). Detailed specifications are contained in the LIDI Biofilter Technical Standards (BTS) (LIDI 2013a). The biofiltration soil media features a ratio of organic and inorganic material which allows suitable infiltration, and also the required chemical, biological and physical pollutant removal processes. The specified combination provides an important filtering function for metals and nutrients. Cation exchange capacity is known to be an important process in metal removal and nutrient retention (Jurries, 2003). Additionally, other treatment processes, such as sorption and precipitation can be provided by the components used in the filter media.

  - The abundance and solubility of contaminants in the soil media is a key factor in determining the potential for pollutant export. This can be controlled by utilizing minimum organic material quantities needed for plant survival (typically 5 percent or less), utilizing stable organic materials (a well-aged leaf-based compost or compost alternative such as coco coir pith should be considered), and conducting initial leachate testing on all materials that are used.

- The storage layer is the base layer of the biofiltration system and consists of an open graded aggregate to optimize the porosity of this layer. This layer includes the underdrain which drains treated water to the drywell. Since the system objective is to infiltrate treated water through the drywell, optimizing storage volume in this layer is not required. Therefore this layer only needs to be sized to cover the underdrain and provide the required distance between the drain and BSM as per LIDI specifications. This minimum depth between the drain and BSM has not yet been determined according to the BTS (LIDI 2013a) and warrants further research. A bridging layer of at least 6 inches is preferred. Alternatively, a well screen pipe with very fine slots can be buried directly within the filter media layer to eliminate the need for a bridging layer and storage rock. Connected to the drain are maintenance and ventilation riser pipes which are proposed in this design. These PVC pipes require a bent connection to the under drain to facilitate directional cleaning.

- To achieve lower pollutant concentrations in treated biofilter effluent, an outlet control device attached to the underdrain of the biofiltration system may be desirable to control the rate of flow through the filter media. This has the benefit of increasing the contact time of water in the media pores, reducing the potential for short circuiting, and reducing pore velocities. Most critically, if pore velocities are high through the media or preferential pathways form, export of fine particles from the soil media can result. The conventional way to control filtration rates is to limit the hydraulic conductivity of the media. However, this approach can be challenging to execute reliably in practice given sensitivity of media filtration rate to minor variations in particle size distribution and compaction - a high level of quality control is needed to “dial in” media filtration rates in this manner. This also results in a media that is closer to clogging failure at the time it is place. The preferred outlet control approach allows the media to be specified with a higher initial hydraulic conductivity and wider allowable range that is easier to specify and achieve. The actual rate of flow through the media is then controlled by a more precise hydraulic control structure (i.e., orifice or weir) affixed to the underdrain or outlet pipe rather than the surface of the soil media. This approach can also allow the water level retained in the biofiltration system to be adjusted; for example it may be desirable to pool water within the underdrain or filter media layer of the biofiltration system to improve residence time for small storms and provide a reservoir of water for plant roots.

3.2 DESIGN ELEMENTS TO ENHANCE INFILTRATION OF STORMWATER AND TO LIMIT ADVERSE IMPACTS AND SYSTEM FAILURE

The drywell is a relatively straightforward design and a system commonly used in stormwater management. The drywell typically consists of a gravel and stone backfilled slotted well which accepts treated stormwater for infiltration is drilled to at least 10 feet below any impermeable layers. A number of important design guidelines, design changes, and maintenance routines should be followed to enhance groundwater infiltration function.

Design Guidelines

These guidelines are based on common standards of the Los Angeles County LID Standards Manual (2014), the San Diego County LID Handbook (2014) and the Orange County Technical Guidance Manual (2013). The most important of these are:

- Maintain a 10 foot minimum separation between drywell bottom and seasonal high water table; in constrained hydrogeologic conditions (i.e., limited groundwater gradient; confining layers or faults), an evaluation of potential groundwater mounding may also be needed;
- Do not use in soils with >30% clay or >40% silt because these soils are not conducive to infiltration.
- Penetrate the drywell at least 10 feet into permeable porous soils;

- Conduct facility-specific infiltration testing at the location and depth of the proposed drywell facility, using standardized methods acceptable to the local jurisdiction, to estimate the long term capacity of the drywell;
- Apply appropriate factors of safety to address uncertainty in testing methods, long term operational conditions, and potential for clogging;
- Maintain at least a 100 foot minimum setback from public supply wells and septic systems;
- Maintain a 100 foot minimum separation between drywells unless the interdependency of multiple wells in close proximity has been evaluated to determine the reliable long term drywell capacity (the groundwater dispersion mounds from multiple drywells in close proximity may interact and reduce the rate of each well, if placed in close proximity);
- Maintain at least 250 foot setback from sites of potential soil or groundwater contamination (such as sites found in the Geotracker or EviroStor databases (http://geotracker.swrcb.ca.gov/; http://www.envirostor.dtsc.ca.gov/public/), unless a site specific study demonstrates that infiltration would not adversely impact groundwater conditions. Higher setbacks may be necessary depending on the direction of flow of groundwater and the level of certainty of the contaminant mapping. Consultation with parties responsible for nearby contaminated sites is encouraged, where applicable.
- When past uses of a site indicate potential for contamination, it may be prudent to assess the site for soil or groundwater contaminant levels even if the site is not currently listed on a contaminated sites database. The introduction of stormwater infiltration into an area of contamination can significantly complicate later cleanup efforts.
- Maintain appropriate setbacks from slopes, foundations and other structures; the project geotechnical engineer should provide site-specific criteria that relate to drywells.
- Avoid infiltration from pollutant hot spots, including:
    - Roads greater than 25,000 ADT
    - Heavy and light industrial pollutant source areas,
    - Automotive repair shops
    - Car washes

  - Fleet storage areas
  - Nurseries, agriculture, and heavily managed landscape areas with extensive use of fertilizer
  - Fueling stations

- Projects that propose to infiltrate stormwater are encouraged to consult with the applicable groundwater management agency to the extent necessary to ensure that groundwater quality is protected.
- Drywells[1] must be registered as a Class V injection well through EPA Region 9 (http://www.epa.gov/region9/water/groundwater/uic-classv.html).

Design Modifications

Several important modifications to a typical design are presented here to address system failure risks. Failed systems will achieve neither water quality treatment nor groundwater recharge objectives. At worst, a failed system becomes a public nuisance contributing to increased pollution pathways to groundwater aquifers, impaired surface water bodies, a negative perception of emerging BMP technologies, and wasted capital investment. These design modifications are:

- While a typical drywell used as a stormwater BMP should incorporate a pre-treatment device for sediment control, the coupling of a biofilter to the front end of a drywell, as described in the memorandum, is sufficient to manage and control sediment from reaching the drywell and clogging the infiltration system.
- Include a shut off valve with a manually operated switch or actuator to prevent water from the biofiltration system from entering the drywell in the event of an acute pollutant exposure, such as an oil spill within the BMP's catchment. This feature can be integrated with the outlet control structure that is recommended in biofiltration design.

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[1] Stormwater drywells have a variety of designs and may be referred to by other names including stormwater drainage wells, bored wells, and infiltration galleries. A Class V well by definition is any bored, drilled, or driven shaft, or dug hole that is deeper than its widest surface dimension, or an improved sinkhole, or a subsurface fluid distribution system (an infiltration system with piping to enhance infiltration capabilities).

- Include an alternative backup discharge location for biofiltered water, typically to the storm drain. This would allow the biofilter to continue to treat water and drain completed in the event that the drywell is offline, at capacity, or clogged.
- Route overflow from the biofiltration area directly to the storm drain and not to the drywell. This helps prevent unfiltered water from entering the drywell.
- Locate the drywell at the surface, adjacent to the biofilter, and not directly below it. This allows the inclusion of maintenance access in the form of an access hatch without the need to dismantle the biofilter. This alignment also allows for the inclusion of the shut off valve described above.

Maintenance Suggestions

Aside from the important design elements outlined above, and guidelines for their implementation, adequate maintenance is required to maintain a functioning system:

- Periodic replacement of the soil media is required to ensure that BMP soils feature low metal concentrations. Literature suggests that the soil adsorption of pollutants will eventually be saturated and soil material will need to be replaced. Unmaintained BMPs can result in breakthrough of metals and possible increased risk of groundwater contamination. This risk cannot be eliminated through design, and requires a dedicated life cycle maintenance program to ensure the system continues to project the groundwater resources form contamination risk. In general, biofiltration systems are expected to clog before pollutant accumulation reaches levels of concern (Pitt and Clark, 2010). Scraping the top 3 to 6 inches of media periodically can help extend life and minimize the risk of pollutant accumulation at levels of concern.

- Other common maintenance issues are vegetation die-off, which reduces the biofiltration function since they play an important role in long term permeability and pollutant uptake. Vegetation within a biofilter actively maintains the hydraulic conductivity of the planting media and vegetation die-off increases the risk of the BMP clogging. Vegetation should be maintained and should be actively replaced if it dies off.

- Sediment and debris accumulation which limits hydrologic connectivity to the BMP is another issue that can only be addressed through maintenance. Periodic removal of sediment and debris is recommended. This will also typically require replacement vegetation and the top layer of media if the entire surface of the biofiltration system is excavated.

Sediment capture pretreatment is considered a standard component of typical drywell construction to reduce the risk of clogging. In the proposed standard design, the biofiltration system provides appropriate sediment capture to protect the drywell, provided that export of particles from the biofiltration media itself is controlled with an effective separation layer. On average, biofilters outperform sediment basins because biofiltration BMPs filter much smaller sized particles (Geosyntec and WWE, 2014).

If desired, a sediment capture pretreatment BMP could be a useful component upstream of biofiltration since they protect the engineered biofilter media from excessive sediment fluxes which can affect plant growth and clog biofilters. Therefore, while not incorporated into this standard design, a pretreatment sediment capture system, such as a sedimentation chamber or forebay, is recommended to improve the longevity of the biofilter component of the treatment train. For larger biofiltration systems, an engineered pre-treatment system such as a sedimentation basin or hydrodynamic separator (where space constraints are an issue) could be considered for enhanced protection from clogging.

4 REGULATORY BARRIERS AND TECHNICAL DESIGN GUIDANCE OBSTACLES

The following regulatory and technical issues represent potential existing barriers to widespread implementation of drywells in California. It is recommended that these barriers be addressed to facilitate approval and use of drywell in the state.

- **Statewide drywell pretreatment standards or guidance**. Currently no regulatory framework exists in the State of California for permitting drywells or providing practitioners with guidance on pretreatment needs based on drainage area or soil conditions. For example, heavy industrial land uses with elevated metal and organic concentrations may require more advanced pretreatment or prohibition on drywells. Similarly, shallow groundwater or highly transmissive soils may require the same. Research is required to develop minimum standards (e.g., BMP unit process selection) for drywell implementation based on these site specific conditions. In addition there may be a need for specifications on contact time for pretreatment within the biofilter.

- **Appropriate infiltration test methods and factors of safety for drywells.** Infiltration testing methods are often approximations of full scale infiltration processes. Retrospective analysis of measured or estimated vs. actual infiltration capacity of drywells would be beneficial to evaluate which infiltration testing methods are most reliable and what factor of safety is needed to reliably develop capacity estimates from testing data.

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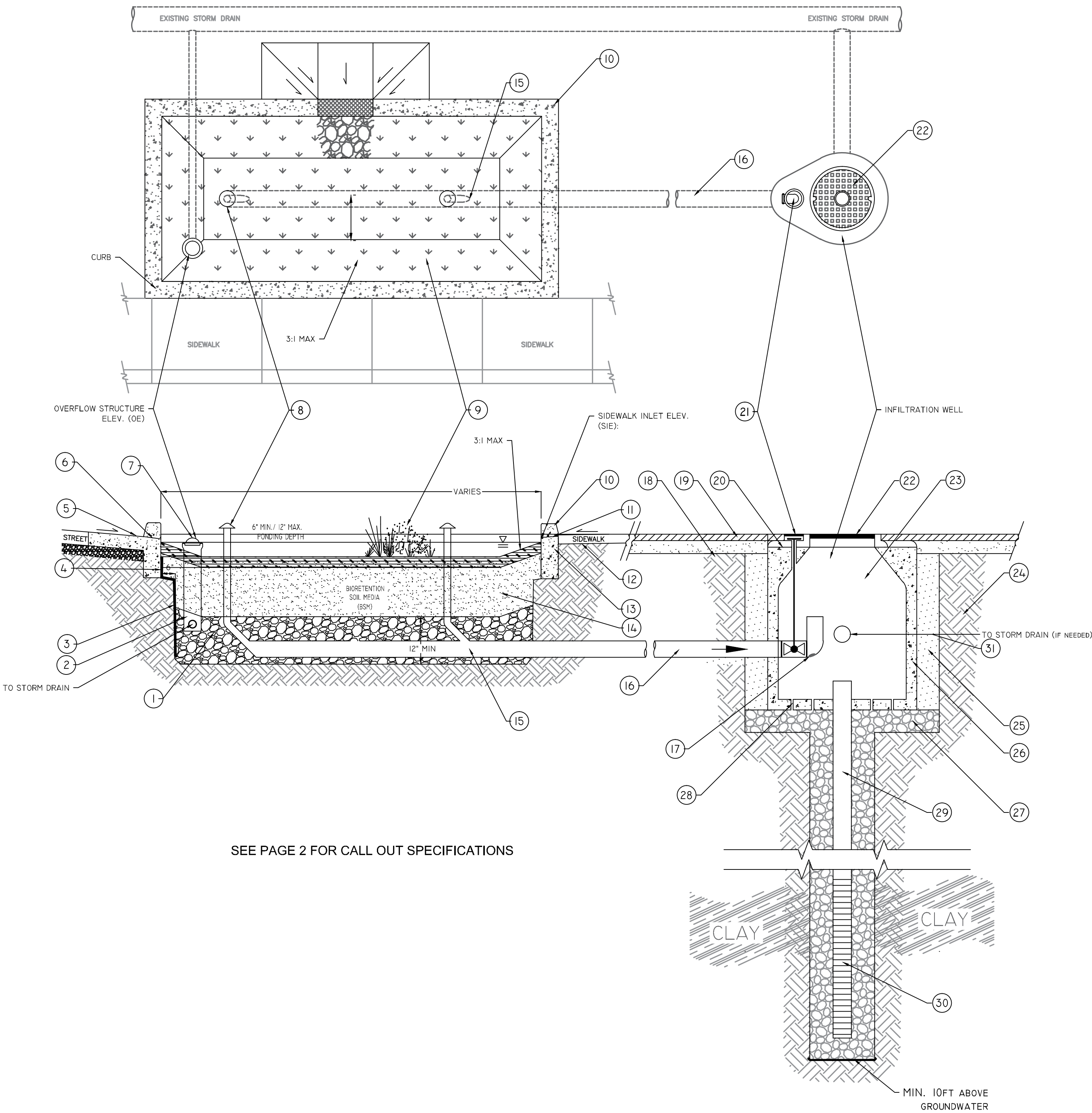


SEE PAGE 2 FOR CALL OUT SPECIFICATIONS

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS

DRYWELL STORMWATER BMP

(sloped sided, no on-street parking, sidewalk, underdrain, control vault outside of BMP)

Detail number

XX

Municipality
Department Name

SPECIFICATIONS

1. 12" DEEP OPEN GRADED WASHED STONE (TYPICALLY 3/4" TO 1-1/2" (ASTM #4 STONE) OR 1" TO 2" (ASTM #3 STONE).
2. BRIDGING LAYER(S) PER LIDI BIORETENTION TECHNICAL SPECIFICATIONS (BTS). DO NOT USE FILTER FABRIC BETWEEN BSM AND AGGREGATE. DO NOT USE FILTER FABRIC BETWEEN BIOFILTER SOIL MATERIAL (BSM) AND AGGREGATE.
3. 30 ML LINER MAY BE REQUIRED TO AVOID LATERAL INFILTRATION BELOW STREET; SUBJECT TO GEOTECHNICAL RECOMMENDATIONS.
4. MAINTAIN 6" MINIMUM BENCH OF NATIVE SOIL FOR SUPPORT OF ADJACENT SIDEWALK/ROAD (TYPICAL).
5. CURB AND GUTTER DETAIL 110.
6. CURB INLET DETAIL 120, GUTTER INLET ELEV (GIE). LOCATE ENERGY DISSIPATION COBBLE PADS AS SPECIFIED IN INLET DETAILS.
7. OVERFLOW STRUCTURE REQUIRED FOR IN-LINE SYSTEMS WITHOUT OVERFLOW BYPASS, DETAIL 140.
8. MAINTENANCE PIPES - 4" MIN. DIA. VERTICAL PVC PIPES CONNECTED TO UNDERDRAIN. PLACED AT START AND 3 FEET BEFORE END OF UNDERDRAIN. REQUIRES DIRECTIONAL SWEEP BEND. THREADED AND CAPPED
9. VEGETATION - PLANT SELECTION AND MULCH (OPTIONAL) PER BIORETENTION TECHNICAL SPECIFICATIONS.
10. 4" MIN. EXPOSED WALL HEIGHT
11. SIDEWALK DRAINAGE NOTCH 1" LOWER THAN SIDEWALK, SLOPED TO FACILITY
12. SEE PLANS FOR SIDEWALK RESTORATION
13. DEEP CURB DETAIL
14. BIORETENTION SOIL MEDIA (BSM). SPECIFICATION PER BIORETENTION TECHNICAL SPECIFICATIONS (BTS). SPECIFICATION SHOULD AVOID COMPOST OR OTHER MATERIAL KNOWN TO LEACH NUTRIENTS.
15. UNDERDRAIN, MIN. 4" DIA. PVC SDR 35 PERFORATED PIPE OR LARGER AS NEEDED TO CONVEY PEAK TREATED FLOWRATE WITH MINIMAL HEAD LOSS, SEE CONSTRUCTION NOTES.
16. 8" INLET PIPE OR OTHER.
17. LOW FLOW ORIFICE. (SEE DESIGN NOTE 11).
18. STABILIZED BACKFILL - TWO-SACK SLURRY MIX.
19. SIDEWALK PER MUNICIPAL STANDARDS.
20. COMPACTED BASE MATERIAL.
21. ACCESS HATCH WITH SHUT OF VALVE SWITCH. CONNECTED TO SHUT OF VALVE IN INLET PIPE.
22. MAINTENANCE HOLE COS TYPE 204-204 MH A OR B. ¾" I.D. MIN OBSERVATION PORT.
23. MANHOLE CONE - MODIFIED FLAT BOTTOM.
24. EXISTING SOILS. (SEE CONSTRUCTION NOTE 4, 8).
25. COMPACTED BACKFILL
26. PRE-CAST OR INSITU CAST CONTROL VAULT (SEE DESIGN NOTE 8)
27. ROCK - WASHED, SIZED BETWEEN 3/8" AND 1-1/2'
28. PERFORATED BASE OF CONTROL VAULT
29. DRILLED SHAFT WITH 6" WELDED STEEL OR THREADED PVC CASING (SEE DESIGN NOTE 13 & CONSTRUCTION NOTE 7,8)
30. 6 - 8" O.D. WELDED WIRE STAINLESS STEEL WELL SCREEN OR THREADED PVC SLOTTED SCREEN. SCREEN LENGTH + LENGTH + SLOT WIDTH TO BE DETERMINED IN ACCORDANCE WITH LOCAL CONSTRAINTS .I.E. DISTANCE BETWEEN CLAY LAYER AND MIN. 10FT ABOVE SEASONAL HIGH GROUNDWATER LEVEL
31. PVC STORMDRAIN CONNECTOR PIPE. SAME DIAMETER AS INFLOW PIPE TO CONTROL VAULT.

DESIGN NOTES

1. ADDITIONAL DESIGN GUIDANCE FOR BIOFILTRATION SYSTEM PROVIDED IN LIDI BIORETENTION TECHNICAL SPECIFICATIONS (BTS) DOCUMENT.
2. BOTTOM WIDTH - PROVIDE 2 FT MINIMUM FLAT BREGENALL
3. OTTOM WITH A MAX 3:1 SLOPE FOR SURFACE FINISHING WITHIN BIOFILTRATION SYSTEM
4. IF CALTRANS CLASS 2 PERMEABLE IS NOT AVAILABLE, SUBSTITUTE CLASS 3 PERMEABLE WITH AN OVERLYING 3" DEEP LAYER OF ¾" (NO. 4) OPEN-GRADED AGGREGATE.
5. PROVIDE SPOT ELEVATIONS AT INLETS ON CIVIL PLANS (FE, OE, GIE, SIE). SEE DETAIL 120.
6. EDGE CONDITION WILL VARY FOR NEW AND RETROFIT PROJECTS. CURB, WALL, AND SIDEWALK DETAILS MAY BE MODIFIED FOR PROJECT BY CIVIL AND GEOTECHNICAL ENGINEERS.
7. PROVIDE MONITORING WELL IN EACH FACILITY, PER BIORETENTION TECHNICAL SPECIFICATIONS.
8. LONGITUDINAL SLOPE 6% WITH CHECK DAMS.
9. IF CHECK DAMS ARE NEEDED, SEE CONCRETE CHECK DAM DETAIL 121.
10. VARIATIONS IN DRY WELL DESIGN SHOULD BE MADE TO ACCOMMODATE STORAGE VOLUME DESIGN AND TO SUIT LOCAL CONDITIONS AND CONSTRAINTS.
11. IN AREAS WITHOUT A STORMDRAIN, THE SYSTEM SHOULD ONLY BE CONSTRUCTED WHERE THE MAINTENANCE HOLE SURFACE INVERT IS ABOVE THE BIOFILTER OVERFLOW ELEVATION.
12. ALTERNATIVE VAULT LOCATIONS POSSIBLE INCLUDING WITHIN THE BIOFILTER FOOTPRINT.
13. VALVE CAN BE MOVED TO THE BIOFILTER IF DESIRED. REQUIRES STRUCTURAL SUPPORT.
14. ALTERNATIVE PRODUCTS SUCH AS VENDOR-SUPPLIED DRY WELL PRODUCTS MAY BE USED AS A SUBSTITUTE PROVIDED THAT THE ALTERNATIVE PRODUCT IS EQUAL.

LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS

DRYWELL STORMWATER BMP

(sloped sided, no on-street parking, sidewalk, underdrain, control vault outside of BMP)

Municipality
Department Name

Detail number

XX

Dry Wells
Uses, Regulations, and Guidelines in California and Elsewhere

Dry Well Description and Use

Dry wells are gravity-fed excavated pits lined with perforated casing and backfill d with gravel or stone (Fig. 1). Dry wells penetrate layers of clay soils with poor infi trati n rates to reach more permeable layers of soil, allowing for more rapid infiltra n of stormwater. They can be used in conjunction with low impact development (LID) practices to reduce the harmful eff cts that traditi nal stormwater management practice have had on the aquati ecosystem. Dry wells not only aid in stormwater runo reducti n, but they can also increase groundwater recharge, are economical, and have minimal space requirements.

Figure 1. Idealized drawing of stormwater infiltration using a dry well

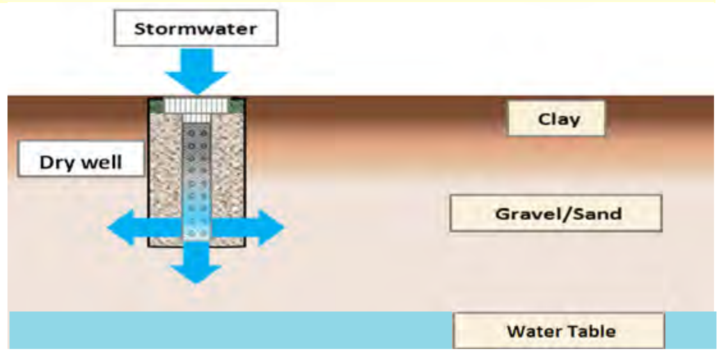


Fig. 2. Dry well installed to receive runoff flowing through a lawn (Source: R. Pitt)

In California, dry wells are used infrequently and with caution due to the concern that they provide a conduit for contaminants to enter the groundwater. In urban environments, scienti c reports show a lack of correla on between the use of dry wells and groundwater contaminati n (Jurgens 2008, Los Angeles 2005). As a consequence, stormwater/LID guidelines o en do not include dry wells. Regional Water Quality Control Boards' Standard Urban Stormwater Management Plans (SUSMP) also differ in technical speci cati ns for dry well construction The California Department of Water Resources' (DWR) well water regulation are interpreted by some to have applicability to stormwater infiltra n through dry wells. Due to the desire to maintain high groundwater quality and the lack of clarity about various technical considerati ns, many are reluctant to incorporate dry wells into stormwater management projects.

U.S. Environmental Protection Agency (EPA) - Region 9 Regulations

Dry wells and other buried infiltrativ devices serving lots other than single-family homes are subject to the U.S. Environmental Protecti n Agency (US EPA) Underground Injection C ntrol (UIC) regulati ns. A dry well is considered a Class V injec on well, which is de ned as a conduit for non-hazardous fluids hat is deeper than it is wide. Dry wells may be authorized to operate as long as they are registered with the US EPA, and only inject uncontaminated stormwater. The US EPA has no design requirements for dry wells; that responsibility is left to l cal authorities. However, the following design prac ces are encouraged:

- Should not be constructed deeper than the seasonal high water table.
- Follow local guidelines for setback distances from the dry well bottom to the water table.
- Go through a thorough site evaluati n to prevent the spread of contaminants.
- Util ze pretreatment to remove sediment and the pollutants that they frequently carry.
- Use backfil to improve dry well column stability.

The US EPA has also set forth the following minimum requirements for Class V wells:

- Register injecti n wells at www.epa.gov/region09/water/groundwater/injec on-wells-register.html
- Operate injecti n wells in a way that will not endanger underground sources of drinking water (USDW).
- Abandoned Class V wells should be properly destroyed, with no fica n to the US EPA, to prevent movement of contaminated flu ds into USDW.

US EPA Regulations (continued)
In California, Class V wells are overseen by the US EPA's Region 9 office Class V wells already in place that are not in the registry must cease use and the operator must contact the Regional office An applicati n and inventory form must be submitted and injectio can resume a er 90 days, if approved. Aft r an inventory form is submitted the UIC Program will determine if the user is authorized to "inject". A well will be prohibited if the user endangers drinking water, fails to submit inventory informati n or an application to the UIC Program, or fails to respond to a written request from the UIC Program. Some dry wells in the State have been constructed without going through this registrati n process while some countie (e.g., Los Angeles) enforce registrati n as part of permitting n development.

The Role of the California Regional Water Quality Control Board

The State Water Resources Control Board and the Regional Water Quality Control Boards in California can prescribe requirements for discharges into California waters, including groundwater. Under California's Porter-Cologne Act, the Water Boards have the authority to require a person wishing to operate an injection well to file a report of the discharge. These requirements must implement the Boards' water quality control plans (Basin Plans). The requirements must take into considerati n the beneficial uses (domesti water, irrigati n, etc.) of the aff cted water and the water quality objective necessary to protect these bene cial uses, as well as the need to prevent a nuisance.

California's Anti-Degradation Policy

When evaluating the risk and bene ts of using dry wells, California's an -degradati n policy (State Water Resources Control Board Resolution No. 68-16) is also considered. The an -degradati n policy protects high quality water (water that is higher in quality than that prescribed by the Water Boards' plans and policies). Degradati n of high quality water is permitted only if the discharge provides a maximum benefi to the people of the State, does not violate the Boards' Basin Plans and policies, and when the discharge is controlled by the best practicab e treatment. The maximum bene t to the State is determined on a case by case basis taking into account the benefici l uses of the water, economic and social costs, the environmental aspects of the proposed discharge, and the implementati n of feasible alternati e treatment or control methods. Factors to be considered when evaluating the use of dry wells for stormwater management could involve determining if they:

- Provide an addition l source of water to augment the water supply,
- Reduce the negative eff cts of runo fl wing to surface waters, and
- Minimally impact groundwater quality.

Considera on and interpretation f these and related factors are the basis on which the state's an -degradati n policy is applied to dry well use and siti g.

Typical Dry Well Guidelines at the Local Level

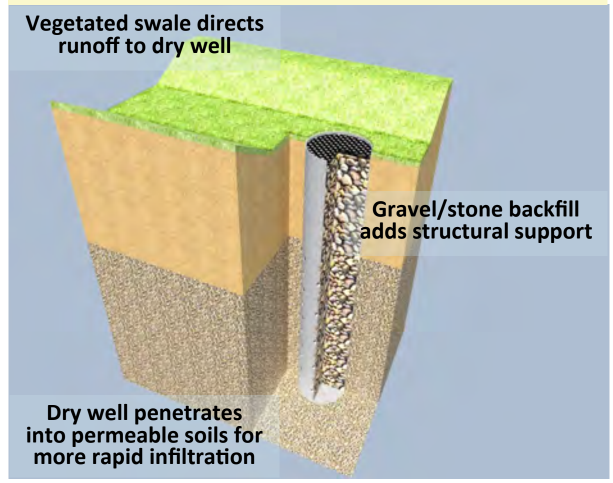
Dry Wells and Water Well Protection Policy

Throughout California, county environmental management departments are charged with implementing California DWR regula ons (Bulleti s 74-81, 74-90) to protect wells used to supply drinking water. These regulati ns are designed to prevent contaminati n of groundwater through improperly constructed or decommissioned wells. County sta regularly inspect wells and the area around them to evaluate compliance with regulati ns. The very process that dry wells are designed to facilitate, namely the in ltrati n of stormwater, stands in contradictio to the goals of Bulletin 74, which prohibits surface water from entering injection wells. Currently, individual county environmental health departments in California use their best professional judgment to evaluate how to manage this challenge.

Local Guidelines

Many requirements and design specifi ati ns for dry wells come from guidelines linked to the NPDES (Nati nal Polluti n Discharge Eliminati n System) permits, issued by the State or Regional Water Boards. In a few locales, city or county requirements also exist. In Los Angeles County, for example, informati n on placement and design of dry wells must be submitted as part of the permittin process for new development. Not all citi s and counti s have such requirements.

Figure 3. Example dry well system design



Local Guidelines (continued)

Design specifica ns di er by city/county, with some standards varying signi cantly. Local authorities should be consulted for specific guidelines. The following lists some of the common standards of the Los Angeles and San Diego SUSMPs as well as the Placer County LID Manual (documents that are linked to NPDES permits):

- Building setback: 10 – 20 feet minimum
- Soil: not suitable in soils with >30% clay or >40% silt
- Water table: 3 – 10 feet minimum separati n between dry well botto and seasonal high water table
- Public supply wells: 100 feet minimum setback
- Separati n (center to center): 100 feet minimum
- Penetrati n: 10 feet minimum into permeable porous soils
- Dry well surface inlet: 3 inch minimum above bo om of reten on basin
- Should not be used at sites with a slope >15%. (San Diego does not recommended sites with slopes >40%).

In 1951, the Regional Water Quality Control Board in the Bay Area restricted the use of dry wells in an eff rt to protect groundwater quality. Today, the San Francisco Public Util es Commission recommends construc ng drainage wells that are much wider than deep, therefore, they are not technically dry wells. The City of Modesto is a somewhat unique case in California in that they have been using dry wells for over 50 years as one of their principal runo management tools. Dry wells are carefully scrutini ed under the NPDES/MS4 permit. The Central Valley Regional Board requires the City of Modesto to perform extensive monitoring of stormwater and groundwater. The use of dry wells has not directly resulted in groundwater problems in Modesto (Jurgens 2008).

Dry Well Regulations in Other States

Over a dozen other states have dry well requirements in place. States surrounding California may provide a helpful overview of statewide dry well requirements currently being implemented. Oregon, for example, permits the use of dry wells, but they must be sited and constructed following their guidelines. Dry wells also must be registered with the state prior to constructio and a fee, based on a sliding scale that is propor onal to risk, must be paid. Arizona is another state that has used dry wells for many decades. They too have a registrati n system along with a fee system. The table below compares regulati ns between Arizona and California, both located in US EPA Region 9.

Arizona	California
Falls under USEPA Region 9 UIC program for Class V injection wells.	Falls under USEPA Region 9 UIC program for Class V injectio wells.
Dry wells **must** be registered with the Arizona Department of Environmental Quality (ADEQ). Fee are required when registering.	Regional Water Quality Control Boards **can** prescribe discharge requirements for injection wells.
Requires Aquifer Protection Permit and approval by ADEQ prior to construc on.	No statewide permittin requirements for the use of dry wells.
Requires information on design, pollutant characteristics and closure strategy.	Regional Water Quality Control Boards may require a report of discharge and other informa on. No formal, statewide process for registra on or monitoring.
Requires monitoring, recordkeeping and reporting, con ngency planning, discharge limitations a compliance schedule, and closure guidelines.	Injec on well requirements must protect beneficial uses (comply with the An -Degrada on policy).
A general permit covers facilities that have obtained a NPDES/MS4 permit and have a stormwater pollu on prevention plan implemented.	Requirements may vary by region and municipality.

Regulations in Other States (continued)

Pennsylvania, New Jersey, Washington, and Hawaii are a few of the others states with dry well regulations and guidelines. In New Jersey, some communities require dry well installation for all new and major remodels related to residential construction. They are typically designed to temporarily store and infiltrate roof runoff. Dry wells in New Jersey are prohibited in industrial or other areas where toxic chemicals might be used. In contrast, in Pennsylvania dry wells are permitted in industrial areas with restrictions, but not along roadways. In Washington, dry wells must be registered and constructed to specifications. The regulations of these states vary with respect to dry well design, use of pretreatment, separation from drinking water sources, distance from the water table, and other factors.

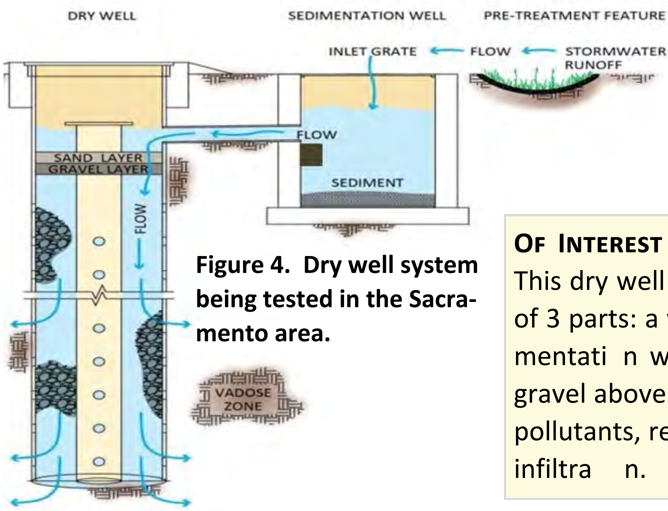


Figure 4. Dry well system being tested in the Sacramento area.

OF INTEREST Most dry wells are not holes in the ground fille with rocks. This dry well system (left is being tested in the Sacramento area. It consists of 3 parts: a vegetated pretreatment feature, a structural pretreatment sedimentati n well, and the dry well itself, which contains layers of sand and gravel above the rocks. The goal of this design is to maximize the removal of pollutants, reduce clogging of the dry well, and promote e cient stormwater infiltra n.

Conclusions

Currently there are no uniform state regulations or guidelines for dry wells in California. However, the Regional Water Quality Control Boards have the discretion to issue waste discharge requirements and to interpret and apply the Anti-Degradation policy to the construction of new dry wells. Therefore, most regulations and guidelines occur at the city or county level and vary by region. Available information suggests that dry wells can be used safely if careful site evaluations are performed to determine if a dry well is suitable for the location. They can be an alternative to typical storm drainage systems that provide numerous benefits, including reducing localized flooding, recharging the aquifer, supporting the implementation of LID practices in areas with clay soils, thereby minimizing alterations to the hydrologic cycle which have damaging effects on valuable aquatic resources.

Useful Links and References

<u>**General Information**</u>

US EPA Class V Injection Well Information

http://water.epa.gov/type/groundwater/uic/index.cfmvv

US EPA California Injection Well Guidelines

http://www.epa.gov/region9/water/groundwater/uic-pdfs/calif5d-muniguide.pdf

<u>**Forms and Registration**</u>

EPA Region 9 Injection Well Registration

http://www.epa.gov/region09/water/groundwater/injection-wells-register.html

Region 9 Injection We l Contact: r9iwells@epa.gov

<u>**References**</u>

Jurgens, B.C., K.R. Burow, B.A. Dalgish, & J.L. Shelton. 2008. Hydrogeology, water chemistry, and factors affec g the transport of contaminants in the zone of contribu on of a public-supply well in Modesto, eastern San Joaquin Valley, California. National Water Quality Assessment Program, U.S. Geological Survey, Scientific Inve ga on Report 2008-5156.
http:// ubs.usgs.gov/sir/2008/5156/pdf/sir20085156.pdf

The Los Angeles and San Gabriel Rivers Watershed Council. 2005. Los Angeles Basin Water Augmentation Study, Phase II Final Report. Los Angeles, CA. Posted at:
http://wate shedhealth.org/Files/document/265_2005_WAS%20Phase%20II%20Final%20Report_2005.pdf

This factsheet was prepared by the California Office of Environmental Health Hazard Assessment, which is working with the City of Elk Grove on a Proposition 84 funded study of the potential risks to groundwater quality associated with the use of dry wells. Written by Nelson Pi & Ary Ashoor. For more information, contact Barbara Washburn, PhD at barbara.washburn@oehha.ca.gov.

APPLICATION TO STORE AND RECOVER NON-NATIVE WATER FROM THE SEASIDE GROUNDWATER BASIN

INSTRUCTIONS: This Application form is for use by Standard Producers in the Seaside Groundwater Basin (Seaside Basin) for the purpose of obtaining approval from the Seaside Basin Watermaster (Watermaster) to store Non-Native water in, and to subsequently recover that stored water from, the Seaside Basin. The application process is as described in Section III.L.3.j.xx of the Amended Decision of the Monterey County Superior Court, Case No. M66343, filed February 9, 2007.

____

Name of Standard Producer (Applicant)

Contact Information for Applicant:

Contact Person: ____

Address: ____

Telephone: ____

Proposed quantity of non-native water Applicant seeks to store through spreading or direct injection into the Seaside Basin (acre-feet per year):

____

Proposed location(s) where the spreading or direct injection of non-native water into the Seaside Basin will occur. If injection will be performed using one or more injection wells, provide indentifying information for those wells including the aquifer(s) into which the injection will occur. If spreading will be performed, provide coordinate location information, as well as any physical street address information for the proposed location.

____

____

____

____

Proposed location(s) where the stored water may be recovered. Provide identifying information for each well from which the stored water will be recovered, including the aquifer(s) from which recovery will occur.

Water quality characteristics of the non-native water proposed for spreading or direct injection into the Seaside Basin. Provide sufficient physical, chemical, and microbiological information about the water being proposed for storage, so that the Watermaster can determine whether or not storing such water will have any adverse water quality impacts on the Seaside Basin. Provide this information in the form of analytical results from a properly certified water testing laboratory, attached to this Application.

Also provide sufficient information to demonstrate to the Watermaster that the water quality characteristics of the water being proposed for storage will meet all of the requirements imposed on the Applicant by permits and/or approvals issued to the Applicant by the regulatory agency or agencies with jurisdiction.

Permits and approvals from regulatory agencies. Attach copies of all permits and approvals the applicant has received from regulatory agencies, which relate to the storage of water in the Seaside Basin. Such agencies will likely include some or all of the following:

- California Regional Water Quality Control Board
- California Department of Public Health
- County of Monterey Department of Health
- State Water Resources Control Board

APPENDIX G
Hartnell Gulch Project Concept Designs and Preliminary CEQA Checklist

APPENDIX G: HARTNELL GULCH PROJECT DESIGNS AND CEQA CHECKLIST

This appendix contains information developed for the top selected multi-benefit project, Hartnell Gulch, located in the City of Monterey. Appendix components include the project description, 30% design drawings, Project Implementation Plan, and Preliminary CEQA Checklist.

These items are provided on the following pages of this appendix:

* * * *

1. HARTNELL GULCH RESTORATION AND RUNOFF DIVERSION PROJECT

SITE DESCRIPTION

Jurisdiction:	City of Monterey
Location:	Hartnell Gulch from Pacific Street downstream to Hartnell Street and from the southeastern corner of the Pacific Street public parking lot downstream to the confluence with Hartnell Creek.
Land Owner:	City of Monterey
Catchment[1]:	CM-11
Length of Creek Rehabilitation:	616 feet
Area of Vegetation Replacement:	0.70 acres

PROJECT CONCEPT

The project area within the drainage area to the proposed Hartnell Gulch project is shown on Figure 1A. The drainage area primarily includes residential and undeveloped areas includes the tributary catchment areas of two partially daylighted and partially culverted streams, Hartnell Creek's north fork and south fork. The confluence of these streams is located within the proposed project footprint. The catchment area to the north (546 acres) drains to the northern fork of Hartnell Creek and enters the project area at Pacific Street (Figure 1B). The catchment area to the south (557 acres) drains to the southern fork of Hartnell Creek and enters the project area east of the Pacific Street public parking lot (i.e., Cypress Lot) (Figure 1B). Drainage from the upstream residential areas flow to the east and northeastward toward the Monterey City center. Hartnell Creek's north and south fork channels flow into storm drains upstream of the project area. Perennial seepage of groundwater under the Monterey High School football field flows into the project area via the north fork at a rate of approximately 50,000 gallons per day. The project location is in a commercial area adjacent to the Monterey Public Library, where the creeks resurface and converge. Downstream of the project location, the creek is piped to an outfall that discharges to Monterey Bay, although this piped flow could be directed to Lake El Estero as part of the proposed Lake El Estero Diversion to Sanitary Sewer project.

The Hartnell Gulch project is comprised of two components: (1) creek rehabilitation, and (2) dry weather flow diversion to sanitary sewer, as shown on Figure 1B. The upstream boundaries of the project extent is located where the north fork of Hartnell Creek daylights at Pacific Street and where the south fork drains onto city property at the southeastern corner of the Pacific Street public parking lot (i.e., Cypress Lot). The downstream boundary of the project extent is located where Hartnell Creek is culverted at Hartnell Street. The creek rehabilitation is proposed to consist of removal of invasive plants, revegetation with native plants, and stabilization of the existing eroded channel. The grade of the channel bed would be raised several feet throughout the project area and bank stabilization and buried grade controls would be included to limit future instream erosion.

[1] See Monterey Peninsula Water Recovery Study Report, Appendix D, Figure 2A Catchment Detail Map.

Additionally, a drop structure is proposed to be placed at the downstream end of the project area to limit future instream erosion. Elevating the streambed would also provide aesthetic benefits, including increasing public access with construction of a pedestrian walkway alongside the creek bank. Photos of the existing conditions of Hartnell Gulch in Figure 1C. The proposed Hartnell Gulch revegetation plan from Ecological Concerns Incorporated (2016) is shown in Figure 1D and example riparian projects is shown in Figure 1E.

The project dry weather flow (April to October) diversion would entail tie-in and discharge to the sanitary sewer. Flows would be directed to the Monterey One Water Regional Treatment Plant (RTP) for recycling, to augment water supply. Project dry weather flows are proposed to be diverted at the downstream boundary of the project area, as shown on Figure 1B. Flow diversion structures will redirect dry weather flows from the channel to the 8-inch diameter sewer main on Hartnell Street via a proposed in-stream stop log structure, gravity pipe, hydrodynamic separator, pump station, forcemain, and new sanitary sewer manhole.

A preliminary Environmental Checklist has been prepared to evaluate the project based upon the 30% design (DD&A, 2018).

Proposed project is conceptual and subject to change based on future feasibility assessment, funding availability, and/or other information.

DESIGN INFORMATION

Tributary Drainage Area (TDA):	1,103 acres
TDA Imperviousness:	18 %
TDA Urbanized Area:	970 acres
Dry Weather Seepage Runoff:	28 acre-feet per year (April to October)
Dry Weather Nuisance Runoff:	23 to 32 acre-feet per year (April to October)
Sanitary Sewer Diversion Pump Rate[1]:	200 gallons per minute
Length of Diversion Pipeline:	80 feet

[1]Sanitary sewer diversion pump rate estimated based on: excess conveyance capacity of the gravity sewer main; excess capacity of the M1W Interceptor Pipeline with other potential runoff diversions; and the dry weather runoff rate.

PROJECT BENEFITS

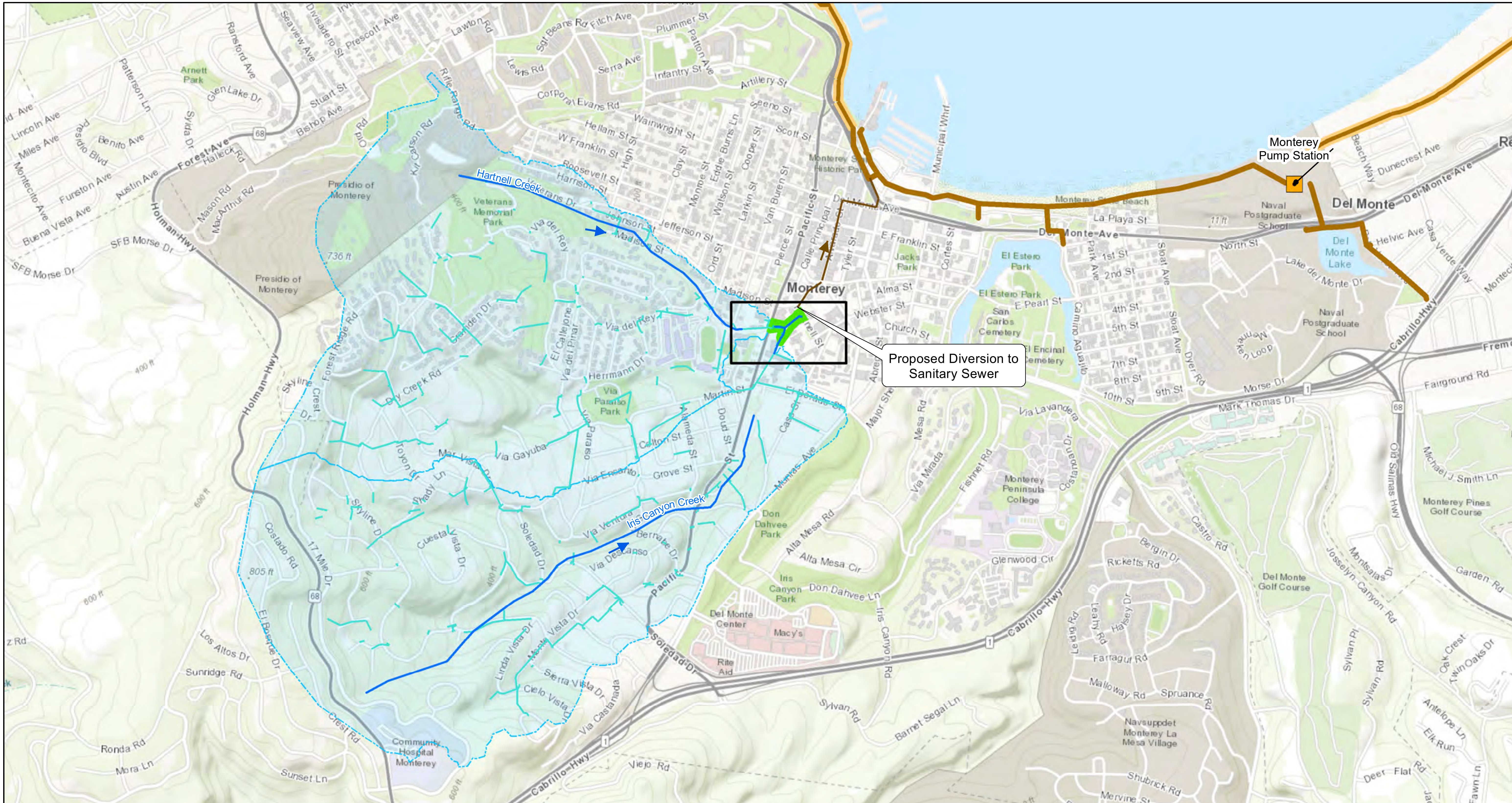
Net Recovered Water Volume:	51 to 60 acre-feet per year (April to October)
Sediment Load Reduced:	The project will reduce discharge of sediment and associated pollutants through diversion of dry weather flows. The stream restoration component of the project is not anticipated to affect sediment loads from the watershed except for sediment loadings associated with in-stream sources of Hartnell Gulch.
Flood Management Benefits:	Stabilization of the bed and banks are anticipated to prevent excess erosion of the creek.
Natural Drainage System Benefits:	Creek rehabilitation will include stabilization of incised creek channel.

Habitat or Open Space Benefits:	Rehabilitation of riparian corridor and re-establishment of native vegetation.
Community Benefits:	Placement of a public walkway along creek channel with informational signage. The drainage area to Hartnell Gulch contains a Disadvantaged Community (DAC).

COST ESTIMATE

DESCRIPTION	PRELIMINARY COST
Capital Cost	$1,300,000
Annual Operations and Maintenance Cost[2]	$35,000 per year
Estimated Life Cycle Annual Cost[3]	**$110,000 per year**
Unit Project Cost of Recovered Water	**$ 1,800 to $2,100 per acre-foot**

[2] Includes sewer connection fees at the Regional Treatment Plant for the dry season, only.
[3] Assumes 30-year design life at 4% interest rate.



Legend

- Hartnell Gulch Project Footprint
- Hartnell Gulch Project Drainage Area
- Project Map Extent
- Stream
- Watershed Delineation

Existing Infrastructure

- M1W Interceptor Pipeline - Pressurized
- M1W Interceptor Pipeline - Gravity
- Sanitary Sewer
- Storm Drain
- Pump Station

N

0 0.5 Miles

Hartnell Gulch
Restoration and Runoff Diversion Project
Monterey, CA
Catchment Map
Monterey Peninsula Stormwater Resource Plan

Geosyntec consultants | Monterey One Water — Providing Cooperative Water Solutions

Figure 1A

Oakland, CA | Spetember 2018

P:\GIS\MRWPCA\Project\Concept Projects\1. Hartnell Gulch\Hartnel Gulch.mxd 9/19/2018 11:04:13 PM

Legend

Hartnell Gulch Project Footprint

Existing Infrastructure

- Sanitary Sewer
- Storm Drain
- Open Channel

Proposed Control Measures

- Low-Flow Diversion Structure
- Wet Well Pump
- Buried Grade Control
- Diversion to Sanitary Sewer
- Drop Structure

N

0 200 Feet

Hartnell Gulch
Restoration and Runoff Diversion Project
Monterey, CA
Project Map
Monterey Peninsula Stormwater Resource Plan

Geosyntec consultants | Monterey One Water Providing Cooperative Water Solutions

Figure 1B

Oakland, CA | September 2018

P:\GIS\MRWPCA\Project\Concept Projects\1. Hartnell Gulch\Hartnel Gulch Zoom.mxd 9/19/2018 11:10:20 PM

30% Design Plan Set

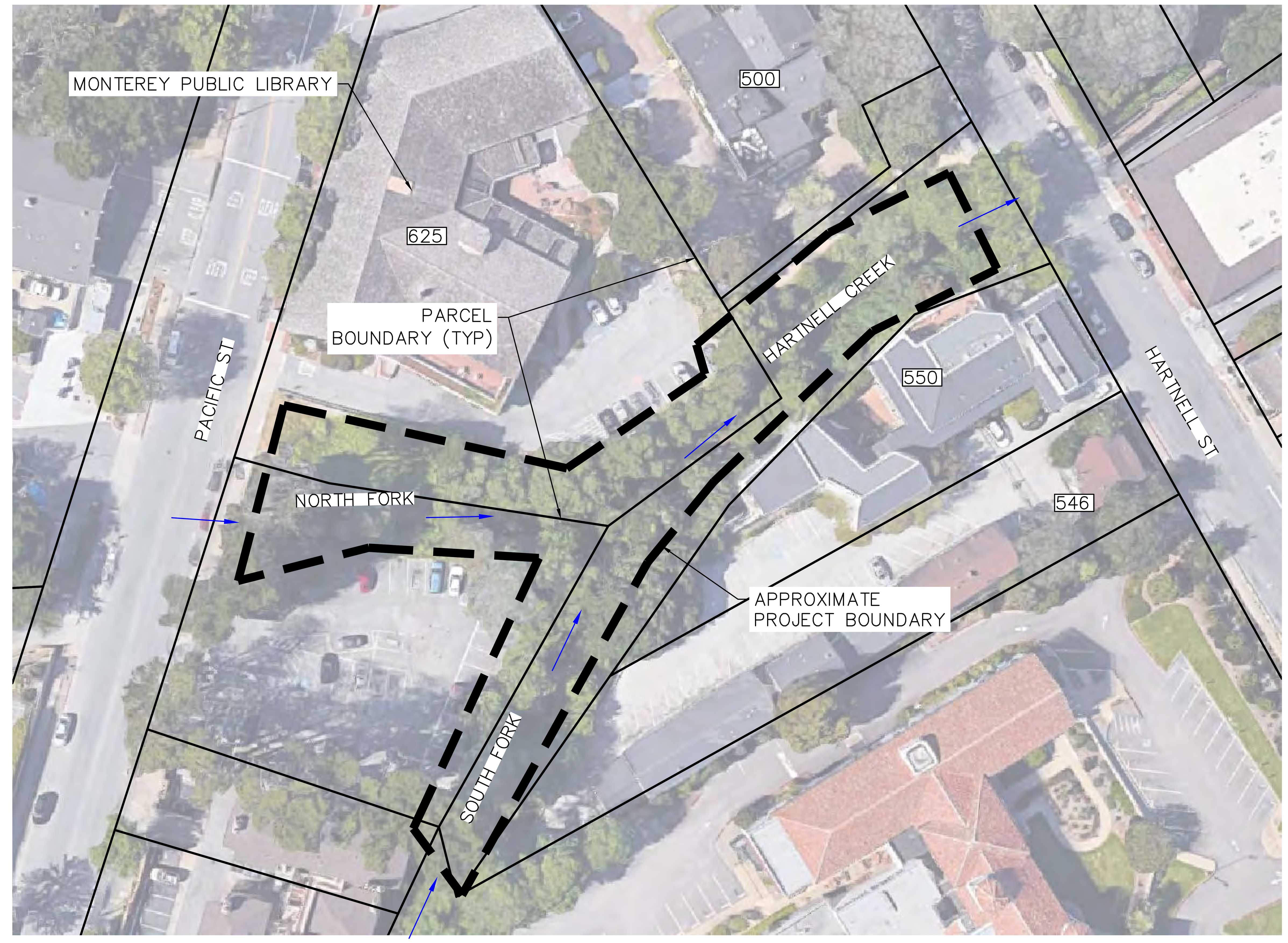
HARTNELL GULCH RESTORATION AND RUNOFF DIVERSION PROJECT

FOR THE

CITY OF MONTEREY

VICINITY MAP

0 1,000' 2,000' 4,000'



LOCATION MAP

0 20' 40' 80'

SHEET INDEX

SHEET NO.	TITLE
1	TITLE SHEET
2	SITE AND GRADING PLAN
3	PROFILES
4	SECTIONS
R1	INVASIVE PLANT REMOVAL PLAN
R2	NATIVE PLANTING PLAN

30% PLANSET

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DATE	DATE

REGISTERED PROFESSIONAL ENGINEER JUDD A. GOODMAN C 73783 EXP. ____ CIVIL STATE OF CALIFORNIA

DESIGNED BY:	J. A. G.
DRAWN BY:	J. L. A.
CHECKED BY:	D. L.
CAD DWG NAME:	

NO.	DATE	REVISION

HARTNELL GULCH RESTORATION AND RUNOFF DIVERSION PROJECT

TITLE SHEET

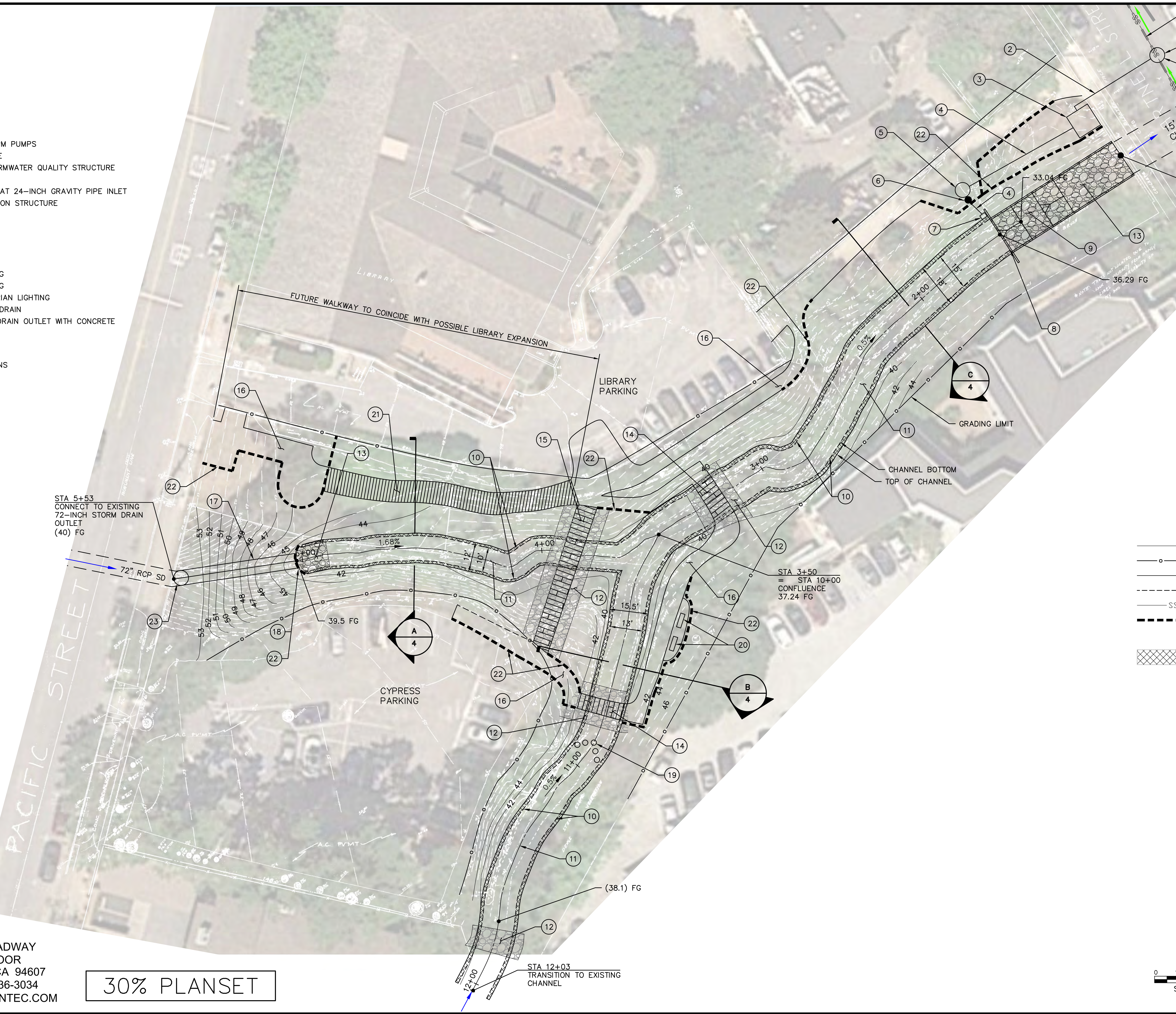
SCALE: AS SHOWN

DATE: SEPTEMBER 2018

SHEET: 1 OF 6

CONSTRUCTION NOTES:

1. CONSTRUCT SANITARY SEWER MANHOLE
2. CONSTRUCT 4-INCH DIAMETER FORCEMAIN
3. CONSTRUCT PUMP STATION FOR 2 – 200 GPM PUMPS
4. CONSTRUCT 24-INCH DIAMETER GRAVITY PIPE
5. CONSTRUCT HYDRODYNAMIC SEPARATOR STORMWATER QUALITY STRUCTURE
6. CONSTRUCT 24-INCH GATE VALVE
7. CONSTRUCT HEADWALL WITH TRASH SCREEN AT 24-INCH GRAVITY PIPE INLET
8. CONSTRUCT REMOVABLE WEIR BOARD DIVERSION STRUCTURE
9. CONSTRUCT IN-STREAM DROP STRUCTURE
10. CONSTRUCT CHANNEL BANK REVETMENT
11. CONSTRUCT CHANNEL BED ARMOR LAYER
12. CONSTRUCT BURIED STONE GRADE CONTROL
13. CONSTRUCT STONE ENERGY DISSIPATION
14. CONSTRUCT 20-FOOT SPAN BRIDGE CROSSING
15. CONSTRUCT 60-FOOT SPAN BRIDGE CROSSING
16. CONSTRUCT ACCESS WALKWAY WITH PEDESTRIAN LIGHTING
17. CONSTRUCT 72-INCH DIAMETER RCP STORM DRAIN
18. CONSTRUCT HEADWALL AT 72-INCH STORM DRAIN OUTLET WITH CONCRETE ENERGY DISSIPATOR
19. CONSTRUCT IN-STREAM TRASH RACK
20. CONSTRUCT BENCH AND SIGNAGE
21. CONSTRUCT ACCESS FOOTBRIDGE ON CAISSONS
22. CONSTRUCT RETAINING WALL
23. CONSTRUCT 6-FOOT STORM DRAIN MANHOLE



LEGEND:

45	PROPOSED CONTOUR
	GRADING LIMIT
	FLOW CENTERLINE
	TOE OF BANK SLOPE
SS	EXISTING SANITARY SEWER
	RETAINING WALL
	FLOW ARROW
	STREAM BANK REINFORCEMENT
	SLOPED GRADE
45 FG	PROPOSED GRADE
(45) FG	EXISTING GRADE

N

0 10' 20' 40'
SCALE IN FEET
1" = 20'

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DATE

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JUDD GOODMAN, P.E. C 73783
SENIOR ENGINEER
DATE

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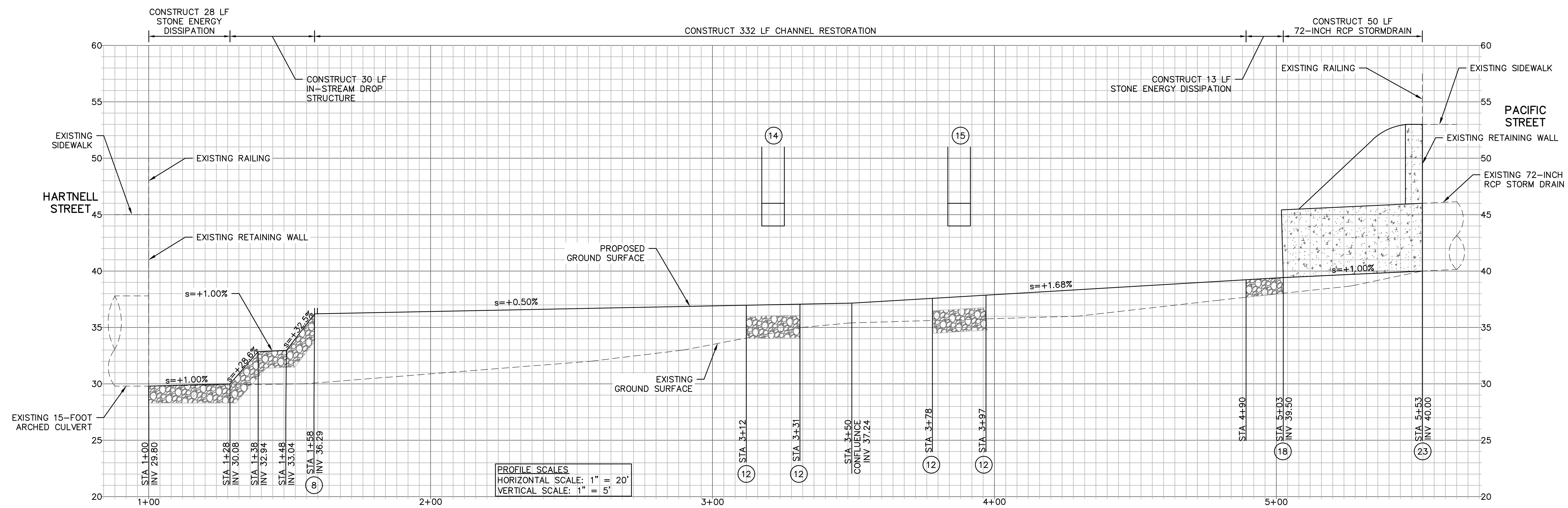
DRAWN BY: J. L. A.
CHECKED BY: D. L.
CAD DWG NAME:

NO.	DATE	REVISION

HARTNELL GULCH RESTORATION AND RUNOFF DIVERSION PROJECT

SITE AND GRADING PLAN

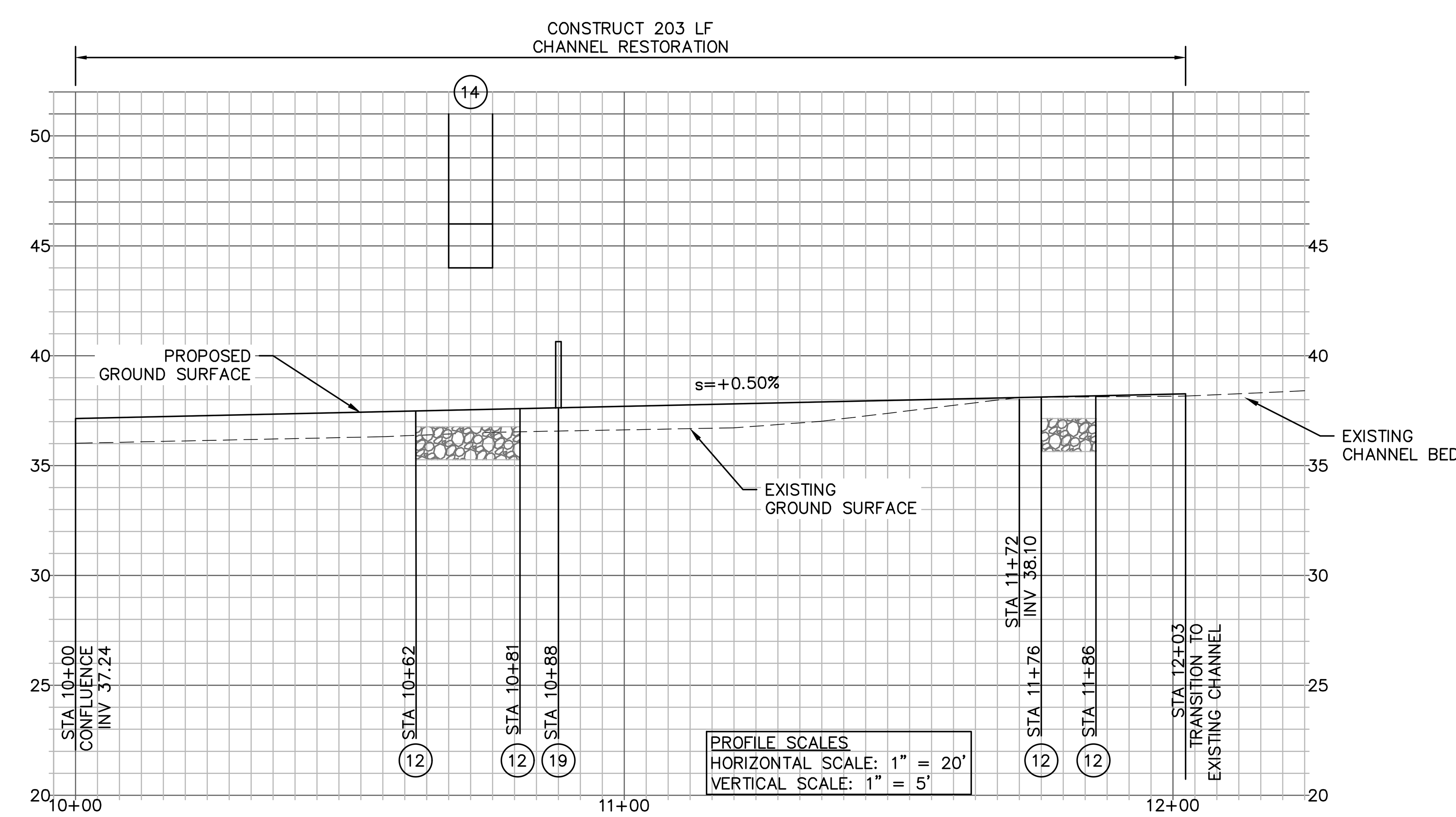
SCALE: 1" = 20'
DATE: SEPTEMBER 2018
SHEET: 2 OF 6



HARTNELL CREEK AND NORTH FORK PROFILE

CONSTRUCTION NOTES:

8. CONSTRUCT REMOVABLE WEIR BOARD DIVERSION STRUCTURE
12. CONSTRUCT BURIED STONE GRADE CONTROL
14. CONSTRUCT 20-FOOT SPAN BRIDGE CROSSING
15. CONSTRUCT 60-FOOT SPAN BRIDGE CROSSING
18. CONSTRUCT HEADWALL AT 72-INCH STORM DRAIN OUTLET WITH CONCRETE ENERGY DISSIPATOR
19. CONSTRUCT IN-STREAM TRASH RACK
23. CONSTRUCT 6-FOOT STORM DRAIN MANHOLE



SOUTH FORK PROFILE

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DATE	DATE

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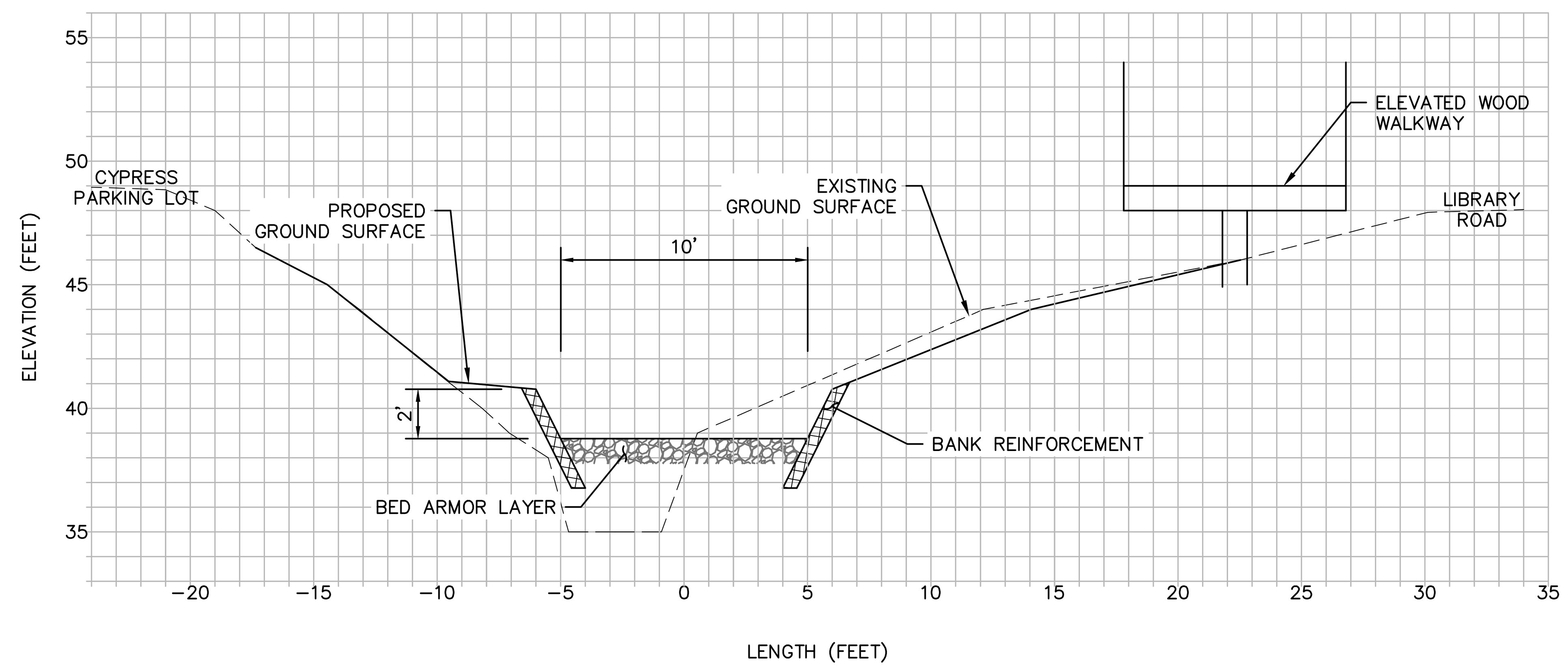
CHECKED BY: D. L.
CAD DWG NAME:

NO.	DATE	REVISION

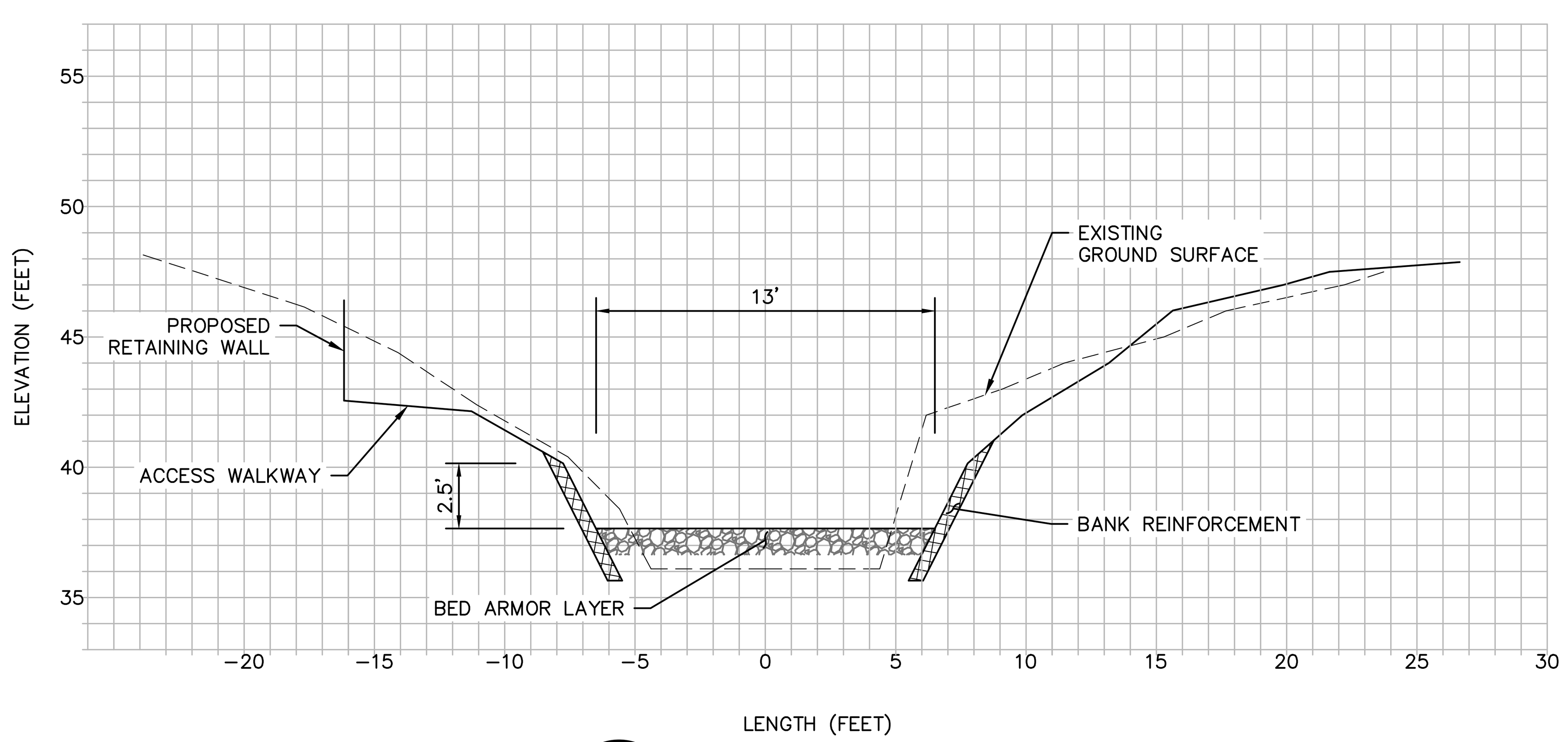
HARTNELL GULCH RESTORATION AND RUNOFF DIVERSION PROJECT

PROFILES

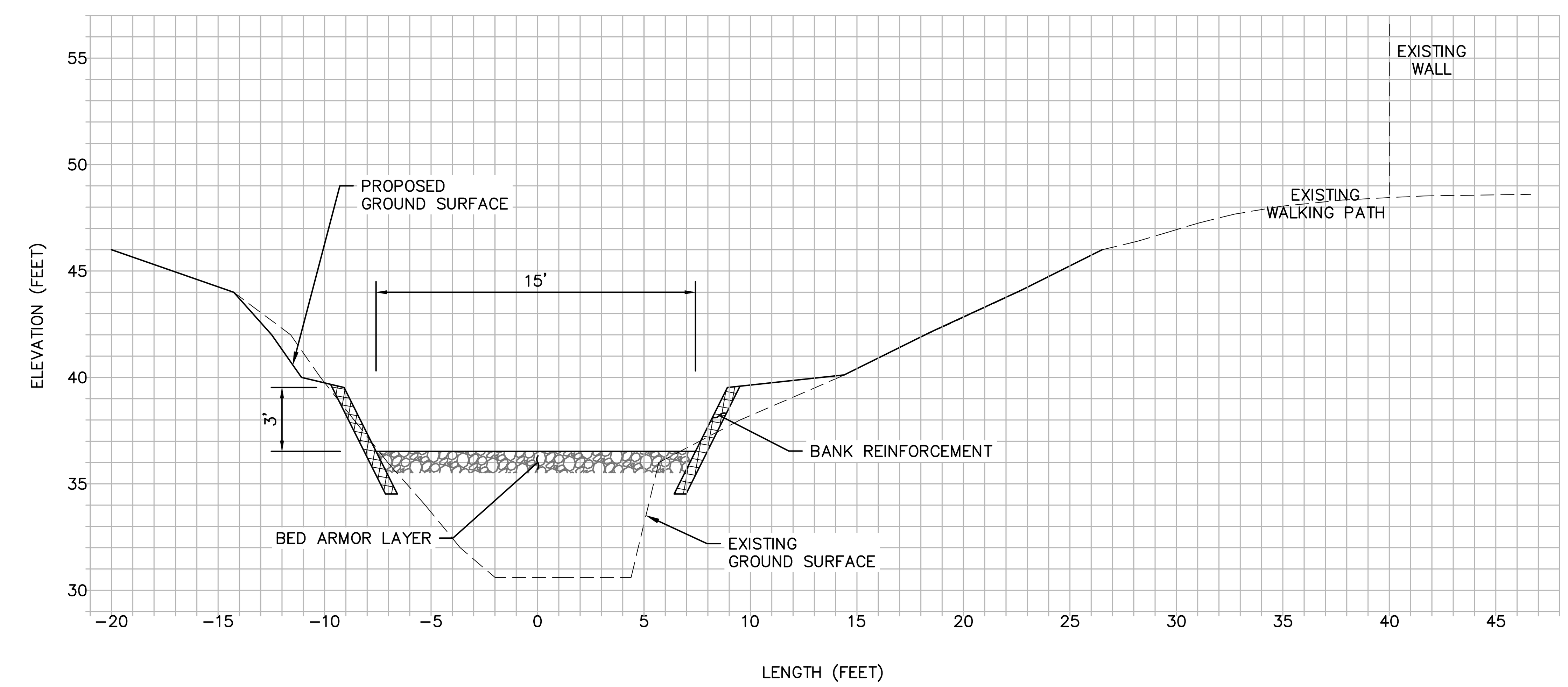
SCALE: AS SHOWN
DATE: SEPTEMBER 2018
SHEET: 3 OF 6



A/2 NORTH FORK SECTION
SCALE: 1" = 5'



B/2 SOUTH FORK SECTION
SCALE: 1" = 5'



C/2 HARTNELL CREEK SECTION
SCALE: 1" = 5'

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DATE	DATE

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DESIGNED BY: J. A. G.
DRAWN BY: J. L. A.
CHECKED BY: D. L.
CAD DWG NAME:

NO.	DATE	REVISION

HARTNELL GULCH RESTORATION AND RUNOFF DIVERSION PROJECT

SECTIONS

SCALE: AS SHOWN
DATE: SEPTEMBER 2018
SHEET: 4 OF 6

TREATMENT RECOMMENDATIONS

INVASIVE PLANT TREAMENTS BY SPECIES

Scientific Name	Common Name	Invasive Status (per Cal-IPC)	Treatment Method
Delairia odorata	Cape ivy	Invasive-High	Carefully hand remove, ensuring all roots are fully removed. Take care in removal, handling, and disposal, can resprout from small fragments of tissue.
Foeniculum vulgare	fennel	Invasive-High	Dig up by roots.
Genista monspessulana	French broom	Invasive-High	Hand pull, ensuring all roots are removed. Cut and paint with surfactat free glyphsate if root removal impossible.
Hedera helix	English ivy	Invasive-High	Carefully hand remove, ensuring all roots are fully removed. Cut and paint with surfactat free glyphsate if root removal impossible or to avoid erosion on steep slopes.
Rubus armeniacus	Himalayan blackberry	Invasive-High	Dig up by roots. Cut and paint with surfactat free glyphsate if root removal impossible or to avoid erosion on steep slopes.
Avena barbata	slender oat	Invasive-Moderate	Hand remove in planting areas. Complete control not feasable.
Ehrharta erecta	erect veldtgrass	Invasive-Moderate	Hand remove in planting areas. Complete control not feasable.
Ficus carica	edible fig	Invasive-Moderate	Dig up by roots. Cut and paint with surfactat free glyphsate if root removal impossible.
Holcus lanatus	velvet grass	Invasive-Moderate	Hand remove in planting areas. Complete control not feasable.
Hypochaeris radicata	rough cat'[illegible]ear	Invasive-Moderate	Hand remove in planting areas. Complete control not feasable.
Oxalis pes-caprae	Cape sorrel	Invasive-Moderate	Hand remove in planting areas. Complete control not feasable.
Vinca major	periwinkle	Invasive-Moderate	Lightly masticate with weed whip to break waxy cuticle and spray with surfactant free glyphosate.
Crocosmia × crocosmiiflora	montbretia	Invasive-Limited	Dig up by roots.
Eucalyptus globulus	Tasmanian blue gum	Invasive-Limited	Remove in sections by arborist. Paint stump with surfactant free glyphosate to prevent resprouts.
Medicago polymorpha	burclover	Invasive-Limited	Hand remove in planting areas. Complete control not feasable.
Pennisetum clandestinum	Kikuyu grass	Invasive-Limited	Spray with surfactant free glyphosate.
Prunus cerasifera	cherry plum	Invasive-Limited	Dig up by roots. Cut and paint with surfactat free glyphsate if root removal impossible.
Raphanus sativus	wild radish	Invasive-Limited	Hand remove in planting areas. Complete control not feasable.
Rumex crispus	curly dock	Invasive-Limited	Hand remove in planting areas. Complete control not feasable.
Parietaria judaica	spreading pellitory	Invasive-Watchlist	Dig up by roots.
Echium sp.	echium species	Non-native (planted)	Dig up by roots.
Ulmus sp.(*minor?*)	elm (English?)	Non-native (planted)	For mature trees: Remove in sections by arborist. Paint stump with surfactant free glyphosate to prevent resprouts. For suckers forming groundcover: Dig up by roots. Spray with surfactant free glyphosate where root removal impossible or on steep slopes to prevent erosion.
Calystegia (*silvatica?*)	bindweed (large?)	Non-native	Carefully hand remove, ensuring all roots are fully removed.
Epipactis helleborine	European helleborine	Non-native	Carefully hand remove, ensuring all roots are fully removed.
Erigeron bonariensis	Argentinian horseweed	Non-native	Hand remove in planting areas. Complete control not feasable.
Erigeron karvinskianus	Mexican fleabane	Non-native	Hand pull.
Erodium sp.	stork's bill	Non-native	Hand remove in planting areas. Complete control not feasable.
Geranium molle	soft-leaved geranium	Non-native	Hand remove in planting areas. Complete control not feasable.
Lactuca virosa	bitter lettuce	Non-native	Hand remove in planting areas. Complete control not feasable.
Lysimachia arvensis	scarlet pimpernel	Non-native	Hand remove in planting areas. Complete control not feasable.
Malva parviflora	cheeseweed	Non-native	Hand remove in planting areas. Complete control not feasable.
Polygonum aviculare subsp. *depressum*	common knotweed	Non-native	Hand remove in planting areas. Complete control not feasable.
Pseudognaphalium luteoalbum	weedy cudweed	Non-native	Hand remove in planting areas. Complete control not feasable.
Sonchus oleraceous	common annual sow thistle	Non-native	Hand remove in planting areas. Complete control not feasable.
Taraxacum officinale	common dandelion	Non-native	Hand remove in planting areas. Complete control not feasable.
Tropaeolum majus	garden nasturtium	Non-native	Carefully hand remove, ensuring all roots are fully removed.

Drawn by: Dakotah Bertsch
Landscape Designer, Ecological Concerns Inc.
609 Pacific Avenue, Suite 101, Santa Cruz
831-459-0656
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HARTNELL GULCH PARK RESTORATION PLAN
for the
CITY OF MONTEREY

ISSUANCES AND REVISIONS

NO.	DATE	DESCRIPTION
1	FEB 4, 2016	PRESENTATION

APPROVAL

SHEET TITLE

INVASIVE PLANT REMOVAL PLAN

SHEET NUMBER

R1

LEGEND OF NATIVE PLANTING AREA SPECIES MIXES

- SPECIAL PLANTING AREA - NATIVE GARDEN
- TOP OF SLOPE / BORDER PLANTING MIX
- MID-SLOPE / BANK STABILIZATION MIX
- SLOPE BOTTOM / CHANNEL EDGE MIX
- EXISTING NATIVE TREE / SHRUB PROTECT IN PLACE WHERE FEASIBLE:
  - *Quercus agrifolia* (some planted)
  - *Salix lasiolepis*
  - *Cupressus macrocarpa* (planted)
  - *Sequoia sempervirens* (planted)
  - *Ribes sanguineum* (planted)
- WILLOW STAKES
  CUTTINGS TO BE SELECTED FROM ONSITE MATERIAL, PER DETAIL TBD
- OAK TREES
  Quercus agrifolia
- BOX ELDER TREE
  Acer negundo

SCALE: 1" = 15'-0"

NATIVE PLANT SPECIES LIST BY MIX

TOP OF SLOPE

Latin name	common name	form	OC Spacing
Iris douglasiana	*Douglas' iris*	*forb*	*2'*
Juncus patens	*grey rush*	*rush, bunch*	*1.5-2'*
Ribes sanguineum	*red flowering currant*	*shrub*	*5-6'*
Stachys bullata	*hedge nettle*	*grouncover*	*1-3'*
Holodiscus discolor	*ocean spray*	*shrub*	*5-6'*
Agrostis sp.	*agrostis*	*grass, creeping*	*1-3'*
Elymus glaucus	*blue wild rye*	*grass, bunch*	*1-2'*
Clinopodium douglasii	*yerba buena*	*groundcover*	*1-2'*
Fragaria vesca	*wood strawberry*	*groundcover*	*1'*
Ribes speciosum	*fuschia flowered gooseberry*	*shrub*	*5-6'*
Calystegia sp. (purpuratasubsp. p?)	*morning glory (purple-striped?)*	*vine*	*2-4'*
Mimulus aurantiacus	*stickey monkeyflower*	*small shrub*	*2'*

MID-SLOPE

Latin name	common name	form	OC Spacing
Iris douglasiana	*Douglas' iris*	*forb*	*2'*
Juncus patens	*grey rush*	*rush, bunch*	*1.5-2'*
Stachys bullata	*hedge nettle*	*grouncover*	*1-3'*
Holodiscus discolor	*ocean spray*	*shrub*	*5-6'*
Rosa californica	*California rose*	*shrub*	*6-8'*
Rubus ursinus	*California blackberry*	*shrub*	*5-6'*
Agrostis sp.	*agrostis*	*grass, creeping*	*1-3'*
Elymus glaucus	*blue wild rye*	*grass, bunch*	*1-2'*
Symphoricarpos mollis	*low-growing snowberry*	*groundcover*	*3'*
Phalaris californica	*California canary grass*	*grass, bunch*	*2-3'*
Frangula californica	*coffeeberry*	*large shrub*	*6-8'*
Heteromeles arbutifolia	*toyon*	*large shrub*	*6-8'*
Carex globosa	*round-fruited sedge*	*sedge, bunch*	*1-1.5'*
Lonicera hispidula	*hairy honeysuckle*	*vine, groundcover*	*2-4'*
Ribes speciosum	*fuschia flowered gooseberry*	*shrub*	*5-6'*
Mimulus aurantiacus	*stickey monkeyflower*	*small shrub*	*2'*

SLOPE BOTTOM

Latin name	common name	form	OC Spacing
Juncus patens	*grey rush*	*rush, bunch*	*1.5-2'*
Rosa californica	*California rose*	*shrub*	*6-8'*
Rubus ursinus	*California blackberry*	*shrub*	*5-6'*
Cyperus eragrostis	*tall umbrella sedge*	*sedge, bunch*	*1-2'*
Juncus hesperius	*coast rush*	*rush, bunch*	*1.5-2'*
Juncus phaeocephalus	*brown headed rush*	*rush, creeping*	*1-2'*

SPECIAL AREA

Latin name	common name	form	OC Spacing
Iris douglasiana	*Douglas' iris*	*forb*	*2'*
Juncus patens	*grey rush*	*rush, bunch*	*1.5-2'*
Ribes sanguineum	*red flowering currant*	*shrub*	*5-6'*
Stachys bullata	*hedge nettle*	*grouncover*	*1-3'*
Holodiscus discolor	*ocean spray*	*shrub*	*5-6'*
Elymus glaucus	*blue wild rye*	*grass, bunch*	*1-2'*
Clinopodium douglasii	*yerba buena*	*groundcover*	*1-2'*
Fragaria vesca	*wood strawberry*	*groundcover*	*1'*
Frangula californica	*coffeeberry*	*large shrub*	*6-8'*
Heteromeles arbutifolia	*toyon*	*large shrub*	*6-8'*
Vaccinium ovatum	*California huckleberry*	*shrub*	*5-6'*
Ribes speciosum	*fuschia flowered gooseberry*	*shrub*	*5-6'*
Mimulus aurantiacus	*stickey monkeyflower*	*small shrub*	*2'*
Ceanothus thyrsiflorus	*blueblossom*	*large shrub*	*6'-8'*
Salvia spathacea	*hummingbird sage*	*groundcover*	*1-3'*
Salvia sonomensis	*creeping sage*	*groundcover*	*3-5'*
Ribes speciosum	*fuchsia flowering gooseberry*	*shrub*	*3-5'*
Rhus integrifolia	*lemonade berry*	*large shrub*	*6-8'*
Salvia mellifera	*black sage*	*shrub*	*5-6'*
Garrya elliptica	*wavyleaf silk tassle*	*large shrub*	*6-8'*
Arctostaphylos edmundsii	*little sur manzanita*	*groundcover*	*3-5'*
Lupinus albifrons	*silver lupine*	*shrub*	*4-6'*
Arctostaphylos pajaroensis	*pajaro lupine*	*shrub*	*4-6'*
Eriogonum fasciculatum	*California buckwheat*	*shrub*	*4-6'*
Eriogonum parvifolium	*sea cliff buckwheat*	*shrub*	*1-3'*
Baccarus pilularis	*coyote brush*	*shrub*	*6-8'*

TREES

Latin name	common name	form	OC Spacing
Salix lasiolepis	*arroyo willow*	*tree*	*10-15'*
Acer negundo	*box elder*	*tree*	*15-20'*
Salix lasiandra	*Pacific shining willow*	*tree*	*10-15'*

ECOLOGICAL CONCERNS INCORPORATED

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HARTNELL GULCH PARK RESTORATION PLAN

for the

CITY OF MONTEREY

ISSUANCES AND REVISIONS

NO.	DATE	DESCRIPTION
1	FEB 4, 2016	PRESENTATION

APPROVAL

SHEET TITLE

NATIVE PLANTING PLAN

SHEET NUMBER

R2

Project Implementation Plan

engineers | scientists | innovators

Hartnell Gulch Restoration and Runoff Diversion Project

Project Implementation Plan

Prepared for

City of Monterey

Monterey One Water

Prepared by

Geosyntec Consultants, Inc.
1111 Broadway, 6th Floor
Oakland, California 94607

Project Number: WW2405

September 20, 2018

DRAFT

TABLE OF CONTENTS

INTRODUCTION

The Hartnell Gulch Restoration and Runoff Diversion project entails creek rehabilitation and dry weather flow diversion for the daylighted portion of Hartnell Creek from Pacific Street to Hartnell Street. A full description of the project is provided in the project concept description provided in Appendix G of the Monterey Peninsula Stormwater Resource Plan. The project's goals are to: rehabilitate the current creek (i.e., remove invasive plants, revegetate with native plants, and stabilize the existing eroded channel); divert dry weather runoff to the sanitary sewer for treatment and water recovery; and increase public access to the creek for conservation and interpretive enhancement. This Project Implementation Plan is intended to be reviewed accompanying the project concept description and 30% design drawings. This plan describes the next tasks needed to implement (i.e., fully construct) the project.

OVERVIEW OF PLAN

This project implementation plan includes a summary of the major implementation tasks and estimated schedule for each task. Descriptions are provided for sub-tasks needed for each major implementation task. Detailed descriptions of agreements, procurement of funds, hiring contractors, and permitting and grant reporting requirements are not included.

MAJOR IMPLEMENTATION TASKS

Major tasks needed to implement the Hartnell Gulch Restoration and Runoff Diversion project include:

1. Detailed Site Assessment
2. Engineering and Design
3. Agreements and Permitting
4. Construction
5. Ongoing Maintenance, Monitoring, and Evaluation
6. Other Tasks

Each of these major implementation tasks are described in the following sections.

1. Detailed Site Assessment and Vegetation Planning

The remaining detailed site assessment needs are summarized below.

Topographic Survey

A detailed topographic survey of the existing daylighted creek and surrounding area is needed to finalize the grading in the engineering design drawings. It is suggested that the survey include one-foot contour lines, existing structures and utilities, and spot elevations of storm drain inlets and outlets.

Archaeological/Biological Survey

Archaeological and biological surveys are needed as part of completion of recommended CEQA Analysis identified in the CEQA Checklist completed for the project. A preconstruction archaeological survey (surface examination) is needed to ensure no archaeological sites are within the construction area and to inventory the site for the presence of archaeological resources. A biological survey and report would be conducted to analyze potential sensitive, special status, or rare and endangered species, as well as potential impacts to biological resources based on project construction and operation. Based on the findings of these studies, the design may need to be altered and/or construction mitigation measures may need to be implemented to avoid a significant impact.

Utility Locating/ Potholing

The location of utilities within the footprint of the project is needed prior to siting project piping, pumps, and other components. This will include identification of size, material, and elevations of utility lines, as needed. This task will entail location of underground utilities (i.e., storm drain, sanitary sewer, water, gas, electric, cable, communications, etc.), and potholing in specific locations.

Flow and Water Quality Monitoring (Dry Season)

It is recommended that dry weather flow monitoring be conducted to estimate the volume of runoff that can be expected during the dry season and provide a more detailed estimate of the volume that would be diverted to the sanitary sewer for reuse at the Regional Treatment Plant. Dry weather flow monitoring would entail installation of a flow meter in the creek and would ideally be conducted from April through September. Water quality grab samples would be taken during this period to provide information regarding the level of pollutants that may be present in the diverted flow.

Site Reconnaissance and Geotechnical Field Investigation

Site reconnaissance and geotechnical field investigation will be needed to support the design of the proposed bridge abutments, pedestrian walkway piers or caissons, and retaining walls. The geotechnical field investigation is anticipated to include review of existing geotechnical and geological information and literature, advancing geotechnical soil borings and cone penetration tests (CPTs), soil sample collection, laboratory testing, and data evaluation.

Procurement and Starting of Native Plants

Propagation of native plants would begin at least a year prior to fall-season planting and would require a contract grow with a restoration nursery. To ensure local genetics for the restoration plants, propagules would be collected from Monterey County sources as close to the site as feasible. All project plants would be nursery-grown in compliance with CalPhytos Guidelines to Minimize Phytophthora Pathogens in Restoration Nurseries (Working Group for Phytophthoras in Native Habitats, 2016, released by the California Oak Mortality Task Force).

A summary of site assessment tasks and an estimated schedule is provided; planning and reporting for each sub-task is included in the estimated schedule.

Tasks	Description	Time Needed for Completion
1.1	Topographic Survey	2 months
1.2	Archaeological and Biological Surveys	3 months
1.3	Utility Locating/Potholing	2 months
1.4	Flow and Water Quality Monitoring and Reporting	6 months (dry season)
1.5	Geotechnical Assessments	2 months
1.6	Propagation of Native Plants	1 year prior to Fall Season Planting

2. Engineering and Design

This task may be iterative with Agreements and Permitting. A 30% site plan, which includes proposed plan, profile, and cross-section drawings for the existing and proposed conditions, has been completed. Based on findings of the detailed site assessment and permitting constraints (as applicable), it is recommended that 60%, 90%, and 100% design drawings be completed for review by the City of Monterey following completion of additional site assessment. As-Built drawings are recommended to document the project at the conclusion of construction activities. A summary of the analyses needed corresponding with each design phase is provided:

CEQA Analysis

Additional California Environmental Quality Act (CEQA) analysis is needed. Using previously conducted studies or additional findings from the assessments, the technical reports identified in the Preliminary CEQA Checklist would be completed in parallel with the development of the 60% Design. These include a Biological Report and Wetland Delineation, the Archaeological Survey Report and Tribal Consultation, Hydrologic Report, Erosion Control Plan, and Geological Report. Based on the preliminary conclusions of the CEQA Checklist, it is anticipated that an Initial Study/Mitigated Negative Declaration (IS/MND) would be adequate for the project to meet CEQA requirements. However, if significant and unavoidable impacts are identified during the development of the technical reports, an environmental impact report (EIR) may be needed. An IS or EIR would require a 30-day public comment period.

60% Design

The completion of the 60% design will incorporate a hydrologic and hydraulic analysis examining the water surface depth, velocity, and effective shear stress for a range of storm events, including the 2-, 10-, and 100-year return period flowrates. Continuous hydrologic, hydraulic, and geomorphic simulations may be performed if necessary for CEQA impact analysis. The height of bridge decks, material of the channel bed, type of bank reinforcement, and sizing of buried grade controls will be based on the hydraulic analysis. The 60% design will include a refined grading plan, updated vegetation and landscaping plan, site plan, creek profiles, and cross-sections, and standard detail drawings for the creek rehabilitation and runoff diversion components. Completion of the 60% design will include approval from City of Monterey Boards and Commissions.

90% Design

The 90% design will include specific design details of the proposed pump station, bridge abutments, pier or caisson foundations, retaining walls, and walkway lighting. Project component specifications will also be provided. It is anticipated that most permitting applications would be submitted and close to approval prior to completion of the 90% design.

100% Design

The 100% design will include final revisions suggested by the City and/or required per permitting authorities. This 100% design will be included in a bid package for construction contractors. Construction tasks and notes will be included in the 100% design drawing.

As-Builts

As-Built drawings would be developed following completion of construction tasks. As-builts are a revision of the 100% design drawings and include any design changes needed resulting from findings arising during construction.

A summary of each design drawing task and an estimated schedule is provided; the schedule includes the engineering analyses and assumes two drafts and one final for each drawing.

Tasks	Description	Time needed for completion
2.1	CEQA Technical Reports and Initial Study	4 months
2.2	Draft and Final 60% Design Drawings	4 months
2.3	Draft and Final 90% Design Drawings	6 months
2.4	Draft and Final 100% Design Drawings	2 months
2.5	As-Builts	1 month (following construction)

3. Agreements and Permitting

A number of agreements and permits are anticipated to be needed prior to constructing, operating, and maintaining the project. The list below includes the construction permits that may be needed for the project:

1. California Department of Fish and Wildlife – 1602 Streambed Alteration Agreement.
2. US Fish and Wildlife Service – Authorization Under the Endangered Species Act.
3. US Army Corps of Engineers – Clean Water Act Section 404 Permit.
4. Regional Water Quality Control Board – Clean Water Act Section 401 Water Quality Certification.
5. City of Monterey – IS/MND approval, other applicable construction permits.
6. Monterey One Water – Sewer Discharge and Connection Permit.
7. Monterey Bay Air Quality Management District construction permit(s).

Additional permits may be needed for project operation. These are not included in this Project Implementation Plan.

Agreements with other jurisdictional bodies may be needed prior to operating the facility. Institutional agreement may be needed with Monterey One Water and Monterey Peninsula Water Management District.

The estimated time frame for completing permitting and agreements is anticipated to be 6 months.

4. Construction

A detailed timeline for construction would need to be completed following procurement of a contractor. The estimated major construction tasks are listed below:

1. Mobilization
2. Clearing and grubbing
3. Dewatering and temporary diversion of creek
4. Grading
5. Construction of drop structure
6. In-stream stabilization (bed material placement, bank reinforcement, buried grade control)
7. Diversion piping, pump, pre-treatment
8. Bridge and pedestrian access paths
9. Walkway lighting
10. Planting and revegetation
11. Installation public education signage

It is anticipated that construction would take approximately 7 months to complete.

5. Ongoing Maintenance, Monitoring, and Evaluation

Ongoing maintenance, monitoring, and evaluation will be needed following construction of the project. The maintenance, operations, monitoring, and inspection needs should be documented in a detailed operations and maintenance (O&M) and monitoring handbook. This handbook would describe other maintenance, monitoring, and evaluation tasks and needed frequency. These tasks could include but may not be limited to:

- Operation of pumps, weir board, and other diversion appurtenances.
- Project regular inspection and maintenance, including diversion components, vegetation, and trash rack, among other maintenance needs.
- Major maintenance/repair needs.
- Monitoring, including flow, water quality, geomorphic stability, vegetation establishment.
- Ongoing public education and visual monitoring of creek restoration progress.

All of the tasks included in the O&M and monitoring handbook would initiate following construction completion and would be ongoing.

6. Other Tasks

Other tasks not included in the schedule and summary above include but are not limited to:

1. Releasing bids, selection and hiring of contractors to complete work.
2. Procurement of funds to complete work (i.e., grant applications).
3. Other reporting related to grant funds or permitting.
4. Additional community and City approval needs (City of Monterey).
5. Regional approval needs (M1W, water district, IRWMP representatives, MRSWMP representatives, etc.).
6. Public announcements/outreach.

Many of these tasks are difficult to predict and thus the schedule is not included in the above task.

SCHEDULE

A summary of the schedule is provided. The total time estimated to complete each major implementation task is provided. Implementation tasks are difficult to predict and thus these schedule estimates may be shorter or longer than what is ultimately needed. It is assumed that these major tasks will overlap, but it is anticipated that most tasks would need to be fully completed before a subsequent task can be completed (e.g., site assessment tasks must be completed before engineering design can be completed; design must be completed before permitting can be completed, etc.).

1. Detailed Site Assessment – 7 months for assessments; an additional 5+ months for complete propagation of Native Plants.
2. Engineering Design and CEQA – 16 months prior to construction (assumes permits/agreements occur concurrently); 1 month post-construction.
3. Agreements and Permitting – 6 months (anticipated to be conducted following completion of 60% Design and prior to completion of 90% Design).
4. Construction – 7 months.
5. Ongoing Maintenance, Monitoring, and Evaluation – ongoing.
6. Other Tasks – no time prediction provided.

* * * * *

Preliminary CEQA Checklist

Prepared for

Monterey One Water
Providing Cooperative Water Solutions

Monterey One Water
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Monterey, California 93940

PRELIMINARY ENVIRONMENTAL CHECKLIST

HARTNELL GULCH RESTORATION AND RUNOFF DIVERSION PROJECT

Prepared by

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With Assistance from

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September 2018

PREFACE

The following presents a Preliminary Environmental Checklist for the Hartnell Gulch Restoration and Runoff Diversion Project. This document has been prepared as part of the efforts underway for the Stormwater Resources Plan (SWRP) for which the lead entity is Monterey One Water.

The Hartnell Gulch Restoration and Runoff Diversion Project is being proposed by the City of Monterey. This Preliminary Environmental Checklist is an early stage environment document to assist the City of Monterey in scoping and completion of the required future environmental in full compliance with the California Environmental Quality Act (CEQA). The level of project design for the Hartnell Gulch Restoration and Runoff Diversion Project is still preliminary; therefore, this document identifies pending technical analyses and project design documentation that will be required to support final determinations of significance in a future Initial Study to be prepared by the City of Monterey.

TABLE OF CONTENTS

1. PROJECT SUMMARY

A. Project Title

Hartnell Gulch Restoration and Runoff Diversion Project

B. Lead Agency

City of Monterey, 580 Pacific Street, Monterey, CA 93940

C. Contact Person

Jeff Krebs, Senior Engineer, (831) 646-3921

D. Project Location

The proposed project is located with the Hartnell Gulch between Pacific Street and Hartnell Street in the City of Monterey, CA 93940. See **Figure 1.**

E. Project Sponsor

City of Monterey, 580 Pacific Street, Monterey, CA 93940

F. Zoning

Industrial, Commercial, and Planned Community

G. Project Overview

The Hartnell Gulch Restoration and Runoff Diversion Project (proposed project) is comprised of two parts: 1) creek restoration and improvements and, 2) dry weather flow diversion to the sanitary sewer in the Hartnell Gulch area in downtown Monterey.

2. PROJECT PACKGROUND BACKGROUND

The proposed project is a part of the Stormwater Resources Plan (SWRP) for which the lead entity is Monterey One Water. Monterey One Water (through its technical consultant Geosyntec Consultants) has prepared the Monterey Peninsula Region SWRP on behalf of the Monterey Regional Stormwater Management Program (MRSWMP), including the cities of Carmel-by-the-Sea, Del Rey Oaks, Monterey, Pacific Grove, Sand City, and Seaside, and Monterey County. The purpose of the SWRP is to identify stormwater capture project opportunities that could be utilized as new water supply sources for the Monterey Peninsula and provide additional water quality and environmental benefits. This project is also part of the Monterey Peninsula Water Recovery Study (Water Recovery Study); the Water Recover Study's purpose is to identify and evaluate potential projects to capture sources of wet and dry weather runoff within the Monterey Peninsula, Carmel Bay, and South Monterey Bay Integrated Regional Water Management (IRWM) Region (the Planning Area) for water recovery and use. All components of the SWRP and the Water Recovery Study were discussed and reviewed by the Monterey Peninsula Region SWRP Technical Advisory Committee (TAC), which included cooperating entities, regulators, and other interested parties, and the Monterey Peninsula Technical Stakeholder Group, which included participants familiar with stormwater and wastewater distribution systems, treatment, and/or those with technical knowledge of the local aquifer and groundwater basin. As part of the work conducted for the Water Recovery Study by the Study participants, potential projects were identified that could recover wet and dry weather runoff for water supply and then these were further reviewed for screening criteria. Potential project types included opportunities for use of existing storm drains that receive runoff from substantial tributary areas and that could be conveyed to sanitary sewer pump stations which would divert dry-weather runoff to the sanitary sewer system for treatment and reuse. Additional project types considered include storage and diversion, infiltration, or irrigation from lakes and reservoirs; infiltration into a potable water supply aquifer; and on-site capture and use. In total, 240 projects were identified as part of the study, including 79 planned projects submitted by stakeholders for the SWRP, of which 32 were also Water Recovery Study projects.

The proposed Hartnell Gulch Restoration and Runoff Diversion Project is one of seven projects selected for concept design during a TAC meeting held on February 22, 2018. The selection process considered the preliminary project scores, agency prioritization, input from the Monterey Peninsula Stakeholder Group, and other local and institutional knowledge. Based on Stakeholder and TAC input and comments, the primary factor in project selection was to capture as much usable water as possible to help meet dry weather recycled water demands and augment water supply.

3. LEVEL OF INFORMATION

This preliminary Environmental Checklist evaluates the proposed project based upon the conceptual design developed to 10%. Therefore, the analysis provided below using the Initial Study Checklist from Appendix G of the California Environmental Quality Act (CEQA) Guidelines is preliminary. As noted, there are several Checklist topical areas where additional design-level information or specific technical analysis is needed to complete the analysis. This information will be available in future design phases, at which time the Initial Study Checklist will be completed by the lead agency for the proposed project. The following provides a general description and related analysis based upon project details known to date.

4. PROJECT DESCRIPTION

The project area is within the Hartnell Gulch watershed in the City of Monterey as shown on **Figure 2**. The 1.7 square mile watershed primarily includes residential development as well as undeveloped drainage ravines (also referred to as “gulches”). Drainage from the upstream residential area flows in an incised channel past the Monterey Library at the project area and then northeastward toward the town center. The two primary creek channels in the watershed (the north fork and the south fork of Hartnell Creek) flow into the storm drain system upstream of the project site. The project area is in a commercial area where the creeks resurface and converge, adjacent to the Monterey Public Library. Downstream of the project location, at the Trader Joe’s parking lot, the creek is enclosed in culverts and is piped to the discharge point in Monterey Bay under Wharf #2. The upstream boundaries of the project extent are located where the north fork of Hartnell Creek daylights at Pacific Street and where the south fork drains onto city property at the southeastern corner of the Pacific Street public parking lot (i.e., Cypress Lot).

The downstream boundary of the project extent is where the creek drops back underground at Hartnell Street after the confluence of the norther and south fork (at 550 Hartnell Street).

The proposed project is comprised of two components as shown on **Figure 3**; these include (1) creek rehabilitation, and (2) dry weather flow diversion to sanitary sewer. The creek rehabilitation is proposed to consist of removal of invasive plants, revegetation with native plants, and stabilization of the existing eroded channel. The grade of the channel bed would be raised several feet throughout the project area and bank stabilization and buried grade controls would be included to limit future instream erosion. Additionally, a drop structure is proposed to be placed at the downstream end of the project area to limit future instream erosion. Elevation of the streambed would provide opportunity for increased public access with construction of a pedestrian walkway alongside the creek bank.

The second part of the project consists of diverting dry weather flows (April to October) from the approximately 1,100-acre tributary drainage area to the sanitary sewer for recycling at the Monterey One Water Regional Treatment Plant to augment water supply. Flows will be diverted at the downstream boundary of the project area as shown on **Figure 2** into the gravity sewer main in Hartnell Street. Pump station capacity for accepting additional storm drain diversions was considered as part of the Water Recovery Study. Within the M1W service area, diverted runoff will travel via gravity sewer and then through one of the M1W Interceptor Pipelines (pressurized force mains and/or gravity main) to the Regional Treatment Plant (RTP). At the RTP, wastewater undergoes primary and secondary treatment and then can be reclaimed by either: (1) undergoing tertiary treatment and used as recycled 'purple pipe' water for irrigation, via the Salinas Valley Reclamation Project (SVRP) recycled water plant and the Castroville Seawater Intrusion (CSIP) distribution system; or (2) starting in 2019, undergoing advanced treatment, transport, and injection into the Seaside Groundwater Basin, via the Advanced Water Purification Facility (AWPF) of the Pure Water Monterey Groundwater Replenishment (PWM/GWR) Project currently under construction. An average of 60 percent of M1W wastewater is recycled each year and that percentage will increase when the PWM/GWR Project is operational. M1W currently serves a population of approximately 250,000 people (M1W, 2017) and treats 19.2 million gallons per day (MGD) average dry weather flow (ADWF), with a peak wet weather flow (PWWF) of 36.8 MGD (MRWPCA, 2016). The RTP is permitted for design flows of 29.6 MGD ADWF and 75.6 MGD PWWF, indicating available capacity for future runoff diversions.

At an estimated pump capacity of 200 gallons per minute (gpm), the project is estimated to achieve between 51 to 60 acre-feet/year (AFY) of water supply (Geosyntec 2017). See **Table 1** below for a summary of project characteristics.

Table 1. Design Information	
Tributary Drainage Area (TDA):	1,103 acres
TDA Imperviousness:	18 %
TDA Urbanized Area:	970 acres
Dry Weather Seepage Runoff:	28 acre-feet per year (April to October)
Dry Weather Nuisance Runoff:	23 to 32 acre-feet per year (April to October)
Sanitary Sewer Diversion Pump Rate[1]:	200 gallons per minute
Length of Diversion Pipeline:	80 feet
Source: Hartnell Gulch Restoration and Runoff *Diversion Project Concept Design (Draft August, 2018)*	

5. SURROUNDING LAND USE AND SETTING

The project site is located within a developed urban environment. To the south of the project site are various office buildings and parking lots. To the east of the project site is Hartnell Street. To the north of the project site is the Monterey County Public Library and a historic adobe building which historically has been occupied by various restaurants. To the west of the Project site Colon Inn at 707 Pacific Street and various offices buildings and parking lots bordering the drainages along Pacific Street. Hartnell Gulch is a semi-natural waterway that conveys overland drainage from the hills above Monterey to the Monterey Bay (Monterey 2009). Immediately downstream from the project site Hartnell Gulch is similarly above ground and heavily vegetated. A raised pedestrian walkway was constructed by the City in this area in 2010. The walkway provides direct pedestrian access to the Trader Joes parking lot from Hartnell Street. At this location, the drainage in Hartnell Gulch is conveyed into an underground pipe/culvert system and carried to the Monterey Bay.

6. OTHER PUBLIC AGENCIES WHOSE APPROVAL IS POTENTIALLY REQUIRED

California Department of Fish and Wildlife, U.S. Army Corps of Engineers, State Water Resources Control Board, National Marine Fisheries Service, and U.S. Fish and Wildlife Service.

7. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

This section identifies the environmental impacts of this project by answering questions from Appendix G of the CEQA Guidelines, the Environmental Checklist Form. Impacts are categorized as follows:

- Potentially Significant Impact is appropriate if there is substantial evidence that an effect is significant, or where the established threshold has been exceeded. If there are one or more "Potentially Significant Impact" entries when the determination is made, an Environmental Impact Report (EIR) may be required.
- Less Than Significant with Mitigation Incorporated applies where the incorporation of mitigation measures would reduce an effect from Potentially Significant Impact to a Less Than Significant Impact. Mitigation measures are prescribed to reduce the effect to a less than significant level.

- Less Than Significant applies when the project will affect or is affected by the environment, but based on sources cited in the report, the impact will not have an adverse effect. For the purpose of this report, beneficial impacts are also identified as less than significant. The benefit is identified in the discussion of impacts, which follows each checklist category.
- A No Impact answer is adequately supported if referenced information sources show that the impact simply does not apply to projects like the one involved. A No Impact Answer is explained where it is based on project-specific factors as well as general standards.

For this report, as is noted above, the project has been defined at a conceptual level with limited design details available. Thus, where the potential impacts cannot be identified due to lack of information on the project itself or where further technical analysis is needed to define the impact, this is noted in the checklist below. Based on the available information on the project, the following environmental factors checked below would be potentially affected by this project, as further discussed within the checklist categories on the following pages.

Table 2. Summary of Significance Determination

Topic Area	Potentially Significant Impact Identified	Level of Significance to be Determined Pending Technical Analysis/Design Document
Aesthetics		Landscape Plan, Lighting Plan
Agriculture Resources		
Air Quality		
Biological Resources	X	Biological Report, Wetland Delineation
Cultural Resources	X	Archaeological Survey Report
Geology/Soils		Erosion Control Plan, Geological Report
Greenhouse Gas Emissions		
Hazards & Hazardous Materials		
Hydrology/Water Quality	X	Hydrological Report
Land Use Planning		
Mineral Resources		
Noise	X	
Population/Housing		
Public Services		
Recreation		
Transportation/Traffic		
Tribal Cultural Resources		Archaeological Report, Tribal Consultation
Utilities/Service Systems		Hydrological Report
Mandatory Findings of Significance	X	See Above

8. DISCUSSION OF PRELIMINARY ENVIRONMENTAL CHECKLIST FINDINGS

A determination on the level of significance of environmental effects cannot be made without additional information as detailed in the Preliminary Checklist below due to the preliminary nature of the project design and well as the topical areas requiring additional technical evaluation. The Checklist identifies additional project information on the project design that is needed. The Preliminary Checklist also identifies the project specific technical studies that are needed to complete the CEQA documentation. Once studies are prepared, the next step is the preparation of the Initial Study; this document will incorporate technical conclusions and recommendations into the CEQA analysis. The CEQA Initial Study Checklist will also be circulated for a required 30-day review.

Based on this initial evaluation, and assuming compliance with CEQA analysis above, the Proposed Project may qualify for a Mitigation Negative Declaration. However, this determination can only be made after additional design and technical reports are completed by the City of Monterey as lead agency, as discussed above.

8.1. Aesthetics

SUBJECT AREA	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact	SUPPORTING INFORMATION
AESTHETICS – Would the project:					
a) Have a substantial adverse effect on a scenic vista?			X		City of Monterey Planning, Engineering and Environmental Compliance Division (PEEC), General Plan Map 2 Showing Special Places
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?			X		City of Monterey PEEC, General Plan Open Space Element Goals c, d, and h and Policies b.4 and f.6
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	Level of Significance to be Determined, see note below.				City of Monterey PEEC, General Plan Urban Design Element City of Monterey PEEC, General Plan Open Space Element, Policies a.3 and b.4 City of Monterey City Code, Chapter 37, Preservation of Trees
d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?	Level of Significance to be Determined, see note below.				City of Monterey PEEC, Monterey City Code (M.C.C.)
Note: As described in sections c) and d) below, a Landscape Plan and a Lighting Plan will be prepared by the City during the design phase of the proposed project. Upon completion of these documents, the level of significance can be determined.					

Existing Setting

The Monterey Peninsula consists of approximately 10 square miles of coastal lands and forested hills. Much of the City is urbanized; however, its coastline and wooded ridges are devoted primarily to open space and recreational uses. Located an hour away from San Jose and an hour and a half from San Francisco, Monterey is frequently a vacation destination for inland and city residents. The Monterey region is well known for its scenic visual character. The City's coastal areas provide expansive views of the Pacific Ocean (Monterey Bay). The adjacent beach and coastal bluff areas are visually intriguing and offer a variety of passive and active recreational opportunities. Fisherman's Wharf and Cannery Row provide a variety of shops, art and craft galleries, boutiques, and restaurants in an historic seaport setting.

As identified in the City's General Plan, all major roads leading to Monterey are scenic highways. Highway 1, south of the City, is a State designated scenic highway. State Highway 68 from Highway 1 to the Salinas River is a State and County designated scenic highway. Primary features of the site are shown on **Figure 4**, Hartnell Gulch Site inventory.

Discussion

a) Less Than Significant Impact. The City's General Plan identifies "special places" which are considered to have significant visual resources. The project site is identified as a "canyon special place" in the General Plan. However, the project is proposed, in part, to restore the canyon habitat of the creek, therefore enhancing and maintaining the native vegetation and distinct natural features. Also, a scenic vista is normally defined as a viewpoint that provides expansive views of a highly valued landscape for the benefit of the general public for the purposes of CEQA analysis. Although the area is defined as a special place by the City of Monterey, due to the vegetated nature of the existing site, there does not appear to be a scenic vista associated with the project area.

Based upon the intent of the project for restoration of the area, and the limited scenic vista available at the site due to topography and vegetation, adverse visual impacts to scenic vistas are considered less than significant.

b) Less Than Significant Impact. The site does not contain any rock outcroppings and is not located within a State scenic highway. The property bordering the project site on the north along Hartnell Street is zoned as a H1 historic building. This building was constructed in 1833 and is locally referred to as the Stokes Adobe. As currently proposed, above ground features would be limited to a pedestrian trail with possible benches and retaining walls if needed and would be designed to blend with the existing environment. This project would have a less than significant effect on scenic resources.

c) Level of Significance to be Determined. The project will require the removal of trees and vegetation that presently contribute to the natural appearance of the area. The removal of these trees and vegetation could degrade the existing visual character or quality of the site and its surroundings. More specific information is needed on potential removal of trees and grading that could potentially impact the visual quality of the site. Due to the nature of the project, the design would include replacement and replanting of any removed trees as well as restoration of riparian habitat impacted to mitigate for visual impacts. Therefore, a determination on the level of significance cannot be made without the completion of a Landscape Plan, as described below. Further documentation is needed to confirm determination that this impact can be reduced to less than significant with mitigation.

PENDING DESIGN PRODUCT: LANDSCAPE PLAN

During the project design process, the City shall confer with the City Forester to ensure that the proposed project is in compliance with Chapter 37 of the Monterey City Code (Tree Preservation Ordinance), which regulates and mitigates the removal of trees. The

City shall develop an updated Landscape Plan that incorporates recommendations of the City Forester.[1] The Landscape Plan should specify that native vegetation, planting and a monitoring program consistent with the Biological Report identified in **Section IV,** below. The Landscape Plan will ensure that trees and riparian vegetation removed or lost as a result of construction will be replaced or restored in place and in kind, subject to the requirements of a native plant list to be included in the Biological Report.

<u>d) Level of Significance to be Determined.</u> There is currently no proposed Lighting Plan for the proposed project. Typically, similar projects would include installation of small, downward-facing, light fixtures installed along the pathway. Lighting would need to provide enough illumination required to prevent trip hazards and provide security. The new source of light or glare would likely not adversely affect day or nighttime views in the area and the potential impact is considered less than significant, however, further design details including a Lighting Plan, as described below will be needed to confirm the determination that this impact can be reduced to less than significant.

PENDING DESIGN PRODUCT: LIGHTING PLAN

During project design, the City shall develop a Lighting Plan for the proposed project. The Lighting Plan will ensure that lighting standards such that all artificial outdoor lighting will be limited to safety and security requirements, designed using Illuminating Engineering Society's design guidelines, and in compliance with International Dark-Sky Association approved fixtures, are complied with. In addition, the Lighting Plan will include lighting that is designed to have minimum impact on the surrounding environment and will use downcast, cut-off type fixtures that are shielded and direct the light only towards objects requiring illumination for safety and security.

[1] A Restoration Plan dated February 4, 2016 was prepared by Ecological Concern, Inc. on behalf of the City of Monterey for the proposed project, it is included as **Figure 6** to this Preliminary Environmental Checklist. Since that time, changes have been made to the project design. This Restoration Plan would need to be revised and expanded to meet the requirements of the Landscape Plan described above.

8.2. Agriculture and Forestry Resources

SUBJECT AREA	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact	SUPPORTING INFORMATION
AGRICULTURE AND FOREST RESOURCES – In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:					
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				X	City of Monterey PEEC, General Plan Conservation Element City of Monterey General Plan Update Initial Study 2003 City of Monterey Zoning Ordinance California Department of Conservation 2014
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X	City of Monterey PEEC, General Plan Conservation Element City of Monterey General Plan Update Initial Study 2003 City of Monterey Zoning Ordinance
c) Conflict with existing zoning for, or cause rezoning of forest land (as defined in Public Resources Code Section 12220g), timberland (as defined by Public Resources Code Section 4526) or timberland zoned Timberland Production (as defined by Government Code Section 51104g)?				X	City of Monterey PEEC, General Plan Conservation Element
d) Result in the loss of forest land or conversion of forest land to non-forest use?				X	City of Monterey PEEC, General Plan Conservation Element
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?				X	City of Monterey PEEC, General Plan Conservation Element City of Monterey General Plan Update Initial Study 2003 City of Monterey Zoning Ordinance

Existing Setting

While much of Monterey County is known for, and associated with, an abundance of agricultural operations, the City of Monterey itself has no agricultural operations or potential for future agriculture resources or activities. The project site is mapped as "Urban and Built-Up Land" by the California Department of Conservation Farmland Mapping and Monitoring Program (FMMP). The California Department of Conservation, Conservation Program Support also makes prepares maps of the parcels under Williamson Act contract. The project site is not under a Williamson Act contract (California Department of Conservation 2016).

Discussion

a-e) No Impact. The project site does not contain any identified agriculture resources, land identified for potential agricultural production, lands zoned for agricultural use, or lands under a Williamson Act contract. Agriculture operations are not an allowable use in the Zoning Code. No forest land or timberland are identified in the City General Plan and the City does not include any forest zoning classifications.

The project involves restoration of riparian area and limited improvements including a trail and runoff diversion within an urban area, which would not remove a barrier to population growth. Because the project would not induce population growth, the project would not result in an indirect impact from the conversion of agricultural lands to non-agricultural use or conversion of forest land to non-forest use. Therefore, no impact would occur to agriculture resources.

8.3. Air Quality

SUBJECT AREA	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact	SUPPORTING INFORMATION
AIR QUALITY – Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:					
a) Conflict with or obstruct implementation of the applicable air quality plan?				X	City of Monterey PEEC, General Plan Conservation Element, Policy c.2 2008 Air Quality Management Plan (AQMP) for the Monterey Bay Region (Monterey Bay Unified Air Pollution Control District (MBUAPCD)) 2008 CEQA Air Quality Guidelines (MBUAPCD) 2005 Report on Attainment of the California Particulate Matter Standards in the Monterey Bay Region (MBUAPCD)
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?			X		City of Monterey PEEC, General Plan Conservation Element Goal c and Policies c.1–c.3 2008 AQMP for the Monterey Bay Region (MBUAPCD)

					2008 CEQA Air Quality Guidelines (MBUAPCD) 2005 Report on Attainment of the California Particulate Matter Standards in the Monterey Bay Region (MBUAPCD)
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?			X		City of Monterey PEEC, General Plan Conservation Element Goal c and Policies c.1–c.3 2008 AQMP for the Monterey Bay Region (MBUAPCD) 2008 CEQA Air Quality Guidelines (MBUAPCD) 2005 Report on Attainment of the California Particulate Matter Standards in the Monterey Bay Region (MBUAPCD)
d) Expose sensitive receptors to substantial pollutant concentrations?			X		City of Monterey PEEC
e) Create objectionable odors affecting a substantial number of people?			X		City of Monterey PEEC

Existing Setting

The project area is within the North Central Coast Air Basin (NCCAB), which is comprised of Santa Cruz, San Benito and Monterey counties. A semi-permanent high-pressure system in the eastern Pacific is the controlling factor of the climate in the air basin. In late spring and summer, the high-pressure system is dominant and causes persistent west and northwesterly winds over the entire California coast. The onshore air currents pass over cool ocean waters to bring fog and relatively cool air into the coastal valleys. Warmer air aloft creates elevated inversions that restrict dilution of pollutants vertically, and mountains forming the valleys restrict dilution horizontally.

In the fall, the surface winds become weak, and the marine layer grows shallow, dissipating altogether on some days. The airflow is occasionally reversed in a weak offshore movement, and the relatively stagnant conditions allow pollutants to accumulate over a period of days. It is during this season that the north or east winds develop that transport pollutants from either the San Francisco Bay Area or the Central Valley into the NCCAB. During winter and early spring, the Pacific high–pressure system migrates southward and has less influence on the air basin. Wind direction is more variable, but northwest winds still dominate. The general absence of deep, persistent inversions and occasional storm passages usually result in good air quality for the basin. The City of Monterey is bounded by pine-wooded hills to the south and by the crescent-shaped southerly end of the Monterey Bay to the north. Persistent sea breezes ventilate the area with respect to other metropolitan areas, and the City generally enjoys good air quality throughout the year.

The Federal Clean Air Act (FCAA) requires that the United States Environmental Protection Agency (EPA) establish National Ambient Air Quality Standards (NAAQS) for various criteria pollutants. NAAQS defines the maximum amount of an air pollutant that can be present in ambient air. A NAAQS is generally specified as a concentration averaged over a specific time period, such as 1-hour, 8-hours, 24-hours, or 1-year. The different averaging times and concentrations are meant to protect against different exposure effects. AAQS established for the protection of human health are referred to as primary standards, while standards established for the prevention of environmental and property damage are called secondary standards. The FCAA allows States to adopt additional or more health-protective standards. The State of California has established air quality standards (CAAQS) for some pollutants not addressed by NAAQS. The California Air Resources Board (ARB) has established CAAQS for H_2S, SO_4^{2-}, VCM, and visibility reducing particles.

The ARB designates a status for regional air basins as being in attainment or nonattainment with State air quality standards. The EPA provides the designation for National standards. State designations are reviewed annually while the National designations are reviewed when either the standards change, or when an area requests that they be re-designated due to changes in the area's air quality. Most designations are made by regional air basin, but in some cases, designations are made at the county level.

Designations are made by pollutant according to the following categories:

Attainment – Air quality in the area meets the standard.

Nonattainment – Air quality in the area fails to the applicable standard.

Unclassified – Insufficient data to designate area, or designations have yet to be made.

Attainment/Unclassified - An EPA designation which, in terms of planning implications, is essentially the same as Attainment.

Nonattainment designations are of most concern because they indicate that unhealthy levels of the pollutant exist in the area, which typically triggers a need to develop a plan to achieve the applicable standard. Current State and National designations are shown below:

Table 3. North Central Coast Air Basin Attainment Status Summary as of January 2015

Pollutant	State Standards[1]	National Standards
Ozone (O_3)	Nonattainment[2]	Attainment / Unclassified[3]
Inhalable Particulates (PM_{10})	Nonattainment	Attainment
Fine Particulates ($PM_{2.5}$)	Attainment	Attainment / Unclassified[4]
Carbon Monoxide (CO)	Attainment	Attainment / Unclassified
Nitrogen Dioxide (NO_2)	Attainment	Attainment / Unclassified[5]
Sulfur Dioxide (SO_2)	Attainment	Attainment[6]
Lead	Attainment	Attainment / Unclassified[7]

Notes:
1) State designations based on 2010 to 2012 air monitoring data.
2) Effective July 26, 2007, the ARB designated the NCCAB a nonattainment area for the State ozone standard, which was revised in 2006 to include an 8-hour standard of 0.070 ppm.
3) On March 12, 2008, EPA adopted a new 8-hour ozone standard of 0.075 ppm. In April 2012, EPA designated the NCCAB attainment/unclassified based on 2009-2011 data.
4) This includes the 2006 24-hour standard of 35 µg/m3 and the 2012 annual standard of 12 µg/m3 .
5) In 2012, EPA designated the entire state as attainment/unclassified for the 2010 NO2 standard.
6) In June 2011, the ARB recommended to EPA that the entire state be designated as attainment for the 2010 primary SO2 standard. Final designations to be addressed in future EPA actions.
7) On October 15, 2008 EPA substantially strengthened the national ambient air quality standard for lead by lowering the level of the primary standard from 1.5 µg/m3 to 0.15 µg/m3 . Final designations were made by EPA in November 2011.
8) Nonattainment designations are highlighted in Bold.

The Monterey Bay Air Resources District (MBARD) is the regional agency tasked with managing air quality in the region. The MBARD, which is overseen by the ARB, has published CEQA Air Quality Guidelines that also are used in this assessment to evaluate air quality impacts of projects (MBARD, 2008). In an attempt to achieve NAAQS and CAAQS and maintain air quality, the MBUAPCD has most recently completed the 2008 Air Quality Management Plan (2008 AQMP) for achieving the O3 CAAQS and the 2007 Federal Maintenance Plan for Maintaining the National Ozone Standard in the Monterey Bay Region (MBARD, 2007).

Although the North Central Coast Air Basin is in attainment of all federal air quality standards, it is designated as nonattainment with respect to the more stringent state PM_{10} standard and the state eight-hour ozone standard. See **Table 3** for a summary of the North Central Coast Air Basin attainment status.

CEQA Guidelines §15125(b) requires that a project is evaluated for consistency with applicable regional plans, including the Air Quality Management Plan (AQMP). The MBARD is required to update their AQMP once every three years; the most recent update (MBARD, 2017) was approved in March of 2017. This plan addresses attainment of the State ozone standard and federal air quality standard. AQMP accommodates growth by projecting growth in emissions based on population forecasts prepared by the Association of Monterey Bay Area Governments (AMBAG) and other indicators. Consistency determinations are issued for commercial, industrial, residential, and infrastructure related projects that have the potential to induce population growth. A project is considered inconsistent with the AQMP if it has not been accommodated in the forecast projections considered in the AQMP.

Discussion

a) No Impact. A project would conflict with or obstruct implementation of the AQMP for the Monterey Bay Region if it is inconsistent with the growth assumptions in the AQMPs, in terms of population, employment, or regional growth in vehicle miles traveled. These population forecasts are developed, in part, on data obtained from local jurisdictions and projected land uses and population projections identified in community plans. Projects that result in an increase in population growth that is inconsistent with local community plans would be considered inconsistent with the AQMP. As the proposed project would not affect population growth, no impact would occur as a result of the proposed project.

b) Less Than Significant Impact. The project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation. Under the Federal Clean Air Act, the NCCAB is designated for attainment status as shown above in **Table 3**. The long-term and short-term impacts of the project to air quality are discussed below. Greenhouse gas emissions are discussed in **Section VII** of this document.

Long-term air emissions impacts are associated with any change in permanent use of the project site by on-site stationary and off-site mobile sources that substantially increase vehicle trip emissions. Construction activities, such as grading and vehicle/equipment use, that would result in air pollutant emissions are considered short-term.

The proposed project would include short-term, temporary impacts to air quality which may occur from the generation of air pollutant emissions during construction. The use of vehicles and heavy equipment as part of construction of the proposed project would result in the temporary generation of emissions resulting from site grading and excavation, vegetation removal, dredging, and construction-related vehicle traffic. These activities would be the primary emissions sources at the project site. Dust generated daily during construction would vary substantially, depending on the level of activity, the specific operations, and weather conditions. Vehicles and heavy equipment that may be required for construction and maintenance would not operate continuously, thereby producing intermittent and temporary emissions, depending on the construction duration and schedule. Construction and maintenance activities of the proposed project may also require worker commute trips.

The sources of emissions associated with the proposed project have the potential to generate a small amount of fugitive particles and diesel exhaust that could result in an increase in criteria pollutants during maintenance activities and could also contribute to the existing nonattainment status of the NCCAB for ozone and PM_{10}. As stated in the MBUAPCD 2008 CEQA Air Quality Guidelines (Section 5.3), emissions from construction activities represent temporary impacts that are typically short in duration, depending on the size, phasing, and type of project. Air quality impacts can nevertheless be acute during construction periods, resulting in significant localized impacts to air quality. Emissions of concern related to construction and maintenance activities are PM_{10} and ozone.

As stated above, as the extent and duration of construction and maintenance activities are not defined yet, further environmental analysis will need to be completed to determine the impacts of construction and maintenance on air quality. However, the following provides standards for evaluating significant impact and preliminary assessment based upon level of project details known.

Inhalable Particulates (PM_{10})

Construction activities (e.g., excavation, grading, on-site vehicles) which directly generate 82 pounds per day or more of PM_{10} would have a significant impact on local air quality when they are located nearby and upwind of sensitive receptors. If ambient air quality in the project area already exceeds the State AAQS, a project would contribute substantially to this violation if it would emit 82 lb/day or more. As indicated above, assuming the proposed project would not exceed 82 lb/day, this impact is less than significant.

Ozone

Construction activities using typical construction equipment that temporarily emit precursors of ozone (i.e., volatile organic compounds (VOC) or oxides of nitrogen (NO_X)) are accommodated in the emissions inventories of State- and federally-required air plans and will have a less than significant impact on the attainment and maintenance of ozone AAQS.

Due to the limited area of construction, earthmoving maintenance activities associated with the proposed project would likely not exceed 2.2 acres per day air quality consistent with Air District standards. Given the limited extent of the work area, and due to the temporary nature of the activities, the proposed project is not expected to exceed the impact significance criteria. Therefore, impacts to air quality will be less than significant.

To further minimize air quality impacts, consistent with guidance from MBARD and City construction standards, the following "Best Management" construction practices shall be implemented at the construction site to control emissions:

- Water all active construction areas as required with non-potable sources to the extent feasible; frequency should be based on the type of operation, soil, and wind exposure and minimized to prevent wasteful use of water.
- Prohibit grading activities during periods of high wind (over 15 mph).
- Cover all trucks hauling soil, sand, and other loose materials and require trucks to maintain at least 2 feet of freeboard.
- Hand sweep daily within paved areas.
- Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets;
- Enclose, cover, or water daily exposed stockpiles (dirt, sand, etc.);
- Replant vegetation in disturbed areas as quickly as possible.
- Provide stabilized construction entrance/exit to limit sediment tracking from the site.

With the implementation of Best Management Practices described above, short-term construction period air quality impacts associated with the proposed project would be less than significant.

Long-term air emissions impacts are associated with any change in permanent use of the project site by on-site stationary and off-site mobile sources that substantially increase vehicle trip emissions. No stationary sources are associated with the project. The project involves restoration of riparian area and limited improvements including a trail and runoff diversion, which once completed, would not generate vehicle or other mobile emissions. Therefore, long-term operation of the project would not contribute to an existing or projected air quality violation.

c) Less Than Significant Impact. The project is not expected to result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard. As described above in (b), the project would result in temporary increases in air pollutants (e.g., fugitive dust). However, implementation of Best Management Practices, described above, would reduce impacts to a less than significant level. Therefore, temporary increases in air pollutants would not be cumulatively considerable.

d-e) Less Than Significant Impact. Generally, residences, as well as schools, are considered to be "sensitive receptors" in relation to air quality issues. There are a limited number of residences located along Pacific Street near the project area. Monterey High School facilities are located across Pacific Street near the site. As stated in b-c above, the project, during construction, may generate odors or pollutant concentrations that are objectionable to some persons. Construction activities may expose surrounding land uses to airborne particulates and fugitive dust, as well as a small quantity of pollutants associated with the use of construction equipment (e.g., diesel-fueled vehicles and equipment). On a limited basis, sensitive receptors in the vicinity and on-site workers may be exposed to blowing dust, depending on the prevailing wind. However, implementation of the Best Management Practices described above, and the temporary nature of the impacts, would reduce short-term construction period air quality impacts and prevent nuisances to residents and workers. Thus, the impact is less than significant.

8.4. Biological Resources

SUBJECT AREA	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact	SUPPORTING INFORMATION
BIOLOGICAL RESOURCES – Would the project:					
a) Has a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	Level of Significance to be Determined, see note below.				City of Monterey PEEC, General Plan Conservation Element Goal d, Policies d.1–d-6 and Programs d.1.1–d.6.6 City of Monterey PEEC, Monterey City Code (M.C.C.), Chapter 37, Preservation of Trees and Shrubs
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	Level of Significance to be Determined, see note below.				City of Monterey PEEC, General Plan Conservation Element Policy b.4 and Program d.6.3
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	Level of Significance to be Determined, see note below.				City of Monterey PEEC, General Plan Conservation Element Policy b.4 and Program d.6.3
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?		X			City of Monterey PEEC

SUBJECT AREA	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact	SUPPORTING INFORMATION
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	Level of Significance to be Determined, see note below.				City of Monterey PEEC, Monterey City Code (M.C.C.), Chapter 37, Preservation of Trees and Shrubs City of Monterey, Forest Management Plan, August 2008
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				X	City of Monterey PEEC Installation-Wide Multispecies Habitat Management Plan for Former Fort Ord, California, 1997 City of Monterey General Plan Update EIR 2004
Note: As described in sections a), b), c), and e) below, a Biological Report, a Wetland Delineation, and a Landscape Plan will be prepared by the City during the design phase of the proposed project. Upon completion of these documents, the level of significance can be determined.					

Existing Setting

Monterey County consists of more than 3,324 square miles of land (over two million acres) with a variety of habitats from rocky Pacific shores to open grasslands to high mountains at elevations exceeding 5,000 feet. The Monterey Bay area, located in northern Monterey County, is home to a diverse population of animal, bird, and plant species. The waters of Monterey Bay and the adjacent Pacific Ocean off the central California coast have been designated and protected as the Monterey Bay National Marine Sanctuary since 1992. The climate of the site is typical of the California central coast with mild year-round and morning coastal fog, generally cleared by afternoon breezes. Monterey typically experiences cool summer months, with temperatures averaging in the high 50s to low 60s, and warm "Indian Summer" weather in the fall. The average yearly rainfall is approximately 18 inches and is concentrated in the winter and early spring months.

Monterey Tree Protection Ordinance

Monterey's image is that of a small-scale residential community beside the bay, framed by a forested hill backdrop and drawing its charm from a rich historical background, certain commercial enterprises, and natural scenic beauty. Trees within the City significantly contribute to this image. The Preservation of Trees and Shrubs Ordinance is intended to assure preservation of trees and replacement of trees that are six inches in diameter or greater when removal is unavoidable. The Ordinance also establishes a Landmark Tree Program.

General Plan Conservation Element

The City's Conservation Element contains a variety of goals, policies and programs to: protect the character and composition of existing native vegetative communities.

The project site is located within a natural area called Hartnell Gulch, which is surrounded by development. Stormwater runoff drains into a small stream that runs through the center of the project site. Vegetation on the project site is “ruderal”, a habitat type dominated by non-native, invasive species due to previous or ongoing disturbance, as shown on **Figures 5 and 6.** Existing trees and shrubs are proposed to be protected where feasible; these include oak and cypress trees as shown on **Figure 5**. **Figure 6** also identifies the project area plantings and proposed restoration plans (conceptual draft).

Discussion

<u>a) Level of Significance to be Determined.</u> The project site has the potential for candidate, sensitive, special status, or rare and endangered species and marine animals. A determination on the level of significance cannot be made without a Biological Report, as described below. Once this information is available, the determination whether this impact can be reduced to less than significant with mitigation can be made.

> **PENDING TECHNICAL ANALYSIS: BIOLOGICAL REPORT**
>
> A biological survey and report shall be conducted to analyze the potential or candidate, sensitive, special status, or rare and endangered species or marine animals and potential impacts to biological resource impacts based on the operation and construction of the proposed project. The recommendations contained in said report shall incorporated into project construction and design.

<u>b), c) Level of Significance to be Determined.</u> The creek that runs through the project site will be graded and the creek bed will be raised by several feet. Natural drainage channels and wetlands are considered Waters of the United States. The U.S. Army Corps of Engineers (ACOE) regulates the filling or grading of such Waters by authority of Section 404 of the Clean Water Act. Additionally, the California Department of Fish and Wildlife (CDFW) has jurisdiction over the bed and bank of natural drainages according to the provisions of Section 1601 and 1603 of the California Fish and Game Code. Impacts to waters of the U.S. are considered potentially significant. A determination on the level of significance cannot be made without a Wetland Delineation, as described below. Riparian areas, wetlands, other waters of the U.S., waters of the state are considered sensitive biological resources that fall under the jurisdiction of the above regulatory agencies. Coordination, the approval of various permits could reduce any potential effects on these habitats. The proposed project may result in potentially significant but mitigatable impacts related to effects on sensitive habitats. Additional environmental analysis is required once the project is further defined to identify and confirm biological resources on the site as well as determine potential impacts and mitigations to reduce the level of biological impacts from the proposed project. After the Wetland Determination is complete, a determination of whether this impact can be reduced to less than significant with mitigation can be made.

> **PENDING TECHNICAL ANALYSIS: WETLAND DELINEATION**
>
> Prior to commencement of construction, the City will conduct a jurisdiction waters delineation to document the extent of potentially jurisdictional waters of the U.S. within the project area which may be regulated by the ACOE. The delineation report will also contain a determination of the extent of potential impacts to jurisdictional area resulting from project implementation. Pursuant to Clean Water Act Section 404 Nationwide Permit

(NWP) 14; if the discharge causes the loss of less than 1/10-acre to waters of the U.S., no further action is required. If impacts to jurisdictional areas are less than 1/3 acre but greater than 1/10 acre, the City will notify the ACOE District Engineer in accordance with requirements specified in NWP 14. If impacts to jurisdictional areas are greater than 1/3 acre, or if the proposed activity would not otherwise quality for NWP 14, the City will proceed with obtaining an Individual Permit from the ACOE. In addition to Section 404 permit from the ACOE, a Streambed Alteration Agreement from the CDFW and a Water Quality Certification (Section 401 of the Clean Water Act) from the Central Coast Regional Water Quality Control Board will be obtained.

d) Less Than Significant with Mitigation. The proposed project area has the potential to support avian populations that are protected under both the Migratory Bird Treaty Act and Fish and Game Code Section 3503. Construction-related activities (e.g., trimming and removal of trees and vegetation, and equipment noise, vibration, and lighting) that result in harm, injury, or death of individuals, or abandonment of an active nest would be considered a significant impact. The proposed project site provides potential nesting habitat for protected avian species. If a raptor or other migratory birds were to nest on or adjacent to the site prior to or during proposed construction activities, such activities may result in the abandonment of active nests or direct mortality to these birds. This is considered a potentially significant impact that can be reduced to a less-than-significant level with implementation of **Mitigation Measure 1** identified below.

MITIGATION MEASURE 1: CONDUCT PRE-CONSTRUCTION SURVEYS FOR NESTING BIRDS

Construction activities that may affect nesting birds shall be timed to avoid the nesting season. Specifically, tree removal shall be scheduled after September 1 and before February 28. Alternatively, if construction activities or tree removal are to occur during the breeding season (February 28 through September 1), surveys for active nests shall be conducted by a qualified biologist no more than 30 days prior to the start of construction. If nesting birds are identified during the preconstruction surveys, CDFW shall be contacted and an appropriate buffer shall be imposed within which no construction activities or disturbance shall take place (generally 300 feet in all directions for raptors) until the young of the year have fledged and are no longer reliant upon the nest or parental care for survival, as determined by a qualified biologist or CDFG.

e) Level of Significance to be Determined. The project is located within a designated habitat management area according the City of Monterey General Plan Map 9. Additionally, the project will require the removal of trees. The City's Tree Ordinance defines preservation and replacement of trees that are six inches in diameter or greater when removal is unavoidable. The Ordinance also establishes a Landmark Tree Program. The project will result in the loss of trees and vegetation within a habitat management area. The project is a restoration project and preliminary plans indicate tree removal will be avoided where feasible. Coordination with the City Forester and compliance with the Tree Ordinance will occur through the review and approval of an updated Landscape Plan, as described **Section I**, above. Therefore, related potential impacts cannot be determined at this time.

f) No Impact. The City does not have an adopted Habitat Conservation Plan or Natural Community Conservation Plan that addresses the proposed project site. Therefore, no impact will result.

8.5. Cultural Resources

SUBJECT AREA	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact	SUPPORTING INFORMATION
CULTURAL RESOURCES – Would the project:					
a) Cause a substantial adverse change in the significance of a historical resource as defined in 15064.5? (Intent is to address impact to onsite historic resources and adjacent historic resources.)		X			City of Monterey PEEC, Monterey City Code (M.C.C.), Chapter 38, Zoning Code, Article 15 H Historic Overlay District City of Monterey PEEC, Historic Preservation Program City of Monterey PEEC, Historic Master Plan City of Monterey PEEC, Historic Ordinance
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to 15064.5?	Level of Significance to be Determined, see note below.				Archaeological Sensitivity Map, Figure 8, Draft EIR, City of Monterey General Plan Update, July 2004
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?		X			Archaeological Sensitivity Map, Figure 8, Draft EIR, City of Monterey General Plan Update, July 2004
d) Disturb any human remains, including those interred outside of formal cemeteries?		X			City of Monterey PEEC
Note: As described in section b) below, an Archaeological Survey Report will be prepared by the City during the design phase of the proposed project. Upon completion of this document, the level of significance can be determined.					

Existing Setting

According to the City's General Plan, the City of Monterey is one of the most historic cities in the United States, and preservation of historic resources has long been a concern of Monterey citizens. Over the past three centuries, the City has served, at various times, as a Spanish mission, a center of government, a major commercial port, and a cultural center. There are numerous historic sites in the City, including two National Historic Landmark Districts. Monterey is recognized as a Preserve America Community and the National Trust designated Monterey as one of its Twelve Distinctive Destinations.

The City of Monterey updated its Historic Preservation Ordinance in March 2000. Historic zoning within the City is defined as follows: Landmark Zoning (H-1) may be applied to properties which meet the National Register criteria defined in National Register Bulletin 15 and the property is the first, last, only, rare, or most significant resource of its type in the region. Notwithstanding the foregoing, the H-1 Landmark zoning district may be applied to adobe resources built prior to 1879 and other previously “H” zoned resources as of the date of the ordinance adoption which may not meet National Register integrity standards. City Historic Resource Zoning (H-2) may be applied to properties that meet National Register criteria.

An archaeological report was prepared by Pacific Legacy for the nearby Hartnell Gulch Pedestrian Walkway Project. The report found there were ten recorded cultural resources situated within one quarter-mile including four prehistoric sites. Near to the Hartnell Gulch proposed project area, a substantial 19th and early 20th century historic refuse dump was discovered near the eastern end of Hartnell Gulch. In addition, eleven historic properties have been identified within or near the block in which the project area is situated. (Pacific Legacy Report, October 2008 included as an attachment to the IS/ND for the City of Monterey Hartnell Gulch Pedestrian Walkway Project.)

Discussion

a) Less Than Significant with Mitigation. According to the Archaeological Sensitivity Map, Figure 8 of the Draft General Plan EIR, the project site is in an area of “High Probability of Prehistoric Artifacts.” During project construction archaeological or paleontological resources may be encountered. This would be considered a potentially significant impact. Due to the projects location in an archaeological sensitive area, **Mitigation Measures 2 and 3** below is required to reduce this impact to a less than significant level.

MITIGATION MEASURE 2: VIBRATION MONITORING

To reduce impacts from construction vibration the City shall monitor for vibration during project construction, especially during the use of jackhammers and vibratory rollers, if applicable. If construction vibration levels exceed 0.12 in/sec PPV, construction shall be halted, and other construction methods shall be employed to reduce the vibration levels below the standard threshold. Alternative construction methods may include using concrete saws instead of jackhammers or hoe-rams to open excavation trenches, the use of non-vibratory rollers, and hand excavation. If impact sheet pile installation is needed (i.e., for horizontal directional drilling or jack-and-bore)

MITIGATION MEASURE 3: ARCHAEOLOGICAL MONITORING

A qualified archaeologist shall be retained on site during all excavation work and shall examine all excavations for evidence of any archaeological or paleontological resources. If any prehistoric subsurface, archaeological features or deposits including locally darkened soil (“midden”), that could conceal cultural deposits, animal bone, obsidian and/or mortar are discovered during construction-related earth-moving activities, all work within 50 meters of the resources shall be halted and the qualified archaeologist shall assess the significance of the find. Archaeological test excavations shall be conducted by the qualified archaeologist to aid in determining the nature and integrity of the find. If the find is determined to be significant by the qualified archaeologist, then representatives of the City and the qualified archaeologist shall meet to determine the appropriate course of action. All significant cultural materials recovered shall be subject to scientific analysis, professional museum curation, and a report shall be prepared by the qualified archaeologist according to current professional standards.

If a Native American site is discovered, then the evaluation process shall include consultation with the appropriate Native American(s). When Native American archaeological, ethnographic, or spiritual resources are involved, all identification and treatment shall be conducted by qualified archaeologists who are either certified by the Register of Professional Archaeologists (RPA) or meet the federal standards as stated in the Code of Federal Regulations (36 C.F.R. 61), and Native American representatives who are approved by the local Native American community as scholars of the cultural traditions. If no such Native American is available, persons who represent tribal governments and/or organizations in the locale in which resources could be affected shall be consulted.

A qualified archaeologist shall be present at the preconstruction meeting to educate all construction workers for the proposed project on the identification of subsurface cultural resources. The preconstruction meeting shall be completed prior to the commencement of any earth work or other construction activities and verification of compliance shall be provided to the City. Each contractor and all employees involved with earth moving activities including, but not limited to grading, scraping, drilling, and trenching, shall be required to participate in this preconstruction meeting. If subsequent contractors are hired who did not participate in this preconstruction meeting, they shall be required by the City to meet independently with the qualified archaeological consultant to review and discuss the potential for discovery of archaeological resources and the proper treatment of these materials to meet the spirit and the intent of this mitigation measure. They too shall provide verification to the City.

<u>b) Level of Significance to be Determined.</u> The property bordering the project site on the north along Hartnell Street is zoned as a H1 historic building. No other identified historic resources are in the immediate vicinity of the project site. Project engineering or project construction details are not fully defined; however, there is the potential for construction activities to either be near historical resources or create vibrations that could have a negative effect on the foundation of the historic structure. A determination on the level of significance cannot be made without the completion of an archaeological report, as described below.

PENDING TECHNICAL ANALYSIS: ARCHAEOLOGICAL SURVEY REPORT

The project proponent shall conduct a preconstruction archaeological survey to ensure no archaeological sites are within the construction area. The site must be inventoried for the presence of archaeological resources. This would include surface examination within the project site. After field studies are completed, an Archaeological Survey Report will be prepared, as appropriate, for documenting the type(s) of resources encountered.

<u>c) Less Than Significant with Mitigation.</u> Impacts to paleontological resources are significant when a project is determined to disturb or destroy scientifically important fossil remains, as defined by the Society of Vertebrate Paleontology. Excavations associated with construction of the proposed project could potentially impact such resources. Mitigation is necessary to ensure that

resources discovered during project construction will be appropriately protected and curated. Due to the projects location in an archaeological sensitive area, this would be considered a potentially significant impact. implementation of **Mitigation Measure 3** above will reduce the impact to a less than significant level.

d) <u>Less Than Significant with Mitigation.</u> The proposed project could have the potential to disturb undiscovered human remains. While no prehistoric archaeological material has been previously identified, there is a remote possibility human remains could be uncovered during grading, excavation, and other earthmoving activities. If encountered, such resources could be damaged or destroyed. This would be considered a potentially significant impact. Implementation of **Mitigation Measure 4** below will reduce this impact to a less than significant-level.

MITIGATION MEASURE 4: DISCOVERY OF ARCHEOLOGICAL RESOURCES OR HUMAN REMAINS

If archaeological resources or human remains are unexpectedly discovered during any construction, work shall be halted within 50 meters (±160 feet) of the find until it can be evaluated by a qualified professional archaeologist. If the find is determined to be significant, appropriate mitigation measures shall be formulated and implemented, with the concurrence of the Lead Agency (MRWPCA). The County Coroner shall be notified in accordance with provisions of Public Resources Code 5097.98-99 in the event human remains are found and the Native American Heritage Commission shall be notified in accordance with the provisions of Public Resources Code section 5097 if the remains are determined to be of Native American origin.

8.6. Geology and Soils

SUBJECT AREA	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact	SUPPORTING INFORMATION
GEOLOGY AND SOILS – Would the project:					
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.			X		City of Monterey PEEC, General Plan Safety Element Goal a, Policies a.1–a.7 City of Monterey PEEC, General Plan, Map 11-Showing Seismic Hazards

SUBJECT AREA	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact	SUPPORTING INFORMATION
ii) Strong seismic ground shaking?			X		City of Monterey PEEC, General Plan Safety Element Goal a, Policies a.1–a.7
iii) Seismic-related ground failure, including liquefaction?			X		City of Monterey PEEC, General Plan Safety Element Goal a, Policies a.1–a.7
iv) Landslides?			X		City of Monterey PEEC, General Plan Safety Element Goal a, Policies a.1–a.7 City of Monterey PEEC, General Plan Safety Element Policies b.1–b.6 City of Monterey PEEC, General Plan, General Plan Map 12-Showing Steep Slopes
b) Result in substantial soil erosion or the loss of topsoil?	Level of Significance to be Determined, see note below.				City of Monterey PEEC, General Plan Safety Element Goal a, Policies a.1–a.7 City of Monterey PEEC Phillip Williams Associates, October 1997. Hartnell Gulch: Watershed Analysis and Management
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	Level of Significance to be Determined, see note below.				City of Monterey PEEC, General Plan Safety Element Goal a, Policies a.1–a.7 City of Monterey PEEC, General Plan, General Plan Map 12-Showing Steep Slopes
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	Level of Significance to be Determined, see note below.				City of Monterey PEEC
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?				X	City of Monterey PEEC
Note: As described in sections b), c), and d) below, an Erosion Control Plan and a Geotechnical Report will be prepared by the City during the design phase of the proposed project. Upon completion of these documents, the level of significance can be determined.					

Existing Setting

The City of Monterey is underlain by a major geologic feature, the Salinian Block, which in turn is underlain by granitic basement rock. The Salinian Block is bounded on the northeast by the San

Andreas Fault and on the southwest by the Palo Colorado-San Gregorio Fault. The block is approximately 50 miles wide and 300 miles long. The types of soils and geologic formations that underlie the City are varied, ranging from unconsolidated dune sands along the Monterey Bay to exposed granite and sandstone. Each has unique characteristics and potential development limitations and erosion characteristics. Generally, the erosion potential of soils and their expansion properties (soil expansion and contraction can result in damage to building foundations, roads, etc.) are of greatest interest from a development impact perspective.

Coastal areas along Monterey Bay, especially dune deposits, are highly susceptible to coastal erosion from waves and tidal events. Erosion potential varies along the length of the coast. Variability in erosion rates is caused by several factors including sea level, wave patterns influenced by the form of the ocean floor, storm patterns, and the structure and character of dunes in localized areas. Historic average coastal bluff retreat rates have been highest in the former Fort Ord area, averaging up to eight feet per year. Average erosion rates decrease down coast to about three to five feet per year in Sand City. Further south, within the City, average erosion rates are believed to be about one to two feet per year (Coastal Regional Sediment Management Plan for Southern Monterey Bay, November, 2008). Coastal erosion would be a significant factor for any development proposed along the margin of Monterey Bay.

California is one of the most active seismic regions in the United States. The City lies adjacent to the boundary zone between the North American and Pacific tectonic plates. The faults associated with this zone are predominantly northwest-trending strike-slip faults that have a right-lateral slip. The General Plan identifies three faults that traverse the City, including the Chupines Fault, the Navy Fault, and the Berwick Fault. Information available on the activity of these faults is generally not conclusive, but each is assumed to be potentially active.

Topography and slope within the City is quite variable. Lands along the margin on Monterey Bay tend to be relatively flat but sloped towards the bay. Much of the upland portion of the City is incised by a series of intermittent stream channels that have cut into surface soil and subsurface geologic formations, leaving a series of mesas that trend towards the bay. Much of the City is built on these mesas and on the more level margins of the bay. The northern terminus of the Santa Lucia Mountains is the major regional landform that forms the backdrop to the City. Due to slope and access constraints, development within this area tends to be less dense. Steep slopes within the City tend to be located along stream channels and within the hillside areas.

Discussion

a i-iv) Less Than Significant Impact. The proposed project is not located within a fault zone but could increase the exposure of people and structures to seismic hazards including strong seismic ground shaking and seismic-related ground failure. The project is in a seismically active part of California which is subject to strong seismic ground shaking. Ground shaking is a general term referring to all aspects of motion of the earth’s surface resulting from an earthquake and is typically the major cause of damage in seismic events. The extent of ground-shaking is controlled by the magnitude and intensity of the earthquake, distance from the epicenter, and local geologic conditions. Construction will be subject to the California Building Code, which has incorporated the most recent seismic design parameters that mitigate the potential for drainage to structures subject to seismic accelerations.

With the requirement that the project is constructed using the standards and requirements of the current applicable codes in place to minimize any geophysical risks associated with construction of the project, and in accordance with the recommendations of a geotechnical engineer, potential impacts associated with the exposure of people or structures to substantial adverse effects of seismic activity or landslides would be considered less than significant.

b) Level of Significance to be Determined. The proposed project will restore the creek channel, and in part help mitigate for the increased erosion in the Hartnell Gulch. An erosion study in the Hartnell Gulch watershed identified erosion concerns within the project site. Per the report (Citation below), the Hartnell Street Channel bed in this short reach shows evidence of significant past erosion (the channel is about 16 feet deep) and widening (channel top width is 40 to 50 feet). However, there was not extensive recent incision, with only a small (2- to 6-foot deep) inner low flow channel, and mature trees within a couple feet of the channel bed. The banks in most of the reach appear moderate (1:1 to 1:5:1 Horizontal to Vertical). However, erosion on the outside of the meander bend appears to represent a potentially severe hazard to the Paseo Zabala building (at the farthest point of the project site downstream; building location is at 550 Hartnell Street). The vertical, 15-foot high bank at this location is only 10 feet from the building." It is not known if this concern regarding potential for future bank erosion impacting the building foundation at this location has been ameliorated. The recommendations from the report cited a need for "prompt investigation by a geotechnical engineer regarding the specific bank problems in relation to the building foundation… Based on our preliminary observations, some form of bank protection (vegetated rock slope, stepped retaining walls, crib walls, etc.) may be necessary to protect the building from future meander migration/bank erosion…". (Phillip Williams Associates, October 1997. Hartnell Gulch: Watershed Analysis and Management Recommendations. Prepared for the City of Monterey).

The project site is part of an established natural drainage corridor and disruption of the site may induce soil erosion into the adjacent stream. It is currently unknown whether or not the proposed project will have a significant impact related to soil erosion. An Erosion Control Plan, as described below is required to make this determination.

PENDING DESIGN PRODUCT: EROSION CONTROL PLAN

The City shall prepare and Erosion Control Plan for the proposed project. The plan will include, at a minimum, the installation of "waddles" or other containment devices if the project is to occur between the months of October and April (the normal period of rain), to prevent the immediate erosion of soils on the southern streambank into the adjacent stream. Upon completion of the project, the applicant shall ensure that the project site is sufficiently secure by planting non-invasive species in those areas disturbed by the construction project

c), d) Level of Significance to be Determined. The site-specific geotechnical conditions of the project site are unknown. The Hartnell Gulch location has steep slopes (in excess of 25%) within areas of the creek channel which is highly incised. Due to the unknown project conditions there is the potential the project could cause landslide, lateral spreading, subsidence, liquefaction, or collapse. A determination on the level of significance cannot be made without the completion of a Geotechnical Report, as described below. A geotechnical engineering evaluation is needed to review the geotechnical aspects of the project plans and structural calculations, as appropriate to evaluate if they are in general conformance with the intent of the geotechnical conditions on site. A geotechnical engineer will provide requirements and standards for the geotechnical aspects of construction, particularly grading, footing excavations, subsurface drainage installation, over excavations and placement and compaction of select fill or backfill, and to perform appropriate field and laboratory testing, as applicable. Additionally, the geotechnical report should assess foundations of the building at 550 Hartnell Street would not be impacted by construction.

PENDING TECHNICAL ANALYSIS: GEOTECHNICAL REPORT

A geotechnical report shall be prepared to provide specific recommendations for design and construction of the project based on the existing geologic conditions at the project sites. Construction of the proposed project will be required to adhere to the building and safety requirements in the City's Building Code as well as the site-specific recommendations in the geotechnical report. The geotechnical report shall be prepared as part of the project design, prior to construction and any recommendations made in the geotechnical report shall be incorporated into project design and construction.

e) No Impact. The project does not require a septic system or any other sewer connection. As such, there will be no impact.

8.7. Greenhouse Gas Emissions

SUBJECT AREA	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact	SUPPORTING INFORMATION
GREENHOUSE GAS EMISSIONS – Would the project:					
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X		Project Description; California Air Resources Board; MBUAPCD
b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?				X	Project Description; California Air Resources Board

Existing Setting

Greenhouse gases (GHGs) are emitted by both natural processes and human activities. Of these gases, carbon dioxide (CO_2) and methane (CH_4) are emitted in the greatest quantities from human activities. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas CH_4 results from off-gassing associated with agricultural practices and landfills. Scientific modeling predicts that continued GHG emissions at or above current rates would induce more extreme climate changes during the 21st century than were observed during the 20th century.

According to the Air Resources Board (ARB), some of the potential impacts in California of global warming may include loss of snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years (ARB, October 2007).

Potential impacts resulting from flooding caused by sea level rise is addressed in **Section IX** (Hydrology and Water Quality) below.

The greenhouse effect is a natural process by which some of the radiant heat from the sun is captured in the lower atmosphere of the earth, thus maintaining the temperature and making the earth habitable. The gases that help capture the heat are called greenhouse gases. Some GHGs occur naturally in the atmosphere, while others result from human activities. Naturally occurring GHGs include water vapor, carbon dioxide, methane, nitrous oxide, and ozone. Certain human activities, however, add to the levels of most of these naturally occurring gases as describe below:

- Carbon dioxide (CO_2) is released to the atmosphere when solid waste, fossil fuels (oil, natural gas, and coal), and wood and wood products are burned.
- Methane (CH_4) is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from the decomposition of organic waste in solid waste landfills and from the raising of livestock.
- Nitrous oxide (N_2O) is emitted during agricultural and industrial activities, as well as during combustion of solid waste and fossil fuels.
- High global warning potential (GWP) gases that are not naturally occurring, including hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6), are generated in a variety of industrial processes.

Each GHG differs in its ability to absorb heat in the atmosphere. High GWP gases such as HFCs, PFCs, and SF_6 are the most heat-absorbent. Methane traps over 21 times more heat per molecule than CO_2, and N_2O absorbs 310 times more heat per molecule than CO_2. Often, estimates of GHG emissions are presented in carbon dioxide equivalents (CO_2e), which weight each gas by its GWP.

Projects which are not consistent with the AQMP, described in more detail in **Section III** (Air Quality), have not been accommodated in the AQMP and will have a significant cumulative impact on regional air quality unless emissions are totally offset. A project that is inconsistent with the AQMP has not been accommodated in the emissions budget and will have a significant cumulative impact on attainment of the state's ozone ambient air quality standards (AAQS) unless project emissions are totally offset.

Discussion

a) Less Than Significant Impact. The proposed project would involve creek restoration and water diversion. Therefore, the project will not generate new vehicle trips or otherwise generate a new permanent stationary or mobile source of greenhouse gas emissions from operations. The proposed project would include an undefined number of construction truck trips during construction and would generate GHG emissions during construction. Operations of the proposed project, which includes infrastructure and landscape improvements to the site, would not result in the generation of additional GHG emissions. Therefore, a net increase in GHG emissions during the operational phase is not anticipated. An unquantified amount of emissions will result from construction activities; however, more detailed construction information is needed to assess the proposed project's contribution of GHG emissions during construction. Construction will be contained to the project site and construction GHG emission levels would be anticipated to be below the thresholds of significance; therefore, potential impacts are considered less than significant. This issue will require further analysis to confirm this preliminary conclusion once details are available.

b) No Impact. The proposed project would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases, since the proposed project will not substantially increase GHG emissions, therefore the project would not result in an impact related to conflicts with applicable plans.

8.8. Hazards and Hazardous Materials

SUBJECT AREA	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact	SUPPORTING INFORMATION
HAZARDS AND HAZARDOUS MATERIALS – Would the project:					
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			X		City of Monterey PEEC, General Plan Safety Element Goal G
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			X		City of Monterey PEEC
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?			X		City of Monterey PEEC
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				X	California Department of Toxic Substances, EnviroStor Database City of Monterey Fire Department

SUBJECT AREA	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact	SUPPORTING INFORMATION
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?			X		City of Monterey PEEC
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?			X		City of Monterey PEEC
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			X		City of Monterey PEEC, General Plan Safety Element Goal h and Policies h.1–h-6 City of Monterey Police and Fire Departments
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or when residences are intermixed with wildlands?				X	California Department of Forestry and Fire Protection, Monterey County Natural Hazard Disclosure (Fire) map http://www.fire.ca.gov/ab6/nhd27.pdf Monterey City Code (M.C.C.), Chapter 13, Fire Protection General Plan Map 14, Showing Fire Hazard Severity Zones

Existing Setting

The setting information provided below is based on information from the City's General Plan and General Plan Environmental Impact Report (EIR).

Hazardous Materials

In terms of hazardous materials usage, many types of hazardous wastes are used throughout the City in residential, commercial, and industrial applications. The Monterey County Environmental Health Division is responsible for managing the use, storage, and disposal of hazardous materials in amounts over a specific threshold (the threshold varies among uses and types of materials). The Environmental Health Division keeps an inventory of hazardous materials users and is responsible for working with users to develop plans that ensure the materials are safely used, stored, transported, and disposed.

Fire

Fire hazards can generally be divided into two main types: (1) fires within urban areas that primarily involve specific sites and structures; and (2) fires within undeveloped or minimally developed areas, commonly called wildland fires. Most of the land within the present city limits is developed with urban uses. The City of Monterey Fire Department responds to both structure and wildland fires within the City. The City of Monterey Fire Department maintains three stations and operates several fire prevention programs. If the City does not have the capacity to safely handle a structural or wildland fire, it can request additional firefighting resources through the Monterey County Mutual Aid Plan. The Monterey County Mutual Aid Plan enables any jurisdiction that participates in the plan to receive support from fire protection services of other jurisdictions that participate in implementing the plan. Response times to nearly all areas of the City are within the Department's recommended range of five to seven minutes. Response time to Ryan Ranch is on the threshold of being longer than seven minutes.

The Monterey City Code (M.C.C.) Chapter 13, Fire Protection, adopted the 2007 California Fire Code pursuant to Monterey City Ordinance No. 3398 (effective January 1, 2008). Amendments to this chapter of the code, as well as amendments to the City's General Plan Map 14, Showing Fire Hazard Severity Zones, were adopted by the City Council on June 2, 2009, to be in compliance with legislation (Government Code Section 51175). This legislation calls for the California Department of Forestry and Fire Protection (CAL FIRE) Director to evaluate fire hazard severity in Local Responsibility Areas and make a recommendation to the local jurisdiction when the Very High Fire Hazard Severity Zone (VHFHSZ) exists. Based on the findings of the CAL FIRE Director, there are both High and Very High Fire Hazard Severity Zone within the City of Monterey City limits (See Map 14 at the City's website: http://www.monterey.org/fire/news/fhszforgenplanmap090428.pdf)

Airport Safety

Monterey Peninsula Airport operations have the potential to create safety issues related to safe operation of approaching and departing aircraft. The Monterey Peninsula Airport District's 1992 Monterey Peninsula Airport Master Plan Update shows "runway protection zones" at each end of the main airport runway. These zones are areas 2,500 feet wide and 5,000 feet long. Within these areas, land use controls are exercised to minimize potential safety conflicts with activities that take place within the zones. Such controls and guidelines include the prohibition or limitation of uses that involve large assemblages of people, limitations on building heights and heights of other potential obstructions, and prohibition of new structures. Existing land uses that are within the western approach safety zone include much of the U.S. Navy Golf Course, the Monterey County Fairgrounds, and a small section of residential development. Uses within the eastern protection zone include commercial and residential development at the Highway 218/Highway 68 intersection. Smaller additional safety areas extend beyond the primary protection zone wherein specific development standards apply to minimize conflicts with airport operations.

Emergency Preparedness/Emergency Response

The City of Monterey Fire Department and City of Monterey Police Department coordinate emergency response within the City. The City operates its Emergency Operations Center (EOC) as the center of emergency response coordination and actions. During an emergency, all response activities are managed by the EOC, including information, equipment, volunteers, and other resources. Plans for responses to emergency situations are formulated by fire and police officials, and actions to implement those plans are communicated to emergency response teams that operate out of the EOC and throughout the City. The City also operates the Citizens Emergency Response Training (CERT). The main goal of the CERT program is to help the citizens of Monterey to be self-sufficient in a major disaster by developing multifunctional teams that are cross-trained in basic skills. The City's emergency response efforts are coordinated under the broader umbrella of the State of California Office of Emergency Services. The County of Monterey also has an emergency response office, but the City is not a participating jurisdiction in the County's response program. The County Environmental Health Division Hazardous Materials Branch and the City of Seaside Hazardous Materials Team would likely be the first agencies to provide support to the City in the event that the City does not have the capacity or capability to fully address a hazard. Both agencies are fully trained and equipped to respond to a variety of hazardous materials related incidents.

Discussion

<u>a) Less Than Significant Impact.</u> Construction equipment would require the use of petroleum products. Except for the materials required to operate the construction equipment, no other storage, use, transport, or disposal of any hazardous materials would be required. The proposed project will comply with all pollution and environmental control rules, regulations, ordinances, and statutes that apply to the project. As such, this potential impact is considered less than significant.

<u>b) Less Than Significant Impact.</u> Construction activities have the potential to release petroleum products and other substances into the environment. These materials will be stored properly within the staging area, in accordance with BMPs and applicable regulations, and the staging area will be secured from public access and identified per City requirements. Runoff controls will be implemented to prevent water quality impacts, and a spill plan will be developed to address any accidental spills. Any waste products resulting from construction operations will be stored, handled, and recycled or disposed of in accordance with federal, state, and local laws, including any wood that has been treated with potentially hazardous preservation chemicals. Therefore, this is considered a less than significant impact.

<u>c) Less Than Significant Impact.</u> Multiple schools are located within one-quarter mile of the project site. As indicated above, the proposed project will comply with all pollution and environmental control rules, regulations, ordinances, and statutes that apply to the project. As such, this potential impact is considered less than significant.

<u>d) No Impact.</u> The project site is not included on the Cortese list of hazardous sites compiled pursuant to Section 65962.5 of the California Government Code.

<u>e-f) Less Than Significant Impact.</u> The project site is located within two miles of the Monterey Peninsula Airport. However, the project will not create a safety hazard due to its height, location and function. This impact will be less than significant.

<u>g) Less Than Significant Impact.</u> Pacific Street which borders the site is identified as an access road to Hwy 1 evacuation route. The proposed project would not result in any conditions that are

not already assumed in the emergency response or emergency evacuation plans. Therefore, this would be a less than significant impact.

h) No Impact. The proposed project will not expose people or structures to significant risk of loss, injury, or death involving wildland fire hazards. While the General Plan Map 14 shows that there are both High and Very High Fire Hazard Severity Zone within the City of Monterey City limits, the project site is not within either of these zones. In addition, the Monterey City Code (M.C.C.) Chapter 13, Fire Protection, adopted the 2007 California Fire Code pursuant to Monterey City Ordinance No. 3398 (effective January 1, 2008). Therefore, no impacts regarding wildland fire are anticipated.

8.9. Hydrology and Water Quality

SUBJECT AREA	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact	SUPPORTING INFORMATION
HYDROLOGY AND WATER QUALITY – Would the project:					
a) Violate any water quality standards or waste discharge requirements?		X			Monterey City Code (M.C.C.) Chapter 31.5, Stormwater Management City of Monterey PEEC, General Plan Public Facilities Element Policy 1.2 City of Monterey Plans & Public Works Department Central Coast Regional Water Quality Control Board Monterey Regional Stormwater Management Program (MRSWMP)
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?			X		City of Monterey Plans & Public Works Department Monterey Peninsula Water Management District City of Monterey PEEC, General Plan Conservation Element
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result	Level of Significance to be Determined, see note below.				Monterey City Code (M.C.C.) Chapter 31.5, Stormwater Management General Plan Public Facilities Element Policy l.2 City of Monterey Plans & Public Works Department

SUBJECT AREA	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact	SUPPORTING INFORMATION
in substantial erosion or siltation on- or off-site?					
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner, which would result in flooding on- or off-site?	Level of Significance to be Determined, see note below.				Monterey City Code (M.C.C.) Chapter 31.5, Stormwater Management General Plan Public Facilities Element Policy l.2 City of Monterey Plans & Public Works Department
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?			X		Monterey City Code (M.C.C.) Chapter 31.5, Stormwater Management General Plan Public Facilities Element Policy l.2 City of Monterey Plans & Public Works Department Monterey Regional Stormwater Management Program (MRSWMP)
f) Otherwise substantially degrade water quality?		X			Monterey City Code (M.C.C.) Chapter 31.5, Stormwater Management General Plan Public Facilities Element Policy l.2 City of Monterey Plans & Public Works Department Central Coast Regional Water Quality Control Board Monterey Regional Stormwater Management Program (MRSWMP)
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				X	General Plan Map 13-Showing Flood Zones General Plan Safety Element Program c.1.a Monterey City Code (M.C.C.) Chapter 9, Building Regulations, Article 7, Flood Damage Prevention FEMA Flood Insurance Rate Maps for County of Monterey, City of Monterey, April 2, 2009
h) Place within a 100-year flood hazard area structure, which would impede or redirect flood flows?				X	General Plan Map 13-Showing Flood Zones General Plan Safety Element Program c.1.a Monterey City Code (M.C.C.) Chapter 9, Building Regulations,

SUBJECT AREA	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact	SUPPORTING INFORMATION
					Article 7, Flood Damage Prevention FEMA Flood Insurance Rate Maps for County of Monterey, City of Monterey, April 2, 2009
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?				X	General Plan Safety Element Policy c.1 City of Monterey Plans & Public Works Department FEMA Flood Insurance Rate Maps for County of Monterey, City of Monterey, April 2, 2009
j) Cause inundation by seiche, tsunami, or mudflow?				X	General Plan Safety Element Policy c.1
Note: As described in sections c) and d) below, a Hydrological Report will be prepared by the City during the design phase of the proposed project. Upon completion of this document, the level of significance can be determined.					

Existing Setting

The setting information provided below is based on information provided in the City's General Plan and General Plan EIR.

Drainage Patterns

The City owns and maintains a storm drainage system that collects and transports stormwater to the Monterey Bay. The system includes over 10 miles of pipelines and drainage channels. Stormwater runoff is collected through catch basins and stormwater inlets that direct runoff into the pipelines and channels. A series of stormwater outfalls are located along the margin of the Bay through which stormwater is discharged.

Flooding

Areas of the City of Monterey are in 100-year and 500-year flood zones, as shown on Map 13-Showing Flood Zones of the General Plan and FEMA Flood Insurance Rate Maps for Monterey County (April 2009), and are subject to significant storm wave inundation that causes erosion of coastal bluffs and potential damage to property. Because California and the west coast of the United States are seismically active, the site is also subject to flood hazard from tsunamis, or seismic sea waves, which are generated by submarine earthquakes, volcanic eruptions, and landslides. California has numerous potentially active submarine faults offshore and therefore is at risk for a tsunami. **Section VI**, Geology and Soils, of this Initial Study provides a comprehensive discussion regarding coastal flooding, wave action, storm surge and seismic effects, and related issues.

Water Quality and Stormwater Regulation

The City maintains approximately 10 miles of storm drainage infrastructure – drainage channels, storm drains, pipelines, culverts, pump stations, and outfalls - within the City of Monterey. The existing drainage system collects non-point surface water runoff and conveys it through channels, pipelines, and culverts that, in most instances, eventually terminate at the Monterey Bay.

Monterey's stormwater collection system is not tied into the sanitary sewer collection system. Therefore, stormwater flows are, for the most part, not treated prior discharge. Stormwater flows are discharged to local waterways including the Monterey Bay at multiple drainage outfalls located throughout Monterey's coastal area.

Monterey's discharge of stormwater to local surface waters is regulated by the federal Clean Water Act, National Pollutant Discharge Elimination System (NPDES) Permit Program, and the California Porter-Cologne Act, and permitted through the Central Coast Regional Water Quality Control Board. The City stormwater permit and ordinance require local regulation of water pollution and prevention through the mandated implementation of best management practices (BMPs) to protect the water quality of local waterways.

To address regional urban runoff issues and develop innovative approaches to stormwater management, the City collaborates with other local permittees in the Monterey Regional Stormwater Management Program (MRSWMP). The MRSWMP is a regional stormwater management, implementation, and education program that assists the City and region with permit compliance. By Ordinance and permit implementation, the City regulates applicable new and redevelopment projects for stormwater control; construction activities for erosion, sediment, and discharge control; identifies and enforces illicit connections and illicit discharges; and implements good housekeeping practices for municipal operations to protect local water quality, including the protections identified below:

<u>Section 31.5-18. Watercourse Protection, City of Monterey</u>

(a) Every person or entity owning property through which a watercourse passes, or such owner's lessee, shall keep and maintain that part of the watercourse within the property reasonably free of trash, debris, excessive vegetation, and other obstacles that would pollute, contaminate, or significantly retard the flow of water through the watercourse. In addition, the owner or lessee shall maintain existing privately-owned structures within or adjacent to a watercourse, so that such structures will not become a hazard to the use, function, or physical integrity of the watercourse. The owner or lessee shall not remove healthy bank vegetation beyond that actually necessary for maintenance or remove said vegetation in such a manner as to increase the vulnerability of the watercourse to erosion. The property owner or such owner's lessee shall be responsible for maintaining and stabilizing that portion of the watercourse that is within their property lines in order to protect against erosion and degradation of the watercourse originating or contributed from their property.

(b) Watercourse protection shall be identified in the development planning stage of real property by the person or entity owning the property through which a watercourse passes, in order to retain creeks, wetlands, and riparian areas that provide habitat, and to remediate degraded water quality. Such considerations include, but are not limited to, preservation and setbacks from creeks, wetlands, and riparian habitats in compliance with applicable local, state, and federal laws and regulatory permit authorities, such as U.S. Army Corps of Engineers, Regional Board, SWRCB, California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, National Oceanic and Atmospheric Association (NOAA) Monterey Bay National Marine Sanctuary, and in conformance with low impact development site assessment and design standards of the NPDES General Permit and Regional Board Resolution No. R3-2013-0032, and as amended thereto. (Ord. 3519 § 7, 2015)

Discussion

a, f) Less Than Significant with Mitigation. The proposed project would disrupt the existing stream channel in Hartnell Gulch and potentially generate unacceptable rates of erosion into the stream during construction. The implementation of **Mitigation Measure 5** below would reduce this impact to a less than significant level.

MITIGATION MEASURE 5: CONSTRUCTION CONTRACT REQUIREMENT

The applicant shall require the following provision in any contract related to this project: The Contractor shall comply with all air pollution and environmental control rules, regulations, ordinances and statutes which apply to the project and any work performed pursuant to the contract. City Code Chapter 31.5 states, “No person shall discharge or cause to be discharged into the municipal storm drain system or watercourses any materials, including but not limited to pollutants or waters containing any pollutants that cause or contribute to a violation of applicable water quality standards, other than stormwater.” This water quality protection clause means that nothing, but clean water shall enter the storm drain system. All persons conducting construction activities shall employ erosion prevention and construction site management practices which ensure the following outcomes:

- No deposit or discharge of sediment from a site onto adjacent properties or into waterways and related natural resources in excess of those that occur through natural processes;
- No deposit of mud, soil, sediment, concrete washout, trash, or other similar construction-related material onto public rights-of-way and private streets, and into the City's stormwater system and related natural resources, either by direct deposit, dropping, discharge, erosion, or tracking by construction vehicles, in excess of those that occur through natural processes. Any such discharge shall be cleaned up at the end of the current work shift in which the deposit occurred, or at the end of the current work day, whichever comes first;
- No exposure of soils and stockpile areas to stormwater runoff without secondary containment and treatment measures;
- No discharge of runoff containing construction-related contaminants into the City's stormwater system or related natural resources; and,
- No release onto the site of hazardous substances, such as oils, paints, thinners, fuels and other chemicals.

Typical minimum measures that a contractor would be expected to take include: spill prevention and control measures; solid waste containment; concrete waste management; proper vehicle and equipment cleaning, fueling, and maintenance; and erosion control measures. Detailed procedures for each of these activities can be found in the California Stormwater Best Management Practice Handbooks or the Caltrans Stormwater Quality Handbooks, both of which are available for reference in the City of Monterey Public Works Office at City Hall.

b) Less Than Significant Impact. The proposed project would not affect groundwater or interfere significantly with groundwater recharge, as the project area does not overly a groundwater basin. The project site is in the Hartnell Gulch watershed. The two primary creek channels in the watershed flow into the storm drain system directly downstream of the project area, where it is piped to the discharge point in Monterey Bay. Construction of the diversion may require temporary dewatering during construction and shallow groundwater may be encountered. Dewatering activities during construction will be temporary and limited to the proposed project construction site. Dewatering activities will not affect the local aquifers, as those aquifers are substantially below the ground surface. Construction of the proposed project will not increase the amount of impermeable surface area in the project area and will not substantially interfere with groundwater recharge. Therefore, the proposed project will not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level. Hartnell Gulch is not considered a resource for groundwater supply or recharge and dewatering of the downstream system would be considered a less than significant impact.

c), d) Level of Significance to be Determined. The proposed project includes creek restoration and dry weather flow diversion to sanitary sewer as shown on **Figure 2**. The proposed project will restore the creek channel, and in part help mitigate for the past erosion in the Hartnell Gulch. An erosion study in the Hartnell Gulch watershed identified erosion concerns in the area of the project site. Per the report (Citation below), the Hartnell Street Channel bed in this short reach shows evidence of significant past erosion (the channel is about 16 feet deep) and widening (channel top width is 40 to 50 feet), which is the impetus for this project. Operation of the proposed project will alter drainage patterns during the dry weather season (April – October). Creek flows will be captured and diverted to the sanitary sewer system for treatment and eventual reuse. Additionally, the creek bed elevation will be raised to provide aesthetic benefits, including the possibility of increasing public access with construction of a pedestrian walkway alongside the creek bank. As such, the proposed project would change the existing flow patterns in the creek. Although the intention of the project is to repair existing channel erosion and to prevent further erosion in the future, at this time, it is unknown if this change in the drainage pattern would result in erosion and/or surface runoff. A determination on the level of significance cannot be made without additional bed and bank stabilization and diversion structural design information, analysis and documentation.

PENDING TECHNICAL ANALYSIS: HYDROLOGICAL REPORT

The project proponent will conduct hydrologic analyses as part of final project design. The analysis will include, at a minimum: an assessment of the existing stream flows; effects of raising the creek bed elevation; downstream effects of diversion, such as potential changes to the natural or historic flow regime, biological resources, and channel morphology; and further refinement of the bed and bank stabilization and and dry weather flows diverted into the sanitary sewer. The results of this analysis will be compiled into a report or technical memorandum which makes conclusions on hydrologic impacts based on the existing setting and includes recommendations to minimize impacts, if necessary. The hydrologic report will be used to support other technical studies prepared for this project.

e) Less Than Significant Impact. Neither construction nor operation of the proposed project would create or contribute runoff that would exceed the capacity of the stormwater drainage system. The proposed project would not provide substantial additional sources of polluted runoff. The project will decrease the amount of urban runoff discharged to the Monterey Bay. Therefore, the proposed project would not provide any additional source of polluted runoff. The impact of the proposed project would be less than significant.

g-j) No Impact. The proposed project does not include housing and is not located within a 100-year flood area. Furthermore, the project site is not located in an area influenced by levees or dams or prone to seiche, tsunami, or mudflow. Therefore, no impacts related to these topics are anticipated.

8.10. Land Use and Planning

SUBJECT AREA	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact	SUPPORTING INFORMATION
LAND USE AND PLANNING – Would the project:					
a) Physically divide an established community?				X	City of Monterey PEEC
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?				X	City of Monterey PEEC, General Plan and Area Plans City of Monterey Local Coastal Program City of Monterey PEEC, Monterey City Code (M.C.C.) Chapter 38, Zoning Ordinance California Coastal Act
c) Conflict with any applicable habitat conservation or natural community conservation plan?				X	City of Monterey PEEC

Existing Setting

The City of Monterey is a small-scale community that is largely residential and visitor serving in nature. The majority of land in the City already contains some development. Primary land uses include residential development at low to moderate density and visitor-serving, professional office, and retail commercial uses. A number of small, vacant parcels do exist within the City. Most are designated for single-family residential development.

The Hartnell Gulch area is on the southern border of the City's Old Town Neighborhood, which occupies 170 acres on the hillside above downtown Monterey. The neighborhood consists of a residential core, with the Defense Language Institute as the northern and western boundary, the downtown as the eastern boundary, and Hartnell Gulch, Monterey Library, and nearby Monterey High School as the southern boundary. To the north of the project site, on the hillside above the site, the land uses are primarily within a residential core area. Nearby uses include institutional and non-residential development. The project site is near the Downtown area and the Hartnell Gulch provides a pedestrian access to the downtown.

Land development proposals that fall within the Coastal Zone in the City must obtain development review and approval by the California Coastal Commission in addition to necessary City approvals. California has no designated Coastal Barrier Resources System per the federal Coastal Barriers Resources Act.

Discussion

<u>a-c) No Impact.</u> The proposed project will improve pedestrian connectivity between Pacific Street and Hartnell Street by improving the conditions along the existing path. It will not divide an established community or conflict with any applicable land use plan, policy or regulation. The site is located outside of the coast zone and there are no habitat conservation or natural community conservation plans affecting the site. As such, there will be no impact.

8.11. <u>Mineral Resources</u>

SUBJECT AREA	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact	SUPPORTING INFORMATION
MINERAL RESOURCES – Would the project:					
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				X	City of Monterey PEEC, General Plan Conservation Element City of Monterey PEEC, General Plan Initial Study, Page 11
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				X	City of Monterey PEEC, General Plan Conservation Element City of Monterey PEEC, General Plan Initial Study, Page 11

Existing Setting

While there are, at present, small-scale mineral extraction operations around the City of Monterey, limited to commercial sand removal operations in the Sand City/Marina area, there are no mineral resources within the City of Monterey city limits.

Discussion

a-b) No Impact. No mineral resources exist within the project site and no impacts are anticipated.

8.12. Noise

SUBJECT AREA	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact	SUPPORTING INFORMATION
NOISE – Would the project result in:					
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?		X			City of Monterey PEEC, General Plan Noise Element goals, policies, and programs
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?		X			City of Monterey PEEC, General Plan Noise Element goals, policies, and programs
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?			X		City of Monterey PEEC, General Plan Noise Element goals, policies, and programs
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?			X		City of Monterey PEEC, General Plan Noise Element goals, policies, and programs
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?			X		City of Monterey PEEC, General Plan Noise Element Policies b.1–b-5 City of Monterey PEEC, General Plan Map 17-Showing Airport Noise Contours Monterey Peninsula Airport, 14 CFR Part 150 Airport Noise Exposure Map Update, Exhibits 4B-4D (April 2008)
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?				X	City of Monterey PEEC

Existing Setting

The major noise sources affecting the City of Monterey include motor vehicles (autos, trucks, buses, motorcycles) and aircraft. Motor vehicles and aircraft continued to be the primary noise sources in 2003. No stationary source, such as an industrial plant, is known to create noise at an unacceptable level.

The existing noise environment in the project vicinity is dominated by traffic noise on Pacific Street, Hartnell Street and other nearby streets, as well as nearby commercial and civic activities.

Discussion

a), b) Less Than Significant with Mitigation. The closest sensitive noise receptors in the vicinity of the proposed project sites include residences, schools, and parks and playgrounds. The proposed project will result in temporary increased noise levels that may be considered unpleasant. Construction noise is a temporary noise source that is generated from a variety of construction activities that occur both on-site and off-site. Although the extent of construction is still not defined, generally, construction equipment that may be used to complete maintenance activities can generate noise levels in the range of 70 to 90 decibels at a distance of 50 feet. Existing sensitive uses within the vicinity of the proposed project sites could experience temporary elevated noise levels during construction activities. Although these noise and vibration sources would be temporary as the equipment and construction vehicles would operate intermittently over the duration of the proposed project, these are potentially significant impacts that can be reduced to a less than significant level by the **Mitigation Measure 6** identified below.

MITIGATION MEASURE 6: NOISE REDUCTION

Construction will be limited to weekdays between the hours of 7 a.m. and 7 p.m. During construction, the project contractor shall implement the following measures to minimize construction noise impacts:

- Place construction equipment and equipment staging areas to be located at the furthest distance as possible from nearby noise-sensitive receptors.
- Choose construction equipment that is of quiet design, has a high-quality muffler system, and is well-maintained.
- Install superior intake and exhaust mufflers and engine enclosure panels wherever possible on gas diesel or pneumatic impact machines.
- Limit construction to 7 a.m. to 7 p.m. Monday through Friday, and 8 a.m. to 6 p.m. Saturday.
- Eliminate unnecessary idling of machines when not in use.
- Locate all stationary noise-generating construction equipment, such as portable power generators, as far as possible from nearby noise-sensitive receptors.
- Utilize the quickest equipment options to accomplish the tasks, in accordance with local, state, and federal regulatory requirements.

c) Less Than Significant Impact. Operation of the proposed project will not have a significant effect on the project vicinity. Operation of the proposed project will generate minimal vehicle trips. The noise that is anticipated to occur from operation of the proposed project will be nominal and consisting of vehicle-related mobile sources during inspection and repair activities. Therefore, noise impacts will be less than significant.

d) Less Than Significant Impact. Implementation of the proposed project will result in limited and short-term construction noise. Noise from construction will be in conformance with the City Noise Ordinance. The operation of the proposed project will not generate a substantial temporary or periodic increase in ambient noise levels in the project vicinity above existing levels. Therefore, impacts will be less than significant.

e) Less Than Significant Impact. The proposed project includes creek restoration and dry weather flow diversion to sanitary sewer. While the site is within two miles of a public airport, the site would retain its current uses and the nature of the proposed project itself would not cause people to be exposed to excessive noise levels. Therefore, the impacts are considered less than significant.

f) No Impact. The project site is not located within the vicinity of a private airstrip. Therefore, no impact would result.

8.13. Population and Housing

SUBJECT AREA	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact	SUPPORTING INFORMATION
POPULATION AND HOUSING – Would the project:					
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				X	City of Monterey PEEC, General Plan
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				X	City of Monterey PEEC, General Plan
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				X	City of Monterey PEEC, General Plan

Existing Setting

The total population of Monterey in 2016 was 28,454, showing a 3.5% increase in total population from 2010 when the population was at 27,492. According to the 2009 - 2014 General Plan Housing Element, the Regional Housing Needs Assessment (RHNA) prepared by the Association of Monterey Bay Area Governments (AMBAG) identified a future housing need in Monterey of 657 new dwelling units for the period of 2007 - 2014. The City's General Plan is required to show adequate sites for the 657 units to be in compliance with state law requirements. The City's goal is to provide this housing in the proposed Mixed-Use Neighborhoods, which can accommodate higher-density housing due to transit, recreation, and commercial opportunities.

Discussion

a-c) No Impact. The proposed project includes creek restoration and dry weather flow diversion to sanitary sewer and will not affect population numbers, induce growth or displace residents. As such, there will be no impact.

8.14. Public Services

SUBJECT AREA	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact	SUPPORTING INFORMATION
PUBLIC SERVICES – Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:					
a) Fire protection?				X	City of Monterey PEEC, General Plan Public Facilities Element Goal c, Policies c.1–c.5 City of Monterey Fire Department
b) Police protection?				X	City of Monterey PEEC, General Plan Public Facilities Element Goal b, Policies b.1–b.3 City of Monterey Police Department Project Plans
c) Schools?				X	City of Monterey PEEC, General Plan Public Facilities Element Goal d, Policies d.1–d.6 Monterey Peninsula Unified School District
d) Parks?				X	City of Monterey PEEC, General Plan Public Facilities Element Goal j, Policies j.1–j.6 City of Monterey Recreation & Community Services Department City of Monterey Maintenance Division-Parks & Beaches
e) Other public facilities?				X	City of Monterey PEEC, General Plan Public Facilities Element Goals a, e, f–i, k–p ; Policies f.1–f.7, i.1–i.3, k.1–p.2 ; Programs m.1.1–m.2.1 City of Monterey Public Works Department City of Monterey Maintenance Division-Streets & Utilities City of Monterey Recreation and Community Services Department City of Monterey Office of the Harbormaster

Existing Setting

The major public facilities in the City of Monterey are police and fire, park and recreation facilities, schools, military, cultural, conference center, health care, civic center, cemeteries, harbor, sewage treatment, storm drain system, water supply, and reduction and recycling of waste.

Discussion

a-e) No Impact. The proposed project would involve creek restoration and dry weather flow diversion to sanitary sewer and would not result in an increased demand on fire or police protection, schools, or other public facilities. As a result, there will be no impact.

8.15. Recreation

SUBJECT AREA	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact	SUPPORTING INFORMATION
RECREATION					
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?			X		City of Monterey PEEC, General Plan Public Facilities Element Goal j, Policies j.1–j.6 Monterey City Code (M.C.C.) Chapter 38, Zoning Ordinance, Article 9, Open Space District Monterey City Code (M.C.C.) Chapter 33, Subdivision, Article 3, §33-29(c) Park and Recreation dedication and fees
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?			X		City of Monterey Recreation and Community Services Department

Existing Setting

The City of Monterey Recreation and Community Services Department manages a wide range of park and recreation facilities. The Open Space Element provides background information and goals and policies regarding the City's open space and park resources implemented by the Parks Master Plan. Significant recreation facilities include the Monterey Sports Center, community centers, neighborhood park facilities, and beach parks. Neighborhood parks also include various athletic fields, tennis courts, and other park facilities.

Discussion

a–b) Less Than Significant Impact. The proposed project consists of creek restoration and dry weather flow diversion to sanitary sewer and includes aesthetic improvements to an existing path that connects Pacific Street to Hartnell Street, which may be considered a City recreation facility. While the project constitutes an improvement to a recreation facility, use of this facility may increase. However, physical deterioration of the facility is not expected beyond normal wear and tear. No further expansion of recreational facilities will be required. Therefore, the potential impact of parks and recreation facilities is considered less than significant.

8.16. Transportation and Traffic

SUBJECT AREA	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact	SUPPORTING INFORMATION
TRANSPORTATION/TRAFFIC – Would the project:					
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulations system, including but not limited to intersections, streets, highways, and freeways, pedestrian and bicycle paths, and mass transit?				X	City of Monterey Plans & Public Works Department, Traffic Engineering Division
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standard established by the county congestion management agency for designated roads or highways?				X	City of Monterey PEEC, General Plan Circulation Element Program j.1.1 City of Monterey Plans & Public Works Department, Traffic Engineering Division
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risks?				X	Monterey Peninsula Airport District
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?				X	City of Monterey PEEC, General Plan, Circulation Element City of Monterey Plans & Public Works Department, Traffic Engineering Division Monterey City Code (M.C.C.) Chapter 20, Motor Vehicles and Traffic, Chapter 33,

SUBJECT AREA	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact	SUPPORTING INFORMATION
					Subdivisions, Article 3, several sections related to circulation
e) Result in inadequate emergency access?				X	City of Monterey PEEC, General Plan, Circulation Element City of Monterey Fire and Police Departments
f) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?				X	City of Monterey PEEC, General Plan, Circulation Element

Existing Setting

The setting information provided below is based on information provided in the City's General Plan and General Plan EIR.

<u>Roadway Classification</u>

The City has a roadway classification system, which includes freeways, major arterials, minor arterials, collectors, and local streets.

<u>Transit Service</u>

The Monterey-Salinas Transit District (MST) is the principal transit service for the City of Monterey and the surrounding communities. MST is a joint powers agency with a board of directors that includes a representative from the City of Monterey. Thirteen MST routes currently serve the citizens of the community. The Simoneau Plaza located in downtown Monterey is the transfer center for all routes serving the City. Senior and disabled citizens can use the MST fixed-route and Direct Area Response Transit (DART). MST also operates the RIDES program for disabled citizens.

<u>Existing Bikeway and Pedestrian Facilities</u>

The City of Monterey maintains an extensive network of Class 1, 2, and 3 bicycle paths and pedestrian sidewalks. The most notable bicycle and pedestrian path is the City's Recreational Trail that is located along the coastal side of the City. The Recreational Trail is a dual use facility that offers people destination opportunities, such as the restaurants or retail stores along Cannery Row or Fisherman's Wharf, or one of many parks for relaxing or wildlife viewing and sightseeing. The City maintains sidewalks on almost all City roadways, and some roadways have bicycle lanes.

Discussion

<u>a-f) No Impact.</u> The proposed project would not conflict with any transportation performance plans, ordinances, or policies or applicable congestion management program as it will not. Presently, there is an unimproved pathway that links Pacific Street to Hartnell Street, the proposed project includes upgrades to this pathway. The project will not affect air traffic patterns or

emergency access and is consistent with all adopted policies that support alternative transportation. Therefore, there will be no impact on transportation/traffic.

8.17. Tribal Cultural Resources

SUBJECT AREA	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact	SUPPORTING INFORMATION
TRIBAL CULTURAL RESOURCES – Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California native American tribe, and that is:					
a) Listed or eligible for listing in the California Register of Historic Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k) or	Level of Significance to be Determined, see note below.				City of Monterey PEEC, Monterey City Code (M.C.C.), Chapter 38, Zoning Code, Article 15 H Historic Overlay District City of Monterey PEEC, Historic Preservation Program City of Monterey PEEC, Historic Master Plan City of Monterey PEEC, Historic Ordinance
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	Level of Significance to be Determined, see note below.				City of Monterey PEEC, Monterey City Code (M.C.C.), Chapter 38, Zoning Code, Article 15 H Historic Overlay District City of Monterey PEEC, Historic Preservation Program City of Monterey PEEC, Historic Master Plan City of Monterey PEEC, Historic Ordinance
Note: As described in sections a) and b) below, a Archeological Report and Tribal Consultation will be completed by the City during the design phase of the proposed project. Upon completion of these, the level of significance can be determined.					

Existing Setting

Archaeological evidence and radiocarbon dates establish human occupation of the California coast dating back at least 10,000 years. Evidence from coastal areas of Monterey County suggests settlement of this area by at least 7,000 years ago and possibly earlier (Jones & Stokes, 2006). The project area lies within the currently recognized ethnographic territory of the Costanoan (Ohlone) linguistic group. Historically, the Ohlone were called the *Costanoan Indians*. Costanoan is the name assigned to the group by the Spaniards and is derived from the word *costaños*, meaning "people of the coast;" the term *Ohlone* is referred by the group themselves (Jones & Stokes, 2006).

The Ohlone are believed to have inhabited the area 1,500 years ago, and their territory extended along the coast from San Francisco Bay in the north to just beyond Carmel in the south, and as much as 60 miles inland. The Ohlone are a linguistically defined group speaking eight different yet related languages and composed of several autonomous tribelets (Jones & Stokes, 2006). The Monterey Peninsula and the current location of the former Fort Ord were inhabited by the Rumsen group of Ohlone Indians; the Rumsen territory encompassed the Carmel River Valley and the Monterey Peninsula (Jones & Stokes, 2006).

In brief, the Ohlone followed a general hunting and gathering subsistence pattern with partial dependence on the natural acorn crop. Habitation is considered to have been semisedentary, and occupation sites can be expected most often at the confluence of streams, other areas of similar topography along streams, or in the vicinity of springs, although the original sources of water may no longer be present or adequate. Also, resource gathering and processing areas and associated temporary campsites are frequently found on the coast and in other locations containing resources utilized by the group. Factors that influence the location of these sites include the presence of suitable exposures of rock for bedrock mortars or other milling activities, the presence of specific resources (oak groves, marshes, quarries, game trails, trade routes, etc.), proximity to water, and the availability of shelter. Temporary camps or other activity areas can also be found along ridges or other travel corridors (Archaeological Consulting, 2014).

Discussion

a) Level of Significance to be Determined. As described above in the Cultural Resources Section, the property bordering the project site on the north along Hartnell Street is zoned as a H1 historic building. The project site is located within an area of high archeological sensitivity. The level of significance cannot be determined without addition analysis and documentation, completed of an Archeological Survey Report, as described in **Section V** (Cultural Resources) will reduce impacts.

b) Level of Significance to be Determined. Pursuant California AB 52 and Section 106 of the National Historic Preservation Act tribal consultation will need to be initiated by the City. Without the results of this tribal consultation the potential impacts to tribal cultural resources cannot be determined at this time and subsequent environmental analysis will need to be performed to analyze the extent of these impacts.

PENDING TECHNICAL ANALYSIS: TRIBAL CONSULTATION

The City must complete Tribal Consolation with all tribes that have requested notification, pursuant to Assembly Bill 52. Consultation will include communication with Tribal Representative(s) to determine if the proposed project will negatively impact cultural resources and to agree on measures to mitigate or avoid significant effects, should they arise from project implementation.

8.18. Utilities and Service Systems

SUBJECT AREA	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact	SUPPORTING INFORMATION
UTILITIES AND SERVICE SYSTEMS – Would the project:					
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?			X		City of Monterey Plans and Public Works Department City of Monterey PEEC Monterey Regional Water Pollution Control Agency
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?			X		City of Monterey Plans and Public Works Department City of Monterey PEEC Water Management District California American Water Company Monterey Regional Water Pollution Control Agency
c) Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	Level of Significance to be Determined, see note below.				City of Monterey Plans and Public Works Department Monterey City Code (M.C.C.) Chapter 31.5, Stormwater Management City of Monterey PEEC, General Plan Public Facilities Element subsection l. Storm Drain
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?				X	City of Monterey PEEC, General Plan Public Facilities Element subsection m. Water
e) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?			X		City of Monterey Plans and Public Works Department Monterey Regional Water Pollution Control Agency City of Monterey PEEC, General Plan Public Facilities Element subsection k. Sewer
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?				X	City of Monterey Solid Waste & Recycling Division Monterey Regional Waste Management District City of Monterey PEEC, General Plan Public Facilities Element subsection n. Reduction and Recycling of Waste
g) Comply with federal, state, and local statutes and regulations related to solid waste?				X	City of Monterey Solid Waste & Recycling Division Monterey Regional Waste Management District

SUBJECT AREA	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact	SUPPORTING INFORMATION
					City of Monterey PEEC, General Plan Public Facilities Element subsection n. Reduction and Recycling of Waste
Note: As described in section c) below, a Hydrological Report will be prepared by the City during the design phase of the proposed project. Upon completion of this documents, the level of significance can be determined.					

Existing Setting

The setting information provided below is based on information provided in the City's General Plan and General Plan EIR.

Wastewater

The City maintains the sanitary sewer collection system within its jurisdictional boundaries. The existing sanitary sewer collection system conveys sewage from sewer point sources within the City, such as homes, businesses, and public facilities, to a regional wastewater treatment plant for treatment and disposal. The sanitary sewer collection system operated by the City consists of approximately 102 miles of sewer pipeline maintained by City personnel and seven sewer lift stations.

Monterey's sewage is conveyed through pipelines to the Monterey One Water (M1W) regional treatment plant for treatment, reuse, and disposal. At the RTP, wastewater undergoes primary and secondary treatment and then can be reclaimed by either: (1) undergoing tertiary treatment and used as recycled 'purple pipe' water for irrigation, via the Salinas Valley Reclamation Project (SVRP) recycled water plant and the Castroville Seawater Intrusion (CSIP) distribution system; or (2) starting in 2019, undergoing advanced treatment, transport, and injection into the Seaside Groundwater Basin, via the Advanced Water Purification Facility (AWPF) of the Pure water Monterey Groundwater Replenishment Project (PWM/GWR) currently under construction. An average of 60 percent of M1W wastewater is recycled each year and that percentage will increase when the PWM/GWR Project is operational. M1W currently serves a population of approximately 250,000 people (M1W, 2017) and treats 17.2 million gallons per day (MGD) average dry weather flow (ADWF) for the 2014-2016 period (SWRP, April 2018), with a peak wet weather flow (PWWF) of 36.8 MGD (M1W,2016). The RTP is permitted for design flows of 29.6 MGD ADWF and 75.6 MGD PWWF, indicating available capacity for future runoff diversions. Any remaining secondary treated wastewater that is not used for CSIP or PWM/GWR uses above is discharged though an ocean outfall two miles into Monterey Bay. M1W pump station capacity for accepting diversions from lakes and reservoirs as well as additional storm drain diversions was considered as part of the Water Recovery Study.

Local sewer collection pipelines of various capacities exist underground within the City and eventually flow to larger sewer mains that feed into the M1W interceptor pipeline. The interceptor pipeline receives sewer flows from both Pacific Grove and Monterey and carries those flows to the wastewater treatment plant.

The existing capacity of the local City system is adequate to convey the sewer loads generated, but the infrastructure needs repair and is planned to undergo rehabilitation in the near future upon funding availability. Rehabilitation of the City's aged sewer collection system is an important factor in mitigating sewer spills locally and into Monterey Bay. As a result, the rehabilitation of this system is a priority project for the City's Plans and Public Works Department.

Water

California American Water Company (CalAm) Cal-Am supplies water to the residential, municipal, and commercial needs of the Monterey Peninsula area communities. Cal-Am's water distribution system distributes water from two main sources: the Carmel River and the Seaside Basin coastal subarea. The MPWMD regulates and manages water supplies for the area within its boundaries, which extend from Seaside to Carmel River and easterly covering the Carmel Valley watershed. As of the 2005 General Plan, the City had reached the limits of its allocation under the MPWMD allocation program and still has very little water available to meet the City's goals. The City of Monterey has established an internal allocation system, whereby water allotments are established for residential, commercial, and industrial uses. The City also maintains a portion of the total allocation as a citywide reserve.

Stormwater

The City maintains storm drainage infrastructure – drainage channels, storm drains, pipelines, culverts, pump stations, and outfalls - within the City of Monterey. The existing drainage system collects non-point surface water runoff and conveys it through channels, pipelines, and culverts that, in most instances, eventually terminate at the Monterey Bay. Monterey's stormwater collection system is not tied into the sanitary sewer collection system. Therefore, stormwater flows are, for the most part, not treated prior discharge. Stormwater flows are discharged to local waterways including the Monterey Bay at multiple outfalls located throughout Monterey's coastal area.

Monterey's discharge of stormwater to local surface waters is regulated by the Federal Clean Water Act, National Pollutant Discharge Elimination System (NPDES) Permit Program, and the California Porter-Cologne Act, and permitted through the State Water Resources Control Board and Central Coast Regional Water Quality Control Board. The City stormwater permit and ordinance control water pollution through the implementation of best management practices and local regulation of pollutant discharges into waters of the United States. To address regional urban runoff issues and develop innovative approaches to stormwater management, the City collaborates with local entities in the Monterey Regional Stormwater Management Program (MRSWMP), a regional stormwater management, implementation, and education program to accomplish permit compliance and water quality protection.

Solid Waste

The regional waste collection facility operated by the Monterey Regional Waste Management District.

Discussion

a), b) Less Than Significant Impact. The project includes diverting dry weather flows (April to October) to the sanitary sewer for recycling at the M1W RTP to augment water supply. The additional supply of water to the Regional Treatment Plant will not exceed wastewater treatment requirements nor require construction of new water or wastewater treatment facilities. Therefore, this is considered a less than significant impact.

c) Level of Significance to be Determined. The project includes the construction of diversion facilities to capture to capture and divert dry weather flows (April to October) to the sanitary sewer for recycling at the M1W RTP to augment water supply. The project will construct new storm drain infrastructure just upstream of Hartnell Street. The project will also construct a low flow diversion structure within the channel, just upstream of Hartnell Street, that will flow to a wet well pump station and new sanitary diversion pipe line which will connect to the existing sanitary sewer in Hartnell Street. The potential level of significance of these new facilities will be determined after preparation of the Hydrological Report, as described in **Section IX**.

d) No Impact. The proposed project would not include the use of water service connections. As such, there will not be an increased demand for these public utilities or service systems and there will be no impact.

e) Less Than Significant Impact. The project includes construction of diversion facilities to divert dry weather flows from the Hartnell watershed to the sanitary sewer, of which these flows would normally be captured by the storm drain system. The proposed project was selected as a part of the Stormwater Resource Plan for which M1W is the lead agency. The project will be subject to stormwater drainage requirements and erosion control measures that would prohibit negative impacts resulting from substantial erosion or siltation or flooding on- or off-site or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems, provide substantial additional sources of polluted runoff, or otherwise substantially degrade water quality. Therefore, this is considered a less than significant impact.

f), g) No Impact. The project will not generate solid waste. Therefore, there will be no impact.

8.19. Mandatory Findings of Significance

SUBJECT AREA	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact	SUPPORTING INFORMATION
MANDATORY FINDINGS OF SIGNIFICANCE					
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant	Level of Significance to be Determined, see note below.				City of Monterey PEEC

SUBJECT AREA	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact	SUPPORTING INFORMATION
or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?					
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)			X		City of Monterey PEEC California Air Resources Board (CARB) California Air Pollution Control Officers' Association (CAPCOA) MBUAPCD
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?		X			City of Monterey PEEC
Note: As described throughout this Preliminary Environmental Checklist, additional supporting documentation will be prepared by the City during the design phase of the proposed project. Upon completion of this documentation, the level of significance can be determined.					

Discussion

a) Level of Significance to be Determined. The project is a creek restoration including removal of invasive plants, erosion control and revegetation of native plants as well as diversion of Hartnell Creek. The project proposes to restore native vegetation and habitats. As noted in this Preliminary Environmental Checklist, additional technical analysis and design documentation will be required in order to determine the level of impact to wildlife species. In addition to pending analysis and documentation, **Mitigation Measures 1-6** would be required to reduce impacts to less than significant levels.

b) Less Than Significant Impact. Cumulative impacts related to development accommodated by the City's General Plan over the next 15+ years were found to be less than significant in the General Plan EIR, As described above, the proposed project is a restoration and runoff diversion project and would not include housing or development areas that could induce growth and would also not remove any barriers that could result in population growth that would result in increased traffic. The proposed project would result in less than significant impacts to aesthetics, air quality, biological resources, cultural resources, geology/soils, greenhouse gas emissions, hazards and hazardous materials, hydrology/water quality, noise, recreation, and utilities/service systems.

When considered cumulatively along with past, current, and probable future projects that may occur in the area, the proposed project's contribution is considered negligible and would not be cumulatively considerable.

c) Less Than Significant with Mitigation. The proposed project will not result in substantial adverse effects on human beings, directly or indirectly. Implementation of the mitigation measures recommended in this document would ensure that the proposed project would not result in environmental effects that would cause substantial adverse effects on human beings. Impacts would be less than significant after mitigation. Potential adverse effects on human beings through impacts to aesthetics, biological resources, cultural resources, geology and soils, hydrology/water quality, and noise have been addressed through proposed **Mitigation Measures 1-6**. With implementation of these mitigation measures, the proposed project's potentially significant impacts would be less than significant.

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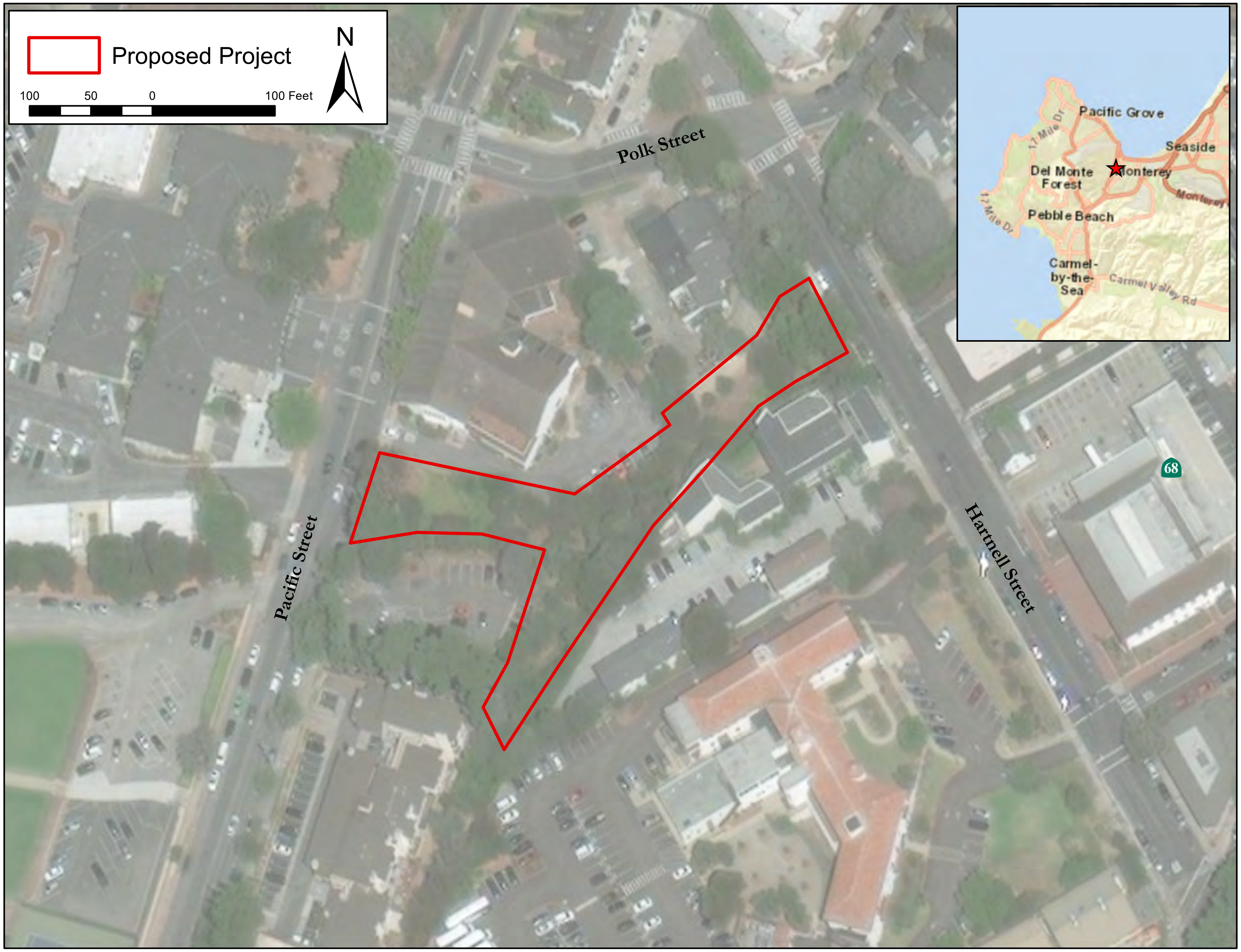


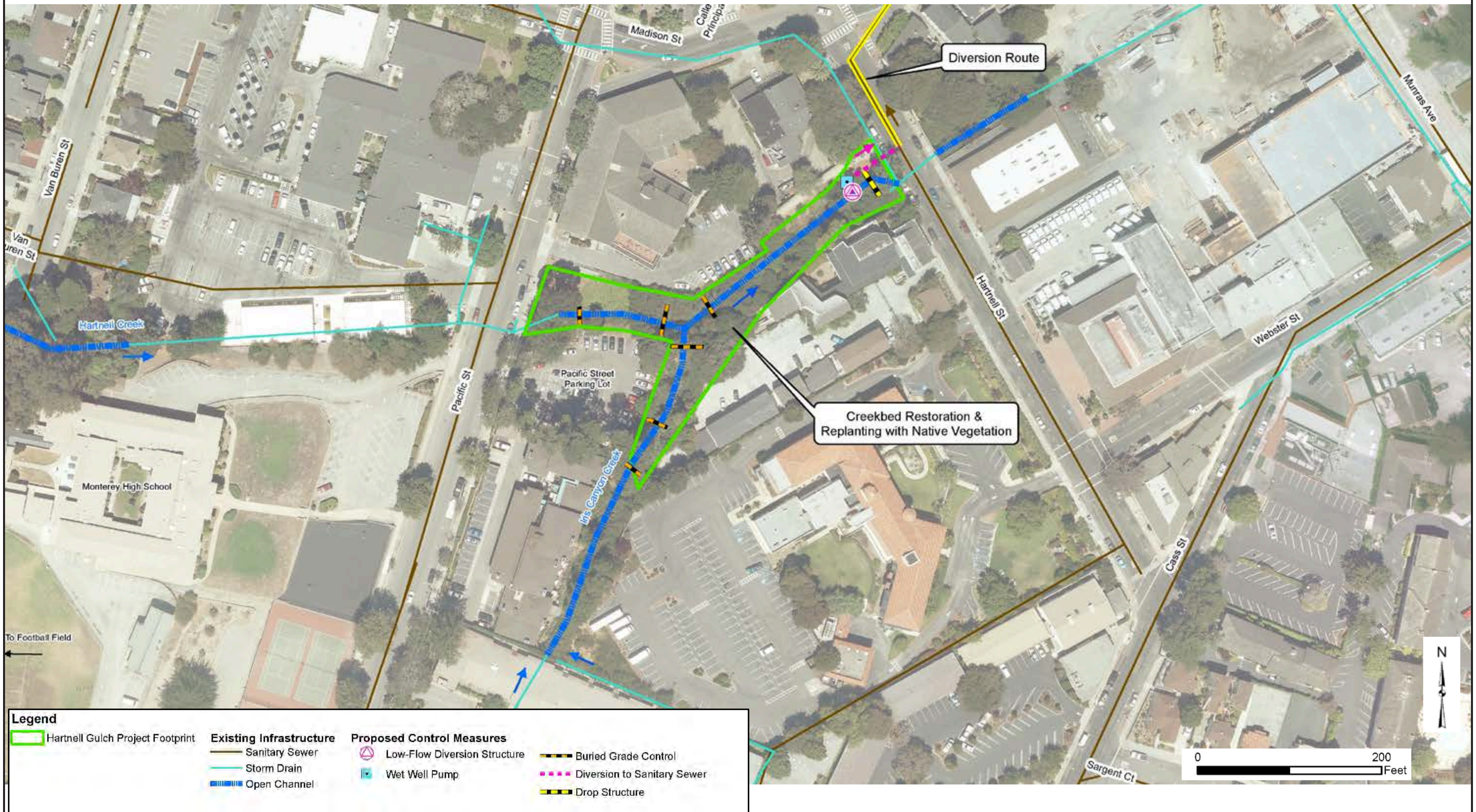
Document Path: D:\GIS\GIS_Projects\2017-30 Monterey Peninsula Stormwater Resource Plan\Final Products\Project Location.mxd

DD&A

Project Location

Preliminary Environmental Checklist
Hartnell Gulch Restoration and Stormwater Diversion Project

Figure 1

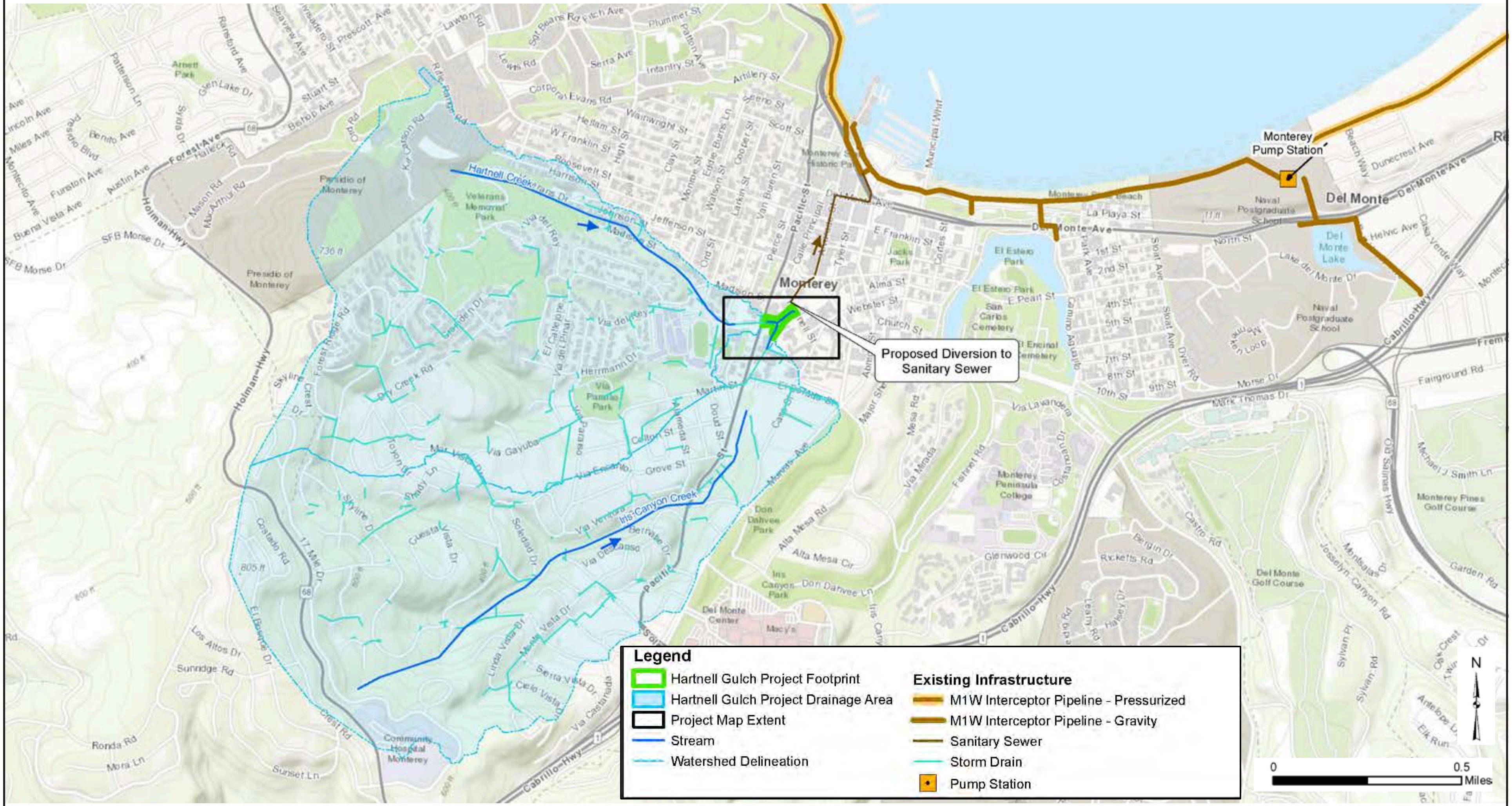


Source: Geosyntec, September, 2018

Hartnell Gulch Concept Design

Preliminary Environmental Checklist
Hartnell Gulch Restoration and Stormwater Diversion Project

Figure
2

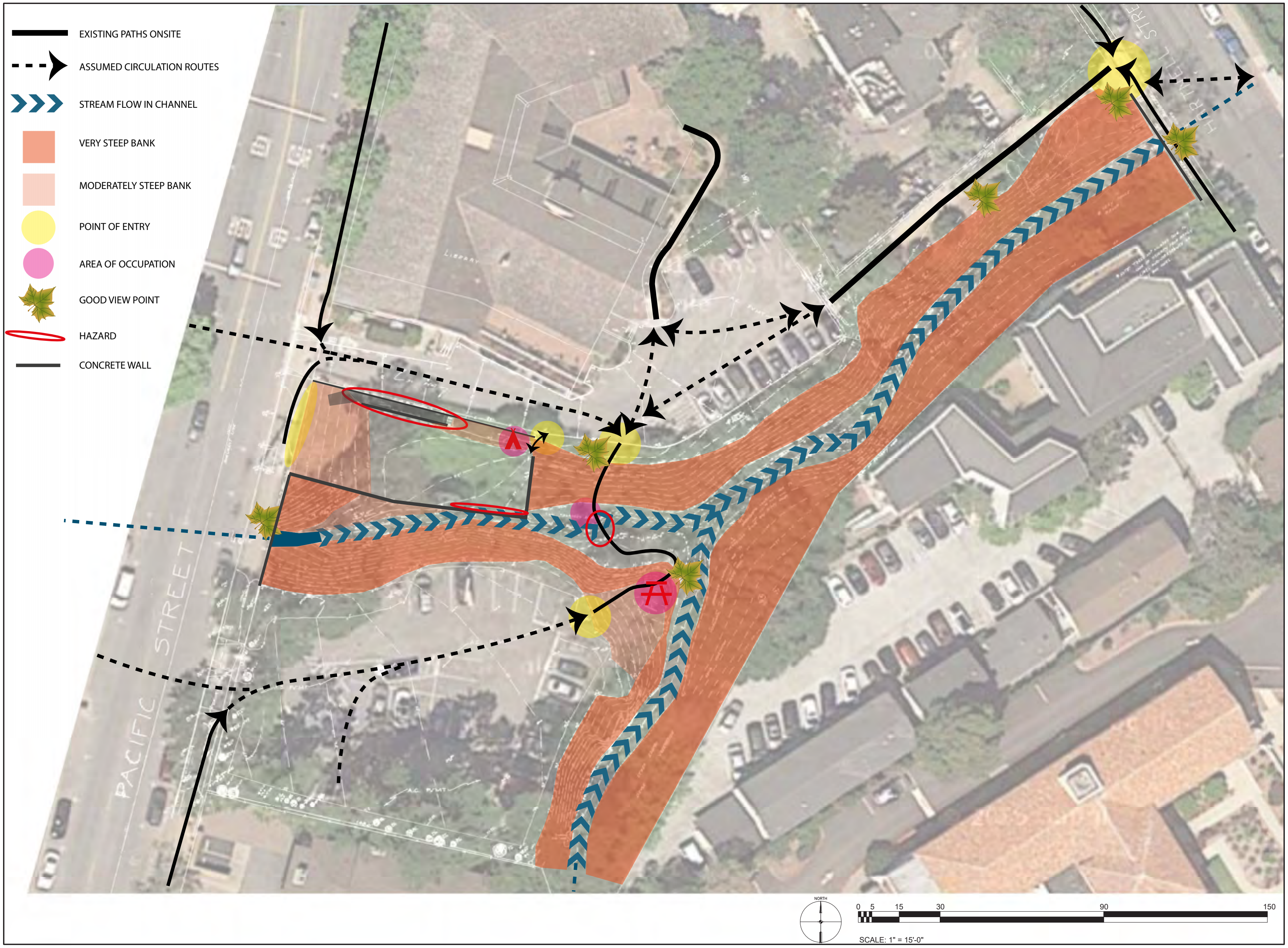


Source: Geosyntec, September, 2018

Hartnell Gulch Watershed

Preliminary Environmental Checklist
Hartnell Gulch Restoration and Stormwater Diversion Project

Figure
3



Source: Ecological Concerns, Inc, Feb. 4, 2016

Hartnell Gulch Site Inventory

Preliminary Environmental Checklist
Hartnell Gulch Restoration and Stormwater Diversion Project

Figure 4

Source: Ecological Concerns, Inc, Feb. 4, 2016

Hartnell Gulch Existing Vegetation

Preliminary Environmental Checklist
Hartnell Gulch Restoration and Stormwater Diversion Project

Figure
5

Source: Ecological Concerns, Inc, Feb. 4, 2016

DD&A

Hartnell Gulch Restoration Plan

Preliminary Environmental Checklist
Hartnell Gulch Restoration and Stormwater Diversion Project

Figure
6

Figure 1. Standing on Hartnell Street facing west looking down at Hartnell Gulch

Figure 2. Facing east on the walking path boardering Hartnell Gulch

Figure 3. Unimporved walking path that traverses Hartnell Gulch.

Figure 4. Standing on Pacific Street facing East, looking down at Hartnell Gulch

DD&A

Hartnell Gulch Site Photos

Preliminary Environmental Checklist
Hartnell Gulch Restoration and Stormwater Diversion Project

Figure
7

APPENDIX H
Summary of Stakeholder Meetings

APPENDIX H: STAKEHOLDER OUTREACH

This Appendix includes Stakeholder Outreach, Education, and Engagement Plan, along with summaries of the Stakeholder Meetings and Public Meeting. A summary of public comments received during the Public Meeting and during the public comment period, along with responses to comments, is also provided.

These items are provided on the following pages of this appendix:

* * * *

Stakeholder Outreach, Education, and Engagement Plan

Stormwater Resource Plan (SWRP) for the Monterey Peninsula, Carmel Bay, and South Monterey Bay Integrated Regional Water Management Planning Region

Stakeholder Outreach, Education, and Engagement Plan **(Grant Task 6.1.1)**

Prepared for:
Monterey One Water

Prepared by:
EOA, Inc.
1021 S. Wolfe Rd.
Sunnyvale, CA 94086

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Attachment A: Potential Stakeholders Contact List

Attachment B: Potential Disadvantaged Communities Stakeholders Contact List

Attachment B: Map of Disadvantaged Communities

LIST OF ABBREVIATIONS

DAC	Disadvantaged Community
SWRP	Stormwater Resource Plan
TAC	Technical Advisory Committee
RWMG	Regional Water Management Group
IRWMP	Monterey Peninsula Integrated Regional Water Management Plan

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1.0 INTRODUCTION

Monterey One Water[1] was awarded a Prop 1 Stormwater Planning Grant to develop a Stormwater Resource Plan (SWRP) for the Monterey Peninsula, Carmel Bay, and South Monterey Bay Integrated Regional Water Management Planning Region[2]. The SWRP will use a metrics-based approach to identify distributed and regional stormwater capture and treatment projects that can be implemented to augment water supply, improve surface water quality, and provide other benefits through enhanced stormwater management. The SWRP will include conceptual design and cost estimates for at least seven of the identified stormwater capture and treatment projects. A Technical Advisory Committee (TAC) with participants from local municipalities, community groups, State Water Resources Control Board, and the Regional Water Quality Control Board will provide input on the SWRP development.

The SWRP will build upon the work done by the Monterey Peninsula Regional Water Management Group[3] (RWMG) to develop the Monterey Peninsula Integrated Regional Water Management Plan (IRWMP). The IRWMP seeks to coordinate the actions of more than 40 stakeholder entities involved in water resource protection, enhancement, and management in the planning Region. A stakeholder may be a public, private, or non-profit agency or organization in the area with an interest in water resources management within the Region/project area.

The SWRP Stakeholder Outreach, Education, and Engagement Plan (Plan) identifies the goals of stakeholder involvement, and describes the tasks that will be implemented to conduct outreach to stakeholders.

Interaction with Monterey Regional Water Recovery Study

The SWRP project will also include conducting the Monterey Regional Water Recovery Study, which will examine the feasibility of establishing a Peninsula-wide water recovery and reclamation system throughout the planning area. The funding for the Water Recovery Study portion of the project serves as local matching funds for the State Prop 1 grant funded Stormwater Resource Plan. The Study will identify stormwater capture opportunities, and will also look at transport and treatment options for the water recovery project opportunities identified. The Water Recovery Study will be heavily integrated into the Stormwater Resource Plan, with all project opportunities identified for the Water Recovery Study included in the project list developed for the Stormwater Resource Plan. A Technical Stakeholder Group, consisting of participants in the region that are familiar with stormwater and wastewater distribution systems, treatment, and/or have technical knowledge of the Carmel River and groundwater basin or the Seaside groundwater basin, will provide input on the methodology used to conduct the Water Recovery Study.

[1] Formerly known as the Monterey Regional Water Pollution Control Agency (MRWPCA).

[2] The 347 square-mile (sq. mi.) planning region includes the political boundaries of coastal cities, including Carmel-by-the-Sea, Del Rey Oaks, Monterey, Pacific Grove, Sand City, and Seaside, and several unincorporated portions of Monterey County, including Carmel Valley, Pebble Beach, the Carmel Highlands, the Laguna Seca area, and the Ord Community.

[3] The RWMG includes Big Sur Land Trust, City of Monterey, Monterey Peninsula Water Management District, Monterey County Water Resources Agency, Monterey One Water, Marina Coast Water District, and Resource Conservation District of Monterey County.

2.0 GOALS OF STAKEHOLDER OUTREACH, EDUCATION, AND ENGAGEMENT

Meaningful public participation goals, objectives, and strategies are critical to involving the public in the process of recommending and pursuing projects and programs in their communities. This Plan was prepared to coordinate and guide outreach activities to reach and involve stakeholders, by meaningful dialog, to communicate water resource issues that are important to them. Active stakeholder involvement during the development and implementation of the SWRP and associated stormwater capture and treatment projects will help ensure the desired environmental outcomes. Stakeholder outreach for the SWRP will be conducted to meet the following goals:

1. Inform stakeholders on the SWRP process and the need for stormwater capture and treatment projects.
2. Obtain stakeholder input in identifying locations and types of stormwater capture and treatment projects.
3. Obtain feedback on the initial prioritized list of potential projects.
4. Obtain comments on and support for the SWRP.
5. Obtain feedback on environmental justice needs and concerns associated with SWRP implementation.

3.0 KEY MESSAGES

The following key messages will be conveyed to stakeholders:

- Benefits of using stormwater as a resource;
- Purpose and content of the SWRP;
- Need for stormwater capture and treatment projects;
- Process for identifying, assessing, and prioritizing stormwater capture and treatment projects.

4.0 STAKEHOLDER OUTREACH, EDUCATION, AND ENGAGEMENT TASKS

The following tasks will be implemented to meet the goals of stakeholder outreach:

Task 1 – Stakeholder Group Formation

As part of developing the Monterey Peninsula IRWMP, the RWMG identified and contacted 130 stakeholders, representing public agencies, local municipalities and special districts, environmental non-profits, community groups, academic educational institutions, private companies, landowners, and individuals. The SWRP project team and TAC updated the IRWMP stakeholder contact list to develop the potential stakeholders list included in Attachment A.

The RWMG wants to ensure that the water resource management needs and interests of disadvantaged communities (DACs)[4] are fully addressed in the SWRP and that DACs are provided ample opportunities for involvement in plan development. To ensure that DACs are well represented on the Stakeholder Group, additional outreach will be conducted to disadvantaged community advocates. The following four census tracts within the SWRP area are considered DACs:

- Tract 127 (Monterey)
- Tract 136 (Seaside)
- Tract 137 (Seaside)
- Tract 140 (Seaside/Sand City)

The City of Seaside provided a list of potential DAC stakeholders (Attachment B). Contacts have also been requested from the City of Monterey. Anticipated additional outreach to the DACs may include follow up emails, targeted hard copy notice mailings, and phone calls, if needed. A map showing the DAC census tract boundaries is provided as Attachment C.

In addition to the above, participants on the Technical Stakeholder Group for the Water Recovery Study will also be invited to participate on the SWRP Stakeholder Group. The Technical Stakeholder Group is currently being formed.

Schedule – Potential stakeholders will be contacted in September 2017, and the Stakeholder Group will be established in early October 2017.

Task 2 – Quarterly Updates

Beginning November 2017, quarterly updates will be sent via e-mail to the SWRP Stakeholder Group to provide information to them on the progress toward the completion of the SWRP. Informational materials (e.g., flyers, fact sheets) will be developed and distributed to stakeholders as part of the quarterly update. In addition, information pertaining to the SWRP will be regularly posted on the Monterey Regional Stormwater Management Program website.

Schedule: Quarterly, beginning November 2017.

Task 3 – Stakeholder Group Information Requests and Meetings

As described below, Monterey One Water plans to hold two Stakeholder Group meetings to share information and solicit input on the SWRP:

- The first meeting will introduce the Stakeholder Group to the SWRP planning process, provide information on the metrics and methodology for identifying, assessing and prioritizing potential projects, present preliminary findings from the Water Recovery Project Feasibility Study, and provide opportunities for stakeholders to submit project ideas.
- The second meeting will be held to obtain feedback from stakeholders on the preliminary ranked project list and follow up actions.

At least a month prior to the first meeting, the SWRP Stakeholder Group will be contacted and requested to provide the information regarding stakeholder planned projects relevant to the SWRP.

[4] A DAC is a community with an annual median household income that is less than 80 percent of the Statewide annual median household income (Water Code §79505.5).

This will allow engagement from stakeholders in identification of project opportunities. The project identification request will be sent in the form of an e-mail, with an attached spreadsheet form that stakeholders may fill out with potential project opportunities. The project identification request will be discussed at the first Stakeholder Group meeting and will be due shortly afterward.

Stakeholders will be provided project lists with the rankings of their identified projects per the metrics-based project evaluation method used. Following the second SWRP Stakeholder Group meeting, input will be requested from stakeholders regarding the project ranking and prioritization. For those stakeholders that are also cooperating entities or interested parties, input will also be requested for project opportunities identified through additional geospatial analysis conducted by the project team, which fall within the entities' jurisdiction. The stakeholders will have two weeks to provide input on the project prioritization.

Schedule:

- Project Solicitation Request – September 2017
- First meeting – October 2017
- Second meeting – January 2018
- Project Prioritization Input Request – January 2018

Task 4 – Public Workshop

One public workshop will be held to present the draft SWRP to stakeholders and the general public to obtain their feedback. A bilingual flyer (English and Spanish) will be developed and distributed via email and community center postings.

Schedule: June 2018.

Task 5 - Stakeholder Involvement in the Implementation of the SWRP and Completion of Projects

Following completion of the final SWRP, further input will be sought from stakeholders in affected communities. This step will increase stakeholder involvement in the project design and develop partnerships needed for implementation and operation and maintenance.

Schedule: TBD.

5.0 SUMMARY OF TASKS AND SCHEDULE

Table 5-1 summarizes the stakeholder outreach, education and engagement tasks and the schedule for implementation.

Table 5-1. Summary of Tasks and Schedule

Task	Description	Schedule
1	Stakeholder Group Formation	• Contact potential stakeholders – September 2017 • Establish Stakeholder Group – October 2017
2	Quarterly Updates	• Quarterly, beginning November 2017
3	Stakeholder Group Information Requests and Meetings	• Project Solicitation Request – September 2017 • First meeting – October 2017 • Second meeting – January 2018 • Project Prioritization Input Request – January 2018
4	Public Workshop	• June 2018
5	Stakeholder Involvement in Implementation of SWRP and Completion of Projects	• TBD

Attachment A
Monterey SWRP
Potential Stakeholders Contact List

Contact	E-mail Address	Organization
FEDERAL AGENCIES		
Bridget Hoover	Bridget.Hoover@noaa.gov	Monterey Bay National Marine Sanctuary
Frank Schwing	franklin.schwing@noaa.gov	National Oceanic and Atmospheric Administration Fisheries
Dan Martel	daniel.j.martel@usace.army.mil	U.S. Army Corps of Engineers
Jacob Martin	jacob_martin@fws.gov	U.S. Fish and Wildlife Service
Larry Freeman	lfreeman@usgs.gov	US Geological Survey
John Warner	john.warner@ks.usda.gov	USDA Natural Resources Conservation Service
Shawn Milar	shawn_milar@fws.gov	USFWS Coastal Program
Jeff Kwasny	jkwasny@fs.fed.us	US Forest Service
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Attachment A
Monterey SWRP
Potential Stakeholders Contact List

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Attachment A
Monterey SWRP
Potential Stakeholders Contact List

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Attachment A
Monterey SWRP
Potential Stakeholders Contact List

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Attachment A
Monterey SWRP
Potential Stakeholders Contact List

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Attachment B
Monterey SWRP
Potential Disadvantaged Communities Stakeholders Contact List

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Del Monte Manor Villa Del Monte Senior Housing	Low Cost Housing	1466 Yosemite Street	Seaside	CA	93955
Alliance on Aging		570 Lighthouse Avenue	Pacific Grove	CA	93950
City of Marina	Community	209 Cypress Avenue	Marina	CA	93933
Del Rey Woods School	Principal	1281 Plumas Avenue	Seaside	CA	93955
Association of Monterey Bay Area Governments		PO Box 2453	Seaside	CA	93955
City of Monterey		580 Pacific Street	Monterey	CA	93940
Disabled Veterans	James Bogan	PO Box 1452	Seaside	CA	93955
Disabled Veterans	James Bogan	1633 Highland Street	Seaside	CA	93955
American Legion		1000 Playa Avenue	Seaside	CA	93955
City of Pacific Grove		300 Forest Avenue	Pacific Grove	CA	93950
El Sol		123 West Alisal Street	Salinas	CA	93901
Blind and Visually Impaired		225 Laurel Avenue	Pacific Grove	CA	93950
City of Sand City		1 Sylvan Park	Sand City	CA	93955
Emmanuel Church of God in Christ		1450 Sonoma Avenue	Seaside	CA	93955
CSUMB	Rebecca Moreno, Coodinator of Community	100 Campus Center	Seaside	CA	93955
County of Monterey Department of Social		1000 South Main St., Ste 209-A	Salinas	CA	93901
County of Monterey Department of Social	Branch Director,Henry Espinosa	1000 South Main St., Ste 211	Salinas	CA	93901
County of Monterey Department of Social Services	Margarita Zarraga	1000 South Main St., Ste 301	Salinas	CA	93901
County of Monterey Department of Social Services	Robert Taniguchi, Branch Director	1000 South Main St., Ste 205	Salinas	CA	93901
Faith Luthern Church		1460 Hilby Avenue	Seaside	CA	93955
CHISPA, Inc.		295 Main Street, Ste 100	Salinas	CA	93901
Friends of the Seaside	Alicia O'Neill, President	550 Harcourt Avenue	Seaside	CA	93955
Christian Memorial Community Church		2699 Colonel Durham St.	Seaside	CA	93955
Hilltop United Methodist Church of Seaside		1340 Hilby Avenue	Seaside	CA	93955
Christian Methodist Episcopal Church		625 Elm Avenue	Seaside	CA	93955
Housing Resource Center		201 John Street	Salinas	CA	93901
Citizens League for Progress	Ewalker James	PO Box 1272	Seaside	CA	93955
Citizens League for Progress	Ewalker James	1399 Darwin Street	Seaside	CA	93955
Interim, Inc.		PO Box 3222	Monterey	CA	93942
International School		1720 Yosemite Street	Seaside	CA	93955
KAZU Radio (Public Radio)		100 Campus Center	Seaside	CA	93955

Attachment B
Monterey SWRP
Potential Disadvantaged Communities Stakeholders Contact List

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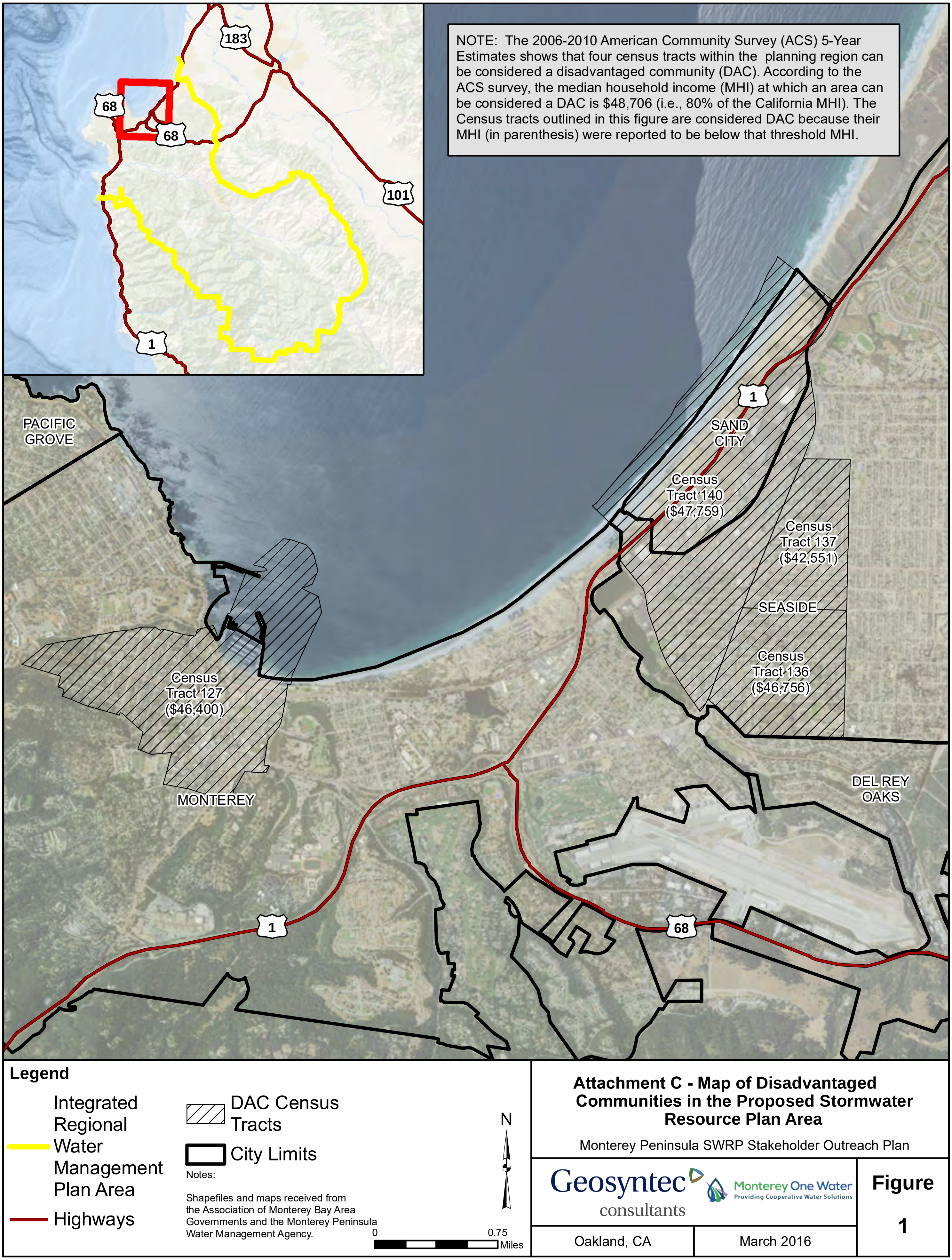
KSBW-TV (Chanel 8)		PO Box 81651	Salinas	CA	93912
KSBW-TV (Chanel 8)		238 John Street,	Salinas	CA	93901
KSMS-TV (Chanel 67)		67 Garden Court	Monterey	CA	93940
Monterey Bay LINKS, Inc.	Ruthie Watts	PO Box 1699	Seaside	CA	93955
Monterey Bay LINKS, Inc.	Ruthie Watts	9 Stowe Court	Seaside	CA	93955
LULAC		PO Box 1396	Salinas	CA	93902
Martin Luther King School	Principal	1713 Broadway Avenue	Seaside	CA	93955
Monterey County Advocacy Housing Council		34 E. Rossi Street	Salinas	CA	93907
Monterey County Herald	Newsroom	PO Box 271	Monterey	CA	93940
Monterey County Housing Authority		123 Rico Street	Salinas	CA	93907
Monterey County Office of Education		PO Box 80851	Salinas	CA	93912
Monterey County Office of Education		901 Blanco Circle	Salinas	CA	93901
Monterey County Weekly		668 Williams Avenue	Seaside	CA	93955
Monterey Peninsula College	Student Services	980 Fremont Street	Monterey	CA	93940
MPUSD	Board of Education	1295 La Salle Avenue	Seaside	CA	93955
MPUSD		700 Pacific Street	Monterey	CA	93940
NAACP		1104 Broadway Avenue	Seaside	CA	93955
Del Monte Manor	Neighborhood Network Center	1466 Yosemite Street	Seaside	CA	93955
Parade of Champions	Jerry Thorne	PO Box 811	Seaside	CA	93955
Salvation Army	Monterey Peninsula Corps	1491 Contra Costa Street	Seaside	CA	93955
Seaside High School Robotics Club	Principal	2200 Noche Buena Street	Seaside	CA	93955
Seaside Middle School	Principal	999 Coe Avenue	Seaside	CA	93955
Seaside Lions Club		PO Box 874	Seaside	CA	93955
Seaside Raiders		PO Box 813	Seaside	CA	93955
Seaside City Chamber of Commerce		505 Broadway Avenue	Seaside	CA	93955
Shelter Outreach Plus		PO Box 1340	Marina	CA	93933
Shelter Outreach Plus		3087 Wittenmyer Court	Marina	CA	93933
St. Francis Xavier Church		1475 La Salle Avenue	Seaside	CA	93955



Attachment C - Map of Disadvantaged Communities in the Proposed Stormwater Resource Plan Area

Monterey Peninsula SWRP Stakeholder Outreach Plan

Geosyntec consultants | Monterey One Water Providing Cooperative Water Solutions

Figure 1

Oakland, CA | March 2016

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Stakeholder Meeting #1 Summary

Stormwater Resource Plan for the Monterey Peninsula, Carmel Bay, and South Monterey Bay Integrated Regional Water Management Planning Region

Stakeholder Group
Meeting #1

Tuesday, October 17, 2017, 9:45 am – 12:00 pm

MEETING SUMMARY

Participants – Attendance list attached.

1. Welcome/Introductions

   Jeff Condit (Monterey One Water) welcomed stakeholders to the meeting.

2. Background

   Jeff updated attendees on the purpose of the Stormwater Resource Plan (SWRP) and the role of Monterey One Water, MRSWMP, consultant team, and stakeholders.

3. Overview of Project

   Kelly Havens (Geosyntec) described the project area watersheds, outline of the SWRP report, and provided an overview of the methodology for identifying, evaluating, and prioritizing local and regional stormwater capture projects. She also updated attendees on the spreadsheet that was sent to them for collecting information on potential projects. Attendees asked clarifying questions and provided the following feedback:

   - Ensure that the SWRP development is a collaborative effort. Identified projects should not be in conflict with each other. For example, someone proposing a project upstream could adversely impact another project downstream.
   - Consider including a regulatory evaluation in the project ranking process.
   - Consider informing Monterey County supervisors about the SWRP development process to ensure that permitting is easier for prioritized projects.
   - Add a discussion of permitting requirements to the SWRP (Implementation Section).
   - During project prioritization, provide more points to projects that increase water supply and/or reduce water consumption.
   - Identify opportunities for combining smaller projects into a regional project during the project prioritization process. Scoring criteria should consider this coordination with projects.
   - Consider providing more points for projects that positively impact more miles of an impaired water body.

Kelly provided the following clarifications based on questions from attendees:

- Projects that are not fully developed in terms of budget/approval can be submitted. Inclusion in the SWRP does not commit an agency to constructing the project.
- Even projects that appear to have lower environmental benefits should be submitted. To be eligible for future grant funding, the projects should be included in the SWRP.
- Google map files can be submitted if the exact project address/parcel number is not known.
- Only projects that have a project proponent should be submitted.
- There may be opportunities to submit projects later through updates to the SWRP and IRWMP.

4. Summary and Schedule of Stakeholder Input Requested throughout the Project

Vishakha Atre (EOA) provided an overview of the main SWRP products that will be sent to the stakeholders for review and input. These products and due dates for comments/input are described below:

- Data on potential projects and comments on the project prioritizing methodology - October 31, 2017.
- Feedback on the prioritized list of projects - January 2018
- Feedback on draft SWRP - May/June 2018.

Action Items:

- The consultant team will send today's presentation and the spreadsheet for submitting potential projects to stakeholders.
- Stakeholders will submit comments and potential projects by October 31, 2017.

Monterey Pennisula Stakeholder Group Meeting #1
List of Attendees
Tuesday, October 17, 2017

Name	Organization
Agnes Topp	City of Carmel
Alison Imamura	Monterey One Water
Andrew Racz	Marina Coast Water District
Andy Magnasco	Carmel River Task Force
Barbara Buikema	Carmel Wastewater
Catherine Stedman	California American Water Company
Chris Cook	American Water Company
Denise Duffy	Denise Duffy & Associates
Diana Staines	Denise Duffy & Associates
Drew Lander	Carmel Area Wastewater District
Eric Sand	Carmel Valley Association
Frank Pierce	
Gail Morton	Fort Ord Recreation Users
Gary Conley	Second Nature
Jeff Condit	Monterey One Water
Jill Bicknell	EOA, Inc.
Jody Hansen	Monterey Peninsula College
Joelle Lobo	Presidio of Monterey
Karen Riley-Olms	County of Monterey
Kelly Havens	Geosyntec
Laura Dadiw	Watermaster
Laurie Williamson	City of Monterey
Leah MacCarter	Carmel River Task Force
Leif Utegaard	Santa Lucia Preserve Community Services District
Lisa Austin	Geosyntec
Lisa Emanuelson	Monterey Bay Citizen Watershed Monitoring Network
Lorin Letendre	Carmel River Watershed Conservancy
MaryBeth Dreusike	Naval Support Activity Monterey
Maureen Hamilton	Monterey Peninsula Water Management District
Mike McCullough	Monterey One Water
Milas Smith	City of Pacific Grove
Nick Becker	Pebble Beach Community- Service District
Paul Robins	Monterey County Resource Conservation District
Rick Boggs	California State University Monterey Bay
Sarah Hardgrave	Big Sur Land Trust
Scott Ottmar	City of Seaside
Shelley Glennon	Monterey Airport
Tom Harty	Monterey County Resource Management Agency
Tom Reeves	Big Sur Land Trust
Tricia Wotan	City of Monterey
Vicki Taber	Naval Support Activity Monterey
Vishakha Atre	EOA, Inc.

Stakeholder Meeting #2 Summary

Stormwater Resource Plan for the Monterey Peninsula, Carmel Bay, and South Monterey Bay Integrated Regional Water Management Planning Region

Stakeholder Group
Meeting #2

Thursday, February 8, 2018, 10:00 am – 12:00 pm

MEETING SUMMARY

Participants – Attendance list attached.

1) Welcome/Introductions

Jeff Condit (Monterey One Water) welcomed stakeholders to the meeting. Stakeholders introduced themselves.

2) Background

Jeff updated attendees on the purpose of the Stormwater Resource Plan (SWRP) and the role of Monterey One Water, MRSWMP, Technical Advisory Committee (TAC), consultant team, and stakeholders.

3) Purpose of Stakeholder Meeting #2

Vishakha Atre (EOA) informed stakeholders that the purpose of this meeting is to: 1) present the prioritized list of multi-benefit stormwater capture projects to stakeholders; 2) obtain stakeholder input for identifying the top seven projects for which designs will be developed; and 3) obtain stakeholder input on project characteristics that should be considered for identifying top projects.

4) SWRP Status

Vishakha provided the following overview of the methodology for identifying, evaluating, and prioritizing local and regional stormwater capture projects:

- Over 2,000 planned and potential project opportunities were identified using the list of planned projects submitted by stakeholders, projects identified in the Water Recovery Study, and a GIS-based opportunity analysis.
- The identified project opportunities were preliminarily scored using a metrics-based multi-benefit evaluation consistent with the requirements of the State's SWRP Guidance.
- The scored project lists were submitted to jurisdictions for ranking based on their local priorities.
- A spreadsheet summarizing the overall list of 2,000+ projects, the top 2% of project opportunities identified by each jurisdiction, and the feedback from the jurisdictions was sent to the stakeholders for review.

Vishakha described the prioritized projects spreadsheet in detail and showed attendees a Google Earth map identifying the top 2% projects. Attendees provided the following feedback:

- Consider simplifying the list of prioritized projects so it is easier for the general public to understand. For the SWRP Public Workshop, the list could include the project name/location, type, name of the project owner (jurisdiction), rank/score, and the reason for the ranking.
- Ensure that project implementation is a collaborative effort. Identified projects should not be in conflict with each other.
- The focus of project prioritization should be water supply augmentation, not stormwater infiltration. Lisa noted that grant guidelines require the projects to have multiple benefits. The project list includes over 200 water recovery opportunities identified through the Water Recovery Study.
- Identify State Parks as a separate project owner. Currently, land owned by State Parks is identified under unincorporated County.
- The analysis should include consideration of the geologic feasibility for infiltration.

Lisa Welsh (Geosyntec) and Vishakha provided the following clarifications based on questions from attendees:

- The metrics-based scoring does not take local factors (e.g., a jurisdiction's local planning priorities, funding availability, etc.) into account; therefore, ranking based on local factors is important.
- Project ranks can be elevated based on feedback received from local communities and stakeholders.
- Ability to provide match funds can be a criteria considered during project ranking.
- The Water Recovery Study will be attached to the SWRP. It will be available for public review and comment along with the draft SWRP.
- All identified project opportunities will be included in the SWRP and be eligible to receive future grant funds.
- Project descriptions are not included in the spreadsheet because most of the projects are opportunities identified through GIS-based analysis, or planned projects in preliminary stages.
- The draft SWRP will be posted online for review by the public.

5) Stakeholder Activity to Identify Top Project Characteristics

Attendees participated in an activity to identify the top three project characteristics important to them. Ten poster boards listing project characteristics were placed on a table. Attendees were given three dot stickers each and asked to place one sticker on each project characteristic important to them. The project characteristics are listed below in the order of preference, with #1 being the characteristic that received most votes:

1. Water supply benefits.
2. Synergy of project with upcoming projects.
3. Project is part of larger restoration or watershed improvement plans.
4. Water quality benefits.
5. Location of project in a disadvantaged community, and cost of long-term project maintenance (both received the same number of votes).
6. Cost of project construction.
7. Community support or opposition, and potential for public education (both received the same number of votes).

Action Items:

- Stakeholders will submit comments on the prioritized project list by February 16, 2018.

Monterey Pennisula Stakeholder Group Meeting #2
List of Attendees

	Name	Organization
1	Agnes Topp	City of Carmel
2	Alexander Wade	Presidio of Monterey – Directorate of Public Works/ Military Personnel Division
3	Alison Imamura	Monterey One Water
4	Andrew Racz	Marina Coast Water District
5	Chris Morello	Monterey Airport
6	Diana Staines	Denise Duffy & Associates
7	Drew Lander	Carmel Area Wastewater District
8	Elai Fresco	Geosyntec
9	Elizabeth Payne	State Water Board
10	Frank Pierce	Pacific Grove Resident
11	George T. Riley	Citizen for Public Water
12	Jay Tulley	Presidio of Monterey
13	Jeff Condit	Monterey One Water
14	Jeff Krebs	City of Monterey
15	Joelle Lobo	Presidio of Monterey
16	Leon D. Gomez	CD Engineers
17	Lisa Emanuelson	Monterey Bay Citizen Watershed Monitoring Network
18	Lisa Welsh	Geosyntec
19	Lorin Letendre	Carmel River Watershed Conservancy
20	MaryBeth Dreusike	Naval Support Activity Monterey
21	Mike McCullough	Monterey One Water
22	Milas Smith	City of Pacific Grove
23	Nick Becker	Pebble Beach Community- Service District
24	Rick Boggs	California State University Monterey Bay
25	Sarah Hardgrave	Big Sur Land Trust
26	Scott Ottmar	City of Seaside
27	Tom Harty	Monterey County Resource Management Agency
28	Tom Reeves	Big Sur Land Trust
29	Vishakha Atre	EOA, Inc.

Public Meeting Summary

NOTICE OF PUBLIC MEETING

Monterey Peninsula Region Stormwater Resource Plan

The Monterey Regional Stormwater Management Program (MRSWMP) invites you to provide feedback on the Draft Stormwater Resource Plan (SWRP) for the Monterey Peninsula, Carmel Bay, and South Monterey Bay Integrated Regional Water Management Planning Region.

The SWRP is a planning document that identifies public lands (i.e., streets, parks, and municipal properties) where stormwater capture projects could potentially be located to provide the most benefit. Stormwater capture projects collect, store, and treat stormwater runoff as well as dry weather flows such as excess irrigation runoff. Potential environmental and community benefits include:

- Providing water for other uses, such as irrigation,
- Recharging groundwater,
- Reducing local flooding, and
- Improving water quality in local creeks.

The Draft SWRP will be posted for public review on June 25, 2018 at www.montereySEA.org. A 30-day comment period will be provided.

Public Meeting Agenda

- Update on the SWRP development process and its relationship to other regional water management planning efforts.
- Overview of the process used to identify, evaluate, and prioritize local and regional stormwater capture projects.
- Presentation of conceptual designs for high priority projects.

RSVP: www.montereyswrp.eventbrite.com

Wednesday, June 27, 2018

5:30 pm – 7:00 pm

Venue

Colton Room,
Monterey Conference Center,
1 Portola Plaza,
Monterey

MONTEREY REGIONAL Stormwater Management PROGRAM

California Water Boards

City of Monterey California

Monterey Peninsula Water Management District

Monterey One Water — Providing Cooperative Water Solutions

Aviso de reunión pública

Monterey Peninsula Region Stormwater Resource Plan

El Monterey Regional Stormwater Management Program (MRSWMP) lo invita a enviar comentarios el Draft Stormwater Resource Plan (SWRP) para la Región de Planificación del Manejo Integrado del Agua de la Península de Monterey, Carmel Bay y South Monterey Bay.

El SWRP es un documento de planificación que identifica tierras públicas (es decir, calles, parques y propiedades municipales) donde los proyectos de captura de aguas pluviales podrían ubicarse para proporcionar el mayor beneficio. Los proyectos de captura de aguas pluviales recolectan, guardan y tratan la escorrentía de aguas pluviales, así como los flujos de clima seco como el exceso de agua que se escurre cuando uno riega. Los posibles beneficios ambientales y comunitarios incluyen:

- Proporcionar agua para otros usos, como el riego,
- Recargar agua subterránea,
- Reducir las inundaciones locales, y
- Mejorar la calidad del agua en arroyos locales.

El Draft SWRP se publicará para revisión pública el 25 de junio de 2018 en www.montereySEA.org. Se proporcionará un período de comentarios de 30 días.

Agenda de reuniones públicas

- Actualización sobre el proceso de desarrollo de SWRP y su relación con otros esfuerzos regionales de planificación de la administración del agua.
- Descripción general del proceso utilizado para identificar, evaluar y priorizar proyectos locales y regionales de captura de aguas pluviales.
- Presentación de diseños conceptuales para proyectos de alta prioridad

Miércoles, 27 de junio de 2018

5:30 p.m. - 7:00 p.m.

Colton Room, Monterey Conference Center, 1 Portola Plaza, Monterey

RSVP: www.montereyswrp.eventbrite.com

Nota: La reunión se llevará a cabo en inglés. Un traductor no estará disponible.

MONTEREY COUNTY
WEEKLY

668 Williams Ave
(831) 394-5656
Seaside, CA 93955

Proof of publication

State of California
County of Monterey

I am a citizen of the United States and a resident of the State of California. I am over the age of 18 years and not party to or interested in the above-entitled matter.

I am the principal clerk of *Monterey County Weekly,* a newspaper of general circulation, published weekly by Milestone Communications, Inc. in the City of Seaside, County of Monterey, and which newspaper has been adjudicated a newspaper of general circulation by the Superior Court of the County of Monterey, State of California; that the notice of which the annexed is a printed copy has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates to wit.

June 14, 2018

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Name.....Linda S. Maceira.......................

Signature....Linda S. Maceira..........

Dated:..June 14, 2018..Monterey, California

Notice of Public Meeting

Monterey Peninsula Region Stormwater Resource Plan

The Monterey Regional Stormwater Management Program (MRSWMP) will hold a public meeting to present the Draft Stormwater Resource Plan (SWRP) for the Monterey Peninsula, Carmel Bay, and South Monterey Bay Integrated Regional Water Management Planning Region.

The meeting will be held on **Wednesday, June 27, from 5:30 pm – 7:00 pm** in the **Colton Room, Monterey Conference Center, 1 Portola Plaza, Monterey, CA.** All interested parties are encouraged to attend and participate.

The SWRP is a planning document that identifies public lands (i.e., streets, parks, and municipal properties) where stormwater capture projects could potentially be located to provide the most benefit. Stormwater capture projects collect, store, and treat stormwater runoff, as well as dry weather flows such as excess irrigation runoff.

The Draft SWRP will be posted for public review on June 25, 2018 at www.montereySEA.org. A 30-day comment period will be provided.

Public Meeting Agenda

- Update on the SWRP development process and its relationship to other regional water management planning efforts.
- Overview of the process used to identify, evaluate, and prioritize local and regional stormwater capture projects.
- Presentation of conceptual designs for high priority projects.

RSVP: www.montereyswrp.eventbrite.com

Participating Agencies – Monterey Regional Stormwater Management Program, California State Water Resources Control Board, City of Monterey, Monterey Peninsula Water Management District, and Monterey One Water.

SPECIAL MEETING

NOTICE AND AGENDA

MANAGEMENT COMMITTEE for the MONTEREY REGIONAL STORM WATER MANAGEMENT PROGRAM (MRSWMP)

DATE: June 27, 2018
TIME: 5:30 p.m.
LOCATION: Monterey Conference Center, Colton Room, 1 Portola Plaza, Monterey, California

NOTE: Under the terms and conditions of the Memorandum of Understanding for the Monterey Regional Storm Water Pollution Prevention Program {*also referred to as the Monterey Regional Storm Water Management Program, (MRSWMP)*}, the Management Committee (*MC*) was created to provide overall Program coordination, review, and budget oversight with respect to the NPDES permit. The MC is to consider permit compliance, with majority concurrence of the Permittees (*listed below as Participating Entities*), as the primary objective in approving Program tasks and corresponding budgets. The MC is comprised of one representative from each of the Permittees. None of the representatives are elected officials or policy makers for the entities they represent.

Stakeholder feedback may either be provided during the "Public Comment" agenda item or the Program Manager may be contacted regarding any questions or feedback for the Management Committee. Responses to these items will be reported in the Management Committee Meeting Minutes. Should an interested stakeholder or a member of the public wish to make a presentation to the Group, the Program Manager should be contacted to schedule the presentation for a subsequent meeting.

Officers: Chairperson: Milas Smith, City of Pacific Grove
Vice-Chairperson: Agnes Topp, City of Carmel-by-the-Sea

Participating Entities:
City of Carmel-by-the-Sea
City of Del Rey Oaks
City of Monterey
City of Pacific Grove
City of Sand City
City of Seaside
County of Monterey

Other Coordinating Entities:
Carmel Unified School District
Pacific Grove Unified School District
Monterey Peninsula Unified School District
Pebble Beach Company

Ex-Officio Members:
Association of Monterey Bay Governments
Monterey Bay National Marine Sanctuary

CALL TO ORDER

AGENDA ITEMS

1. **Presentation on the Monterey Peninsula Region Stormwater Resource Plan (SWRP) and Meeting to Receive Public Comment on SWRP**

ADJOURNMENT

Stormwater Resource Plan for the Monterey Peninsula, Carmel Bay, and South Monterey Bay Integrated Regional Water Management Planning Region

Wednesday, June 27, 2018

5:30 pm – 7:00 pm

Colton Room, Monterey Conference Center,

1 Portola Plaza, Monterey

PRESENTATION

5:30 pm	1.	Registration	
5:35 pm	2.	Welcome	*Milas Smith, Chair, MRSWMP*
5:40 pm	2.	Introduction • What is the Stormwater Resource Plan (SWRP)? • Why was it prepared? • Who was involved? • Purpose of public meeting	*Jeff Condit, Monterey One Water / MRSWMP*
5:50 pm	3.	Overview of the SWRP • Goals and Objectives • Content Overview	*Vishakha Atre, EOA, Inc.*
6:10 pm	4.	Integrated Regional Water Management Plan and Relationship to the SWRP	*Sarah Hardgrave, Big Sur Land Trust*
6:25 pm	5.	Overview of Conceptual Project Designs	*Lisa Welsh Geosyntec Consultants*
6:35 pm	6.	View and Discuss Conceptual Project Designs	*All attendees*
6:55 pm	7.	Closing Remarks	*Jeff Condit*
7:00 pm	8.	Adjourn	*Milas Smith*

Monterey Pennisula SWRP
Public Meeting
Wednesday, June 27, 2018
Attendance List

Name	Organization
Agnes Topp	City of Carmel by the Sea
Alison Imamura	Monterey One Water
Diana Staines	Denise Duffy and Associates
Elizabeth Geisler	Dudek
Jeff Condit	Monterey One Water
John Mukhar	MNS Engineers
Lisa Welsh	Geosyntec Consultants
Michael Johnson	MNS Engineers
Robert Jaques	Seaside Basin Watermaster
Sarah Hardgrave	Big Sur Land Trust
Tricia Wotan	City of Monterey
Vishakha Atre	EOA, Inc.
Bob Siegfried	Carmel Valley Association
Robert Guidi	Department of Defense
Scott Ottmar	City of Seaside
Tom Reeves	Interested Party
Frank Pierce	Carmel River Task Force
Gina Schmidt	AMBAG
Bob Bourke	Interested Party
Milas Smith	City of Pacific Grove
Tom Harty	Monterey County Resource Management
Nathan	Watson Engineers
John Hunt	UC Davis
Riley Imamura	Interested Party
Nathaniel M	Watson Engineers

Stormwater Resource Plan for the Monterey Peninsula, Carmel Bay, and South Monterey Bay Integrated Regional Water Management Planning Region

Public Meeting

Wednesday, June 27, 2018, 5:30 pm – 7:00 pm

MEETING SUMMARY

Participants – Attendance list attached.

1) Welcome

Milas Smith (Chair, MRSWMP) welcomed attendees to the meeting.

2) Background

Jeff (Monterey One Water) updated attendees on the purpose of the Stormwater Resource Plan (SWRP) and the role of Monterey One Water, MRSWMP, Technical Advisory Committee (TAC), consultant team, and stakeholders. He informed attendees that the purpose of the meeting is to provide an overview of the Draft SWRP, present conceptual project designs, and obtain initial feedback. Final comments are due to him by July 25, 2018.

3) Overview of the SWRP

Vishakha Atre (EOA) provided an overview of the SWRP chapters, and explained the methodology for identifying, evaluating, and prioritizing local and regional stormwater capture projects. The SWRP includes the following eight chapters that address the elements required by the State Board's Storm Water Resource Plan Guidelines:

1. Introduction
2. Organization, Coordination, Collaboration
3. Watershed Identification
4. Water Quality Compliance
5. Quantitative Methods
6. Identification and Prioritization of Projects
7. Implementation Strategy and Schedule
8. Education, Outreach, Public Participation

The prioritization process identified approximately 2,200 project opportunities. A spreadsheet listing these potential projects as well as ranking feedback from the participating municipalities is included in Appendix E of the Public Draft SWRP. Appendix E is available as a separate link at www.MontereySea.org.

4) Integrated Regional Water Management Plan and Relationship to the SWRP

Sarah Hardgrave (Big Sur Land Trust) informed attendees about the Monterey Peninsula, Carmel Bay, and Southern Monterey Bay Integrated Regional Water Management (IRWM) Plan update and project solicitation process. The Monterey Peninsula Regional Water Management Group (RWMG) has initiated the process for the IRWM Plan update and will begin soliciting projects for the Proposition 1 IRWM Implementation Grant in July 2018. To receive grant funding, projects need to be either listed in the IRWM Plan project list, or applicants need to describe how the project has been vetted through the RWMG. The SWRP will be included in the IRWM plan and all potential projects identified in the SWRP will be eligible for grant funding.

5) SWRP Status

Lisa Welsh (Geosyntec) provided an overview of following seven projects selected by the TAC for conceptual design:

1. Hartnell Gulch Restoration and Stormwater Diversion
2. Lake El Estero Diversion to Sanitary Sewer
3. Monterey Tunnel Stormwater Diversion
4. Carmel-by-the-Sea Stormwater Diversion
5. David Avenue Stormwater Storage and Diversion
6. Del Monte Manor Park Infiltration
7. Drywell Aquifer Recharge Program

Attendees provided the following feedback:

- Ensure that project implementation is a collaborative effort. Identified projects should not be in conflict with each other.
- As other projects are designed, consider on-site runoff capture instead of off-site capture.
- Consider including Phase II Permit requirements while designing projects.

Lisa provided the following clarifications based on questions from attendees:

- The conceptual project designs include information on construction, operation and maintenance costs.
- The conceptual project designs also include information on sizing treatment and capture facilities.

5) View and Discuss Conceptual Project Designs

Lisa informed attendees that the seven conceptual project designs are placed around the room on poster boards. Project proponents are also available to answer questions on specific projects. Attendees viewed the project designs and discussed them with project proponents.

6) Adjourn

Jeff reminded attendees to send comments by July 25, 2018. The public meeting adjourned at 7:15 pm.

Monterey Peninsula Stormwater Resource Plan

Public Meeting

June 27, 2018

Presenters:
Jeff Condit, Monterey One Water / MRSWMP
Vishakha Atre, EOA
Sarah Hardgrave, Big Sur Land Trust
Lisa Welsh, Geosyntec

Presentation Agenda

- Stormwater Resource Plan (SWRP) Background
- Purpose of Public Meeting
- SWRP Overview
  - Goals and Objectives
  - Content
- Integrated Regional Water Management Plan and Relationship to the SWRP
- Conceptual Project Designs

Background

- Monterey One Water was awarded a Prop 1 Stormwater Planning Grant to develop a Stormwater Resource Plan (SWRP) on behalf of the Monterey Regional Stormwater Management Program
- The SWRP was developed for the Monterey Peninsula, Carmel Bay, and South Monterey Bay Integrated Regional Water Management Planning Region
- Start Date: July 2017
- Completion Date: December 2018

Project Team

- Monterey Regional Storm Water Management Program (MRSWMP) Sub-Committee
- Technical Advisory Committee
- Stakeholders
- Consultants:
  - Geosyntec
  - EOA, Inc.
  - Denise Duffy & Associates

What is a SWRP?

- A planning document that:
  - Describes the local watershed
  - Identifies water quality issues
  - Identifies public lands (i.e., streets, parks, and municipal properties) where stormwater capture projects could potentially be located
  - Evaluates and prioritizes potential projects to provide the most benefits
- Stormwater capture projects must be part of a SWRP to be eligible for grant funds from any State bond approved by voters (SB985).

Stormwater Capture and Treatment Projects

- Projects that collect, store, and treat stormwater runoff and dry weather flows (e.g., excess irrigation runoff):
  - Use vegetation, soils, and natural processes that allow stormwater to soak into the soil, or
  - Collect and divert stormwater and dry weather runoff to the sanitary sewer system for reuse (e.g., landscape irrigation)
- These projects provide multiple benefits, such as:
  - Providing water for other uses, such as irrigation,
  - Recharging groundwater,
  - Reducing local flooding, and
  - Improving water quality in local creeks.

Monterey One Water
Providing Cooperative Water Solutions

Monterey SWRP Purpose

- Following State-approved guidelines, develop a list of stormwater capture projects eligible for future State grant funds
  - Provide 10% Conceptual Designs for seven selected projects
  - Provide 30% design and CEQA Checklist for top project
- Conduct the Monterey Regional Water Recovery Study – Examine the feasibility of establishing a Peninsula-wide water recovery and reclamation system

Monterey Peninsula SWRP Public Meeting 6/27/18 7

Monterey One Water
Providing Cooperative Water Solutions

Purpose of Public Meeting

- Provide an overview of the Draft SWRP
- Present conceptual project designs
- Answer questions; obtain initial feedback
- Comments due by July 25, 2018 to Jeff Condit jeff@my1water.org

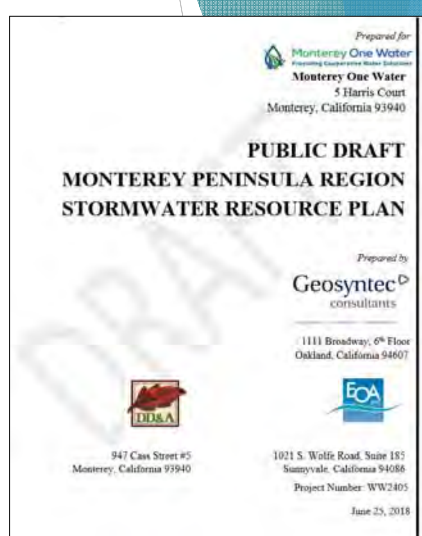
Monterey Peninsula SWRP Public Meeting 6/27/18 8

SWRP Goals and Objectives

- Conduct regional watershed-based planning to address challenges and opportunities for managing stormwater and dry weather runoff
- Assist in the identification of new water supply sources for the Monterey Peninsula.
- Identify projects that use stormwater and dry weather runoff as a resource, and provide multiple benefits, such as:
  - Improving water supply
  - Improving water quality
  - Flood control
  - Environmental and community benefits

Overview of the SWRP

- Elements Required by the State Board's Storm Water Resource Plan Guidelines
  - Organization, Coordination, Collaboration
  - Watershed Identification
  - Water Quality Compliance
  - Quantitative Methods
  - Identification and Prioritization of Projects
  - Implementation Strategy and Schedule
  - Education, Outreach, Public Participation


Prepared for

Monterey One Water
5 Harris Court
Monterey, California 93940

PUBLIC DRAFT
MONTEREY PENINSULA REGION
STORMWATER RESOURCE PLAN

Prepared by

Geosyntec consultants

1111 Broadway, 6th Floor
Oakland, California 94607

DD&A
947 Cass Street #5
Monterey, California 93940

EOA
1021 S. Wolfe Road, Suite 185
Sunnyvale, California 94086

Project Number: WW2405

June 25, 2018

Organization, Coordination, Collaboration

- Summary and role of the cooperating entities, interested parties, Technical Advisory Committee, and Stakeholder Group
- Coordination with regulatory authorities
- Coordination with the Integrated Regional Water Management Group

Monterey Peninsula SWRP Public Meeting 6/27/18 11

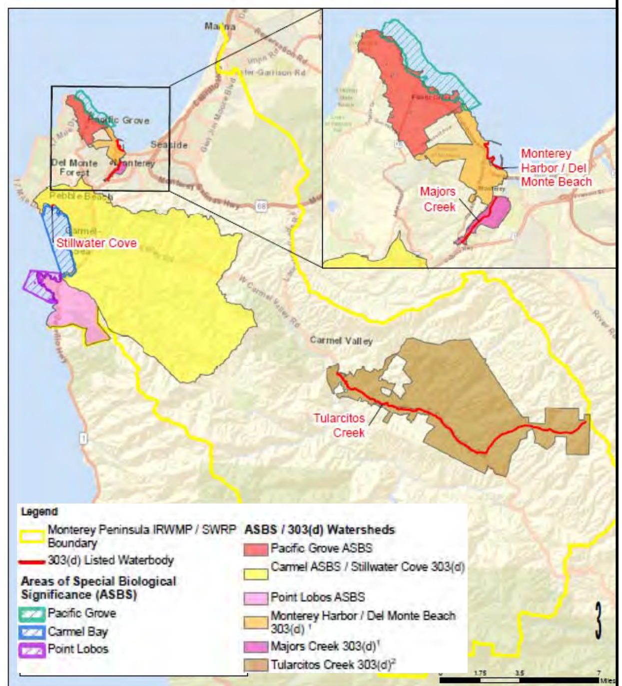
Watershed Identification

- Overview of watersheds
  - Carmel River Basin
  - Canyon Del Rey/Frontal Monterey Bay
  - Small Portion of Big Sur River
  - Small Portion of El Toro/Salinas River
- Associated water quality and quantity issues

Monterey Peninsula SWRP Public Meeting 12

Water Quality Issues

- Water bodies with water quality concerns
  - Monterey Harbor
  - Majors Creek
  - Tularcitos Creek
  - Monterey State Beach
  - Pacific Ocean at Stillwater Cove
- Stormwater pollutants of concern
  - metals, bacteria, trash, etc.
- Previous actions towards water quality protection
- SWRP water quality compliance strategies



Monterey Peninsula SWRP Public Meeting

Monterey One Water
Providing Cooperative Water Solutions

Methodology for Identifying Stormwater Capture Projects

- Projects identified throughout the region by:
  - Stakeholder Planned Projects
  - Geospatial Project Opportunity Analysis
  - Water Recovery Study
- Projects classified by:
  - Project scale (parcel based, regional, right-of-way
  - Facility type – water recovery, bioretention, etc.
  - Infiltration feasibility

Planned Projects | GIS Analysis | Water Recovery Study

↓

Identified Potential Projects

↓

Project Classification

↓

Project Multi-Benefit Evaluation

Monterey Peninsula SWRP Public Meeting 6/27/18 14

Methodology for Evaluating Stormwater Capture Projects

- Evaluation of potential for project to provide multiple benefits (Table 10):
  - Parcel Area or Street Type/Length
  - Majority Land Use in Drainage Area
  - Catchment Runoff Rate
  - Catchment Slope
  - Infiltration Feasibility
  - Project Type
- Preliminary project 'scores' developed based on the criteria

Monterey Peninsula SWRP Public Meeting 6/27/18 15

Methodology for Prioritizing Stormwater Capture Projects

- Project scores used to preliminarily rank projects
- Proponents/jurisdictions provided input on prioritization using additional institutional knowledge, such as:
  - Funding availability
  - Areas of proposed redevelopment
  - Other local factors
- Project assigned ranks based on input
- Projects for conceptual design selected by TAC

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Prioritized Project List

- Prioritized Project List included in Appendix E
  - Water Recovery Study projects - 241
  - GIS analysis -377 parcel-based, 61 regional, and 1,609 right-of-way
  - Planned projects received from cooperating entities, interested parties, and stakeholders - 82
- All projects on the list are eligible for grant funding

Implementation Strategy and Schedule

- Potential funding sources for project implementation
- Entities responsible for project Implementation
- Community participation strategy
- Procedure for updating the SWRP

Education, Outreach, Public Participation

- Stakeholder Outreach, Education, and Engagement Plan
- Two Stakeholder Group meetings
  - October 17, 2017
  - February 8, 2018
- One Public meeting
- All materials are included in Appendix H

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List of Appendices

- Appendix A: SWRP Self-Certification Checklist
- Appendix B: TAC Meeting Summaries
- Appendix C: Annotated List of Reviewed Data and Reports
- Appendix D: Water Recovery Study Report
- Appendix E: Project Database
- Appendix F: Project Concept Designs
- Appendix G: 30% Design and CEQA Checklist for Hartnell Gulch
- Appendix H: Summary of Stakeholder Meetings

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Providing Cooperative Water Solutions

Concept Project Designs

- 1. Hartnell Gulch Restoration and Stormwater Diversion
- 2. Lake El Estero Diversion to Sanitary Sewer
- 3. Monterey Tunnel Stormwater Diversion
- 4. Carmel-by-the-Sea Stormwater Diversion
- 5. David Avenue Stormwater Storage and Diversion
- 6. Del Monte Manor Park Infiltration
- 7. Drywell Aquifer Recharge Program

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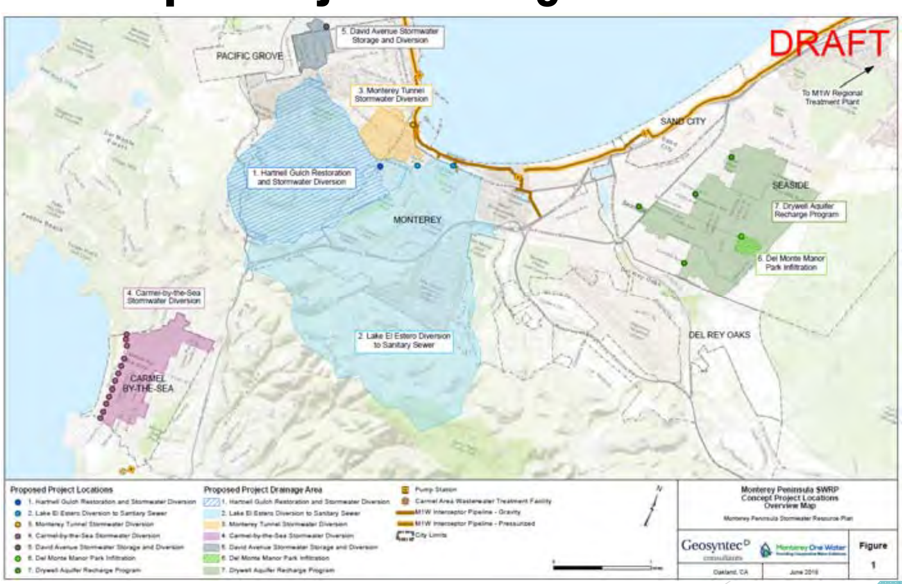
Concept Project Designs



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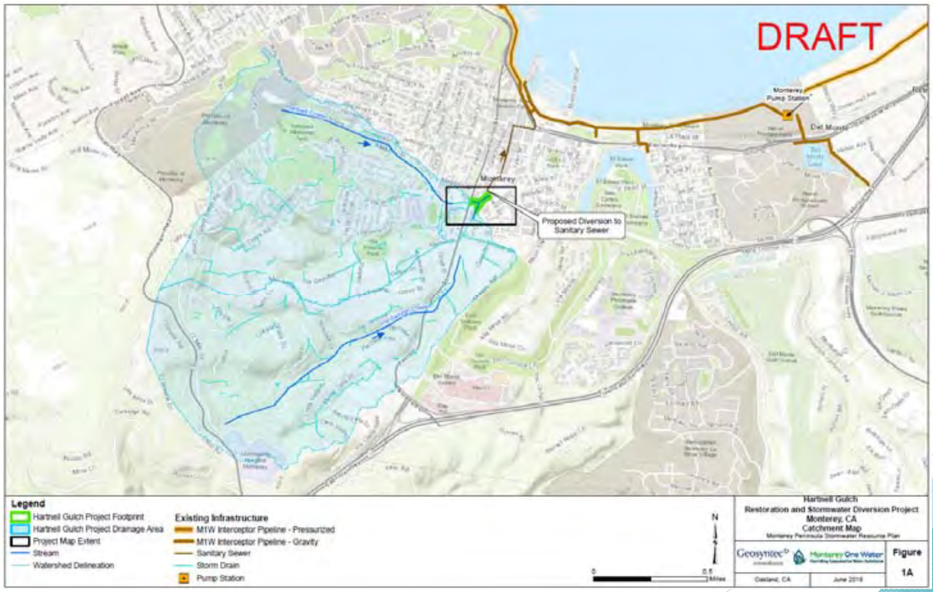
1. Hartnell Gulch Restoration and Stormwater Diversion



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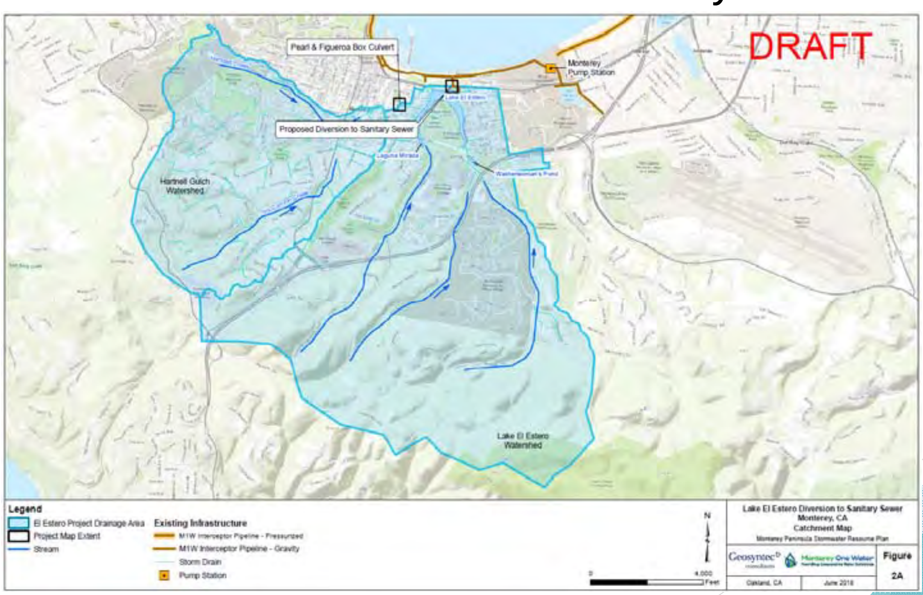
2. Lake El Estero Diversion to Sanitary Sewer



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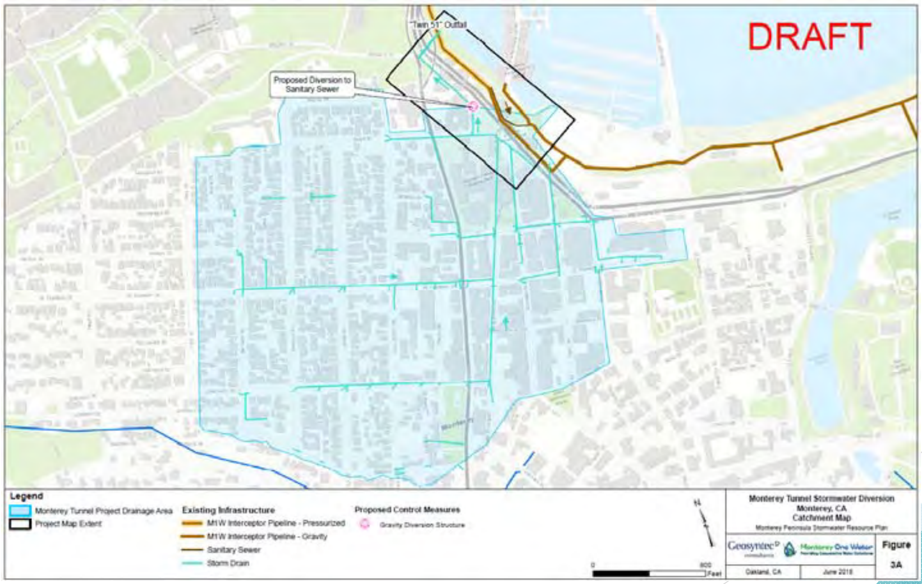
3. Monterey Tunnel Stormwater Diversion



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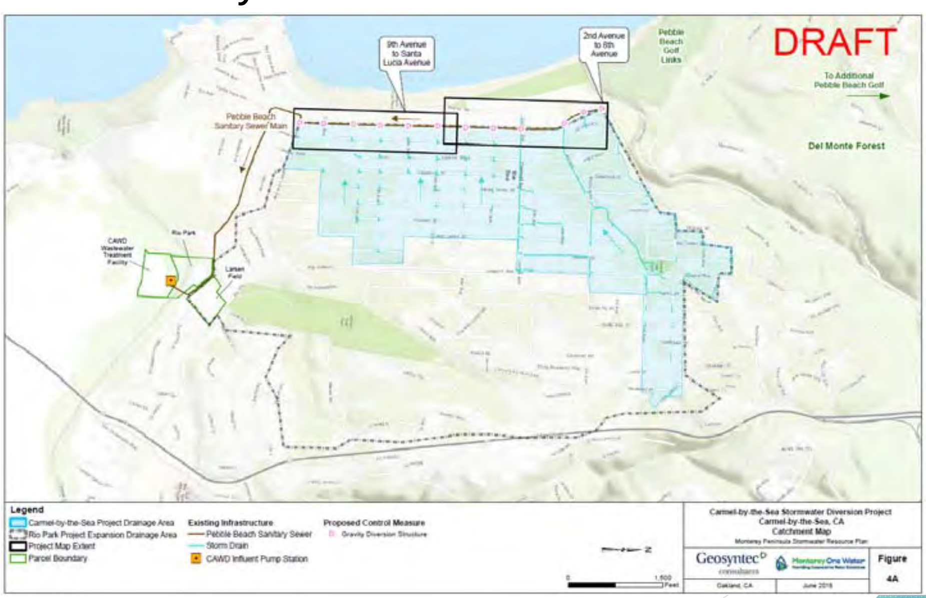
4. Carmel-by-the-Sea Stormwater Diversion



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5. David Avenue Stormwater Storage and Diversion

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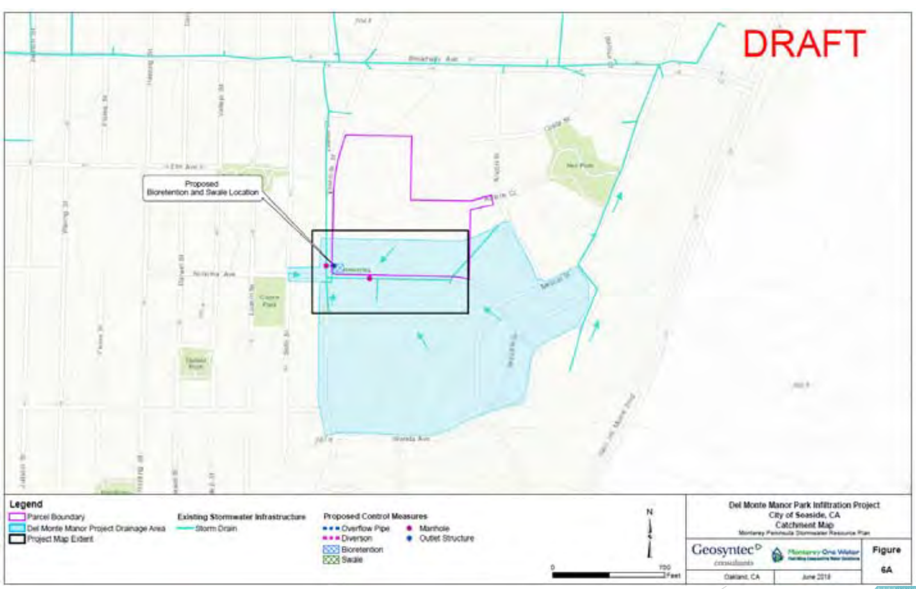
6. Del Monte Manor Park Infiltration



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7. Drywell Aquifer Recharge Program

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Thank you for your participation!

- Public Draft SWRP posted at www.MontereySea.org
- Comments due by July 25, 2018 to Jeff Condit jeff@my1water.org

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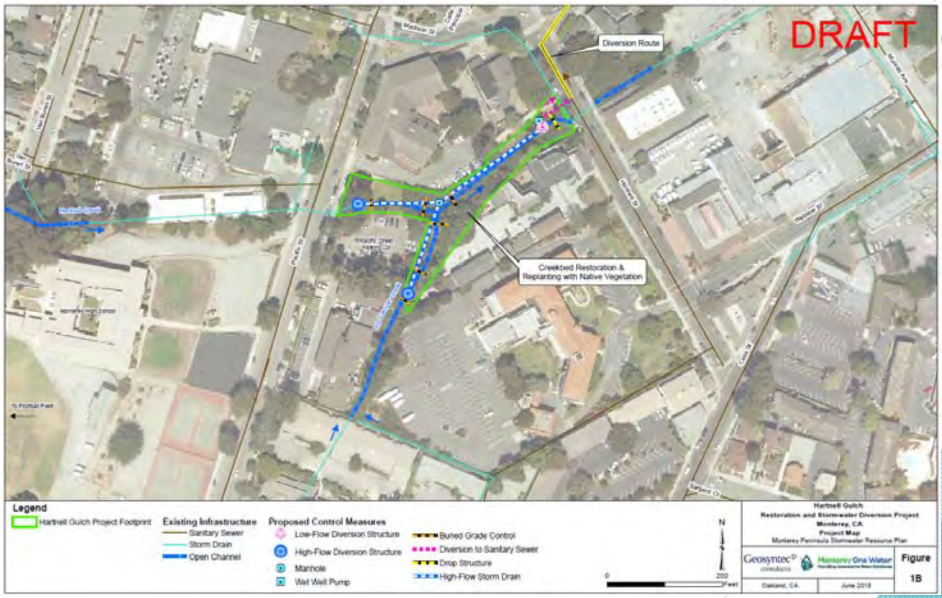
1. Hartnell Gulch Restoration and Stormwater Diversion



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2. Lake El Estero Diversion to Sanitary Sewer

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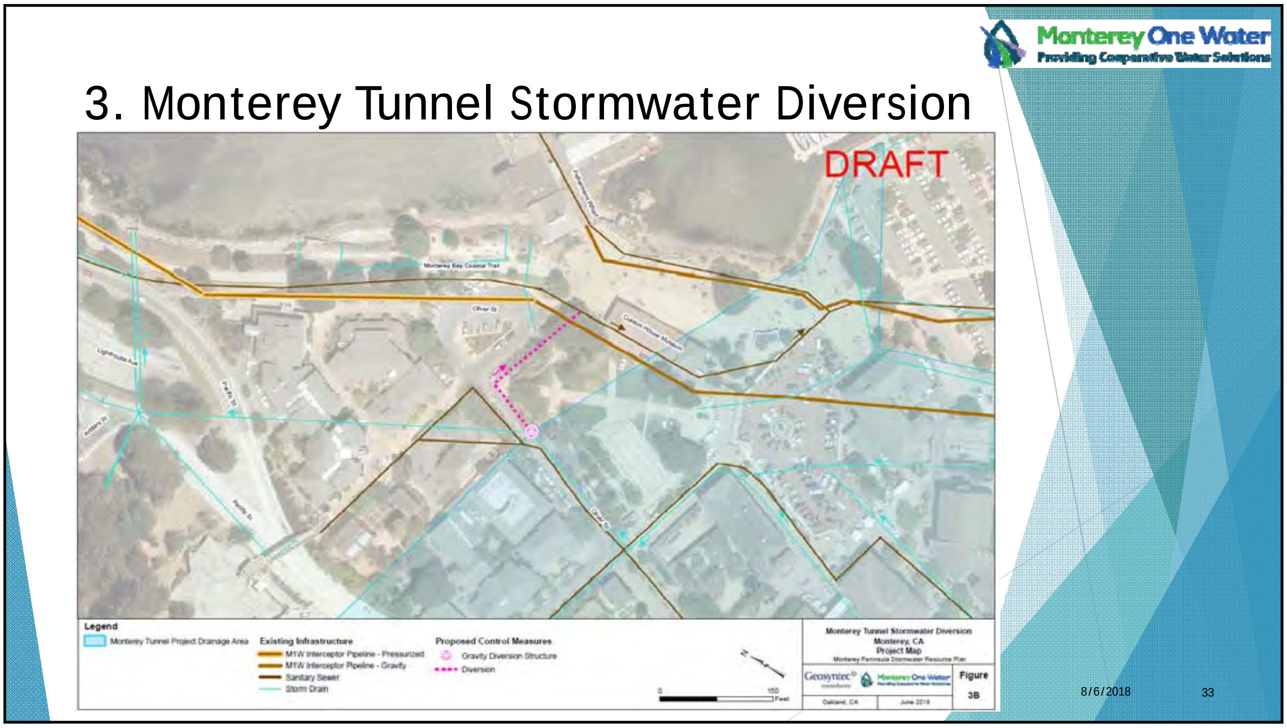
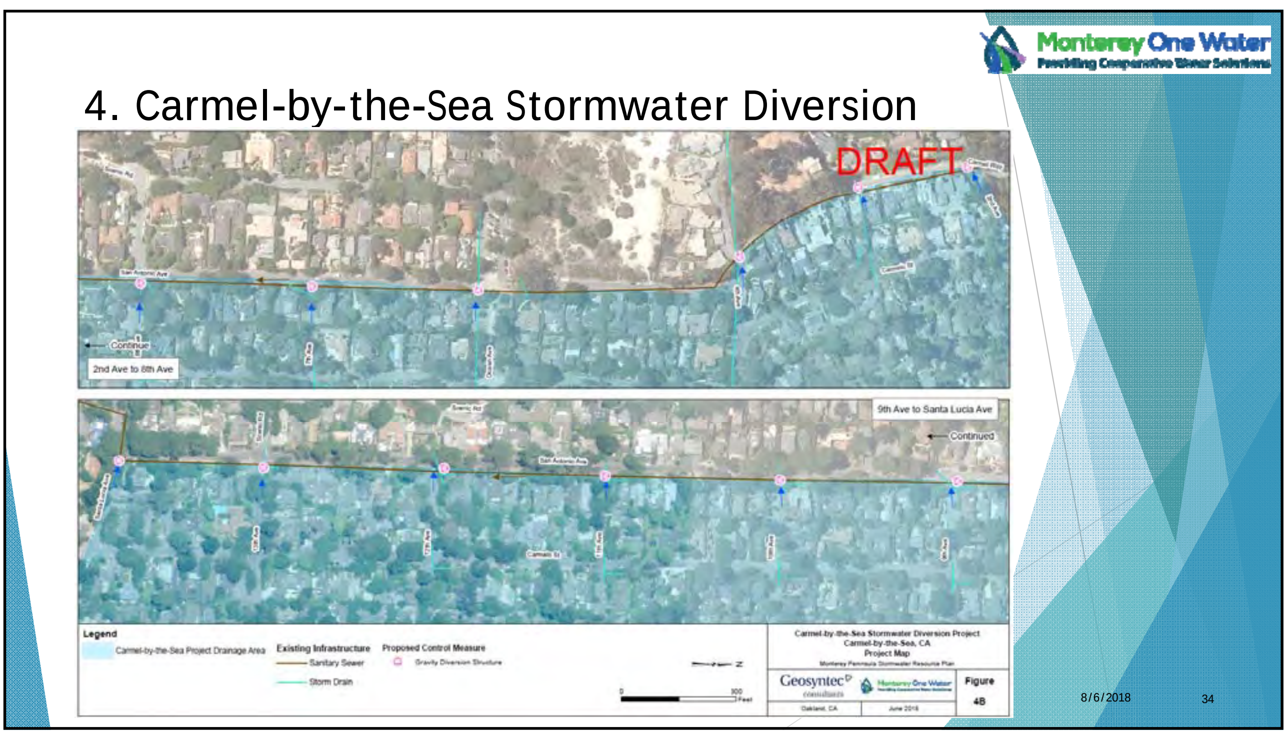

Monterey One Water
Providing Cooperative Water Solutions
3. Monterey Tunnel Stormwater Diversion
DRAFT
Legend
Monterey Tunnel Project Drainage Area
Existing Infrastructure
M1W Interceptor Pipeline - Pressurized
M1W Interceptor Pipeline - Gravity
Sanitary Sewer
Storm Drain
Proposed Control Measures
Gravity Diversion Structure
Diversion
Monterey Tunnel Stormwater Diversion
Monterey, CA
Project Map
Figure
3B
8/6/2018
33


Monterey One Water
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4. Carmel-by-the-Sea Stormwater Diversion
DRAFT
2nd Ave to 8th Ave
9th Ave to Santa Lucia Ave
Legend
Carmel-by-the-Sea Project Drainage Area
Existing Infrastructure
Sanitary Sewer
Storm Drain
Proposed Control Measure
Gravity Diversion Structure
Carmel-by-the-Sea Stormwater Diversion Project
Carmel-by-the-Sea, CA
Project Map
Figure
4B
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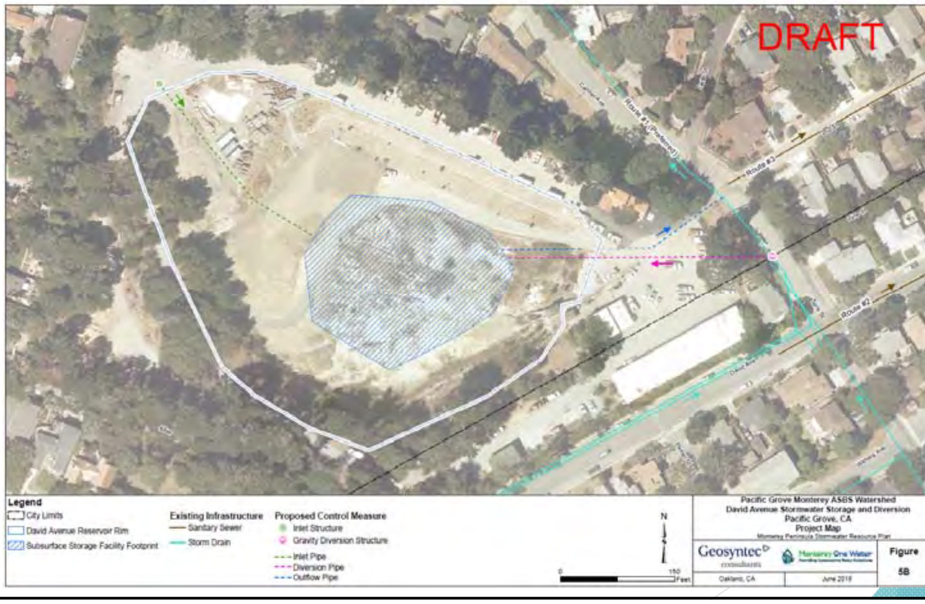
5. David Avenue Stormwater Storage and Diversion



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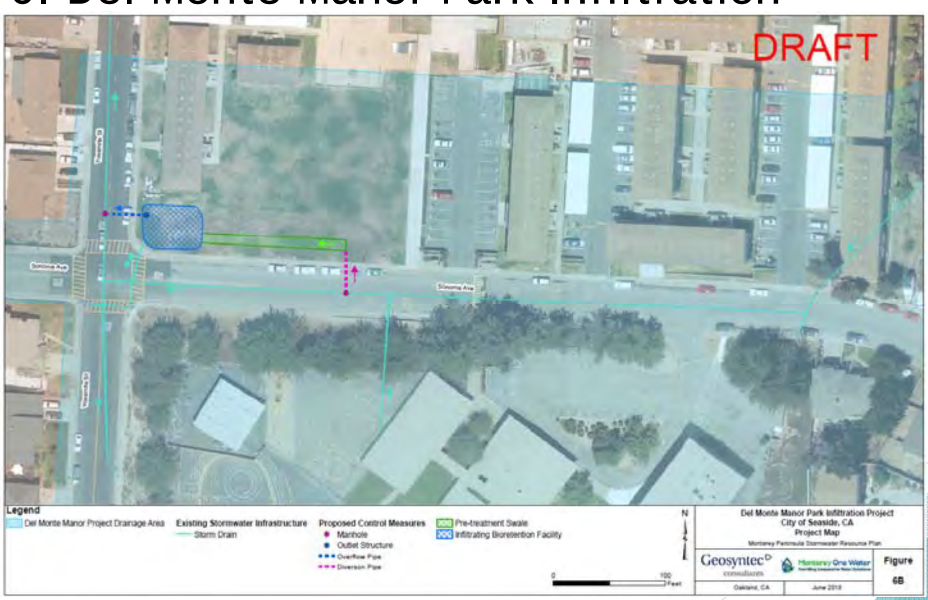
6. Del Monte Manor Park Infiltration



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7. Drywell Aquifer Recharge Program

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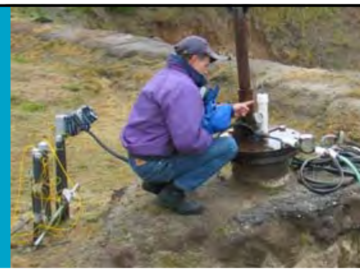
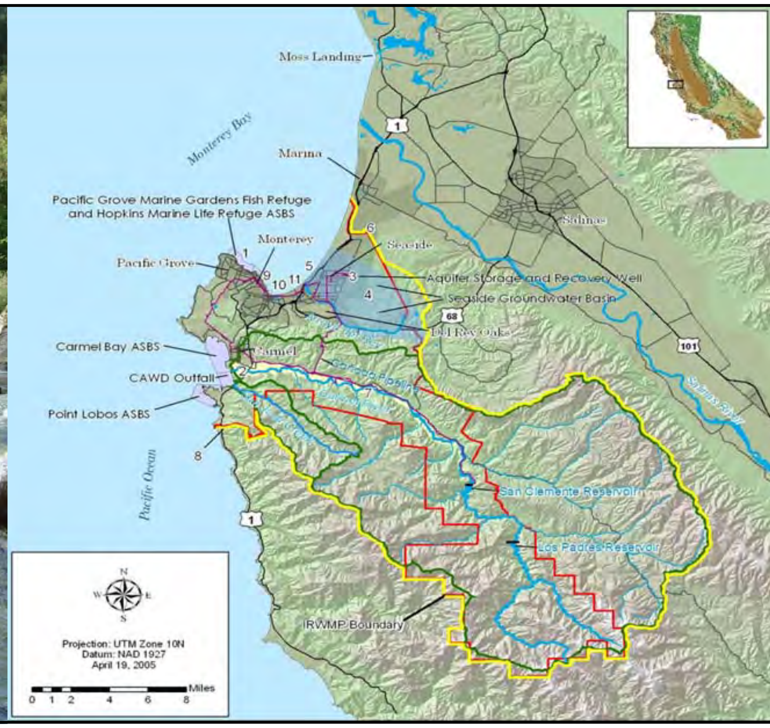



Monterey Peninsula, Carmel Bay and South Monterey Bay

Integrated Regional Water Management


What is IRWM?

Integrated Regional Water Management (IRWM) is a collaborative effort to manage all aspects of water resources in a region. IRWM crosses jurisdictional, watershed, and political boundaries; involves multiple agencies, stakeholders, individuals, and groups; and attempts to address the issues and differing perspectives of all the entities involved through mutually beneficial solutions.



Monterey Peninsula, Carmel Bay & Southern Monterey Bay IRWM

- Group formed in 2005
- 2007 Plan
- 2014 Plan Update
  - $1M grant managed by MPWMD
- RWMG hasn't been meeting since 2014

Current Regional Water Management Group

- Monterey Peninsula Water Management District
- Monterey One Water
- Monterey County Water Resources Agency
- Marina Coast Water District
- City of Monterey
- Resource Conservation District of Monterey County
- Big Sur Land Trust

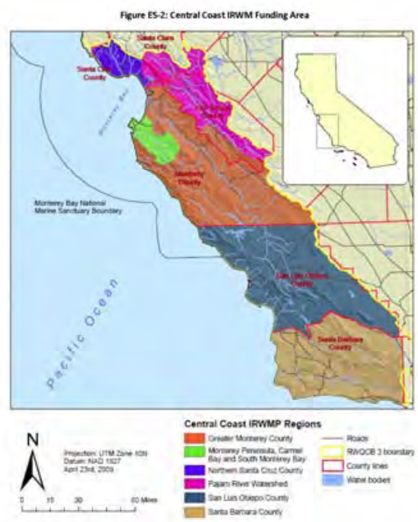
Proposition 1, Water Quality, Supply, and Infrastructure Improvement Act of 2014

- Prop 1 authorized $510M for IRWM
- Disadvantaged Community Involvement Program
  - Not less than $51 million
  - Awarded on non-competitive basis or direct expenditures
- IRWM Implementation Grant Program
  - Approximately $418 million for Implementation programs and projects
    - $51 million to projects directly benefiting DACs)

Central Coast Prop 1 Funding

Total Available $43M

- $39.99M excluding 7% administration costs.
- $4.3M Disadvantaged Community Involvement
- $4.3M Disadvantaged Community Implementation
- **$31.39M Implementation**



Monterey Peninsula IRWM Prop 1 Funding

- Central Coast Funding Area, Funding Agreement
  - 50% divided equally
  - 25% divided by population
  - 25% divided by acreage
- **$4.33M to Monterey Peninsula RWMG**
  - **10% DAC Involvement & 10% DAC Projects**
    - City of Monterey Franklin Street Storm Drain
    - MPWMD regional needs assessment
    - MPWMD disadvantaged community water conservation outreach

DWR's Proposition 1 IRWM Implementation Grant Schedule

- June/July 2018: Draft Project Solicitation Package (PSP) released
- Fall 2018: Final PSP released
- (Likely) April 2019 - DWR Central Coast Funding Area Workshop
- May 2019 - DWR follow up & comments on proposed projects
- Summer 2019 - Application deadline 4-6 weeks after DWR comments

2018 IRWM Project Solicitation and Plan Update Schedule

May:	Kick off meeting & information request
June:	Review of Goals and Objectives, Project Priorities
July to Aug:	Project concept proposals and/or more detailed proposals for grant application
August:	Review of project submittals, prioritization process
Fall (tbd):	Focused meeting with Native American Tribal representatives
October:	Stakeholder meeting for input on recommended prioritized projects
November:	Finalize project priorities for Prop 1 Grant application, begin review of IRWMP updates
Dec – Feb:	RWMG approval of IRWMP update, incorporation of Stormwater Resource Plan
February:	Submittal of IRWM Plan Update to DWR
April:	DWR Central Coast Funding Area Workshop

How Does the Stormwater Resource Plan Relate to IRWM?

- M1W coordinating with IRWM to incorporate the SWRP into the IRWM plan
- Draft & Final SWRP to be received by the RWMG in late summer/fall 2018
- RWMG to approve/accept SWRP into the IRWMP no later than December 2018 (required for SWRP)
- M1W and MRSWMP will facilitate implementation of the SWRP over time

Public Comments Matrix

SWRP-Focused Comments

Comment	Author	Comment	Section	Topic	Project Team Recommended Response
1	Jeff Krebs	Please make sure the list of projects in the SRP includes Tom Reeves' "Peninsula-wide integrated water augmentation study".	Section 6.1 and Project Database, Appendix E	Proposed/Planned Projects	Project will be added to the Project Database, Appendix E. Number of total projects will be updated in Section 6.1.
2	Jeff Krebs	Please make sure the list of projects in the SRP includes Ramona Av (W side) Stormwater Runoff Infiltration. Install high flow tree box catch basin storm water filter in the Ramona curb and gutter, and connect it to an adjacent seepage pit. See this year's NIP project submittal request that was funded. My goal will be to use my NIP money as a grant match and construct 5 of them, instead of just one.	Section 6.1 and Project Database, Appendix E	Proposed/Planned Projects	Project will be added to the Project Database, Appendix E. Number of total projects will be updated in Section 6.1.
3	Bob Siegfried	You did not explain how the pollutants will be removed from the Carmel Bay ASBS, only restating the process description. The issue is that the project description states that the process removes "any urban pollutants that are associated with the urban flows." This statement is correct only to the point that the pollutants are removed from the water that is delivered to Pebble Beach for golf course irrigation. The pollutants do not disappear following removal. They are discharged to the Carmel Bay ASBS through CAWD's outfall. The ASBS is the same destination at which the pollutants arrive if they are not sent to CAWD. The water supply aspects of the project benefit the community, and the loading to the ASBS remains unchanged. This project description error should be corrected so it does not claim benefits falsely.	Section 6.2/6.3 and Appendix F	Project Concepts	Statements referring to removal of urban pollutants associated with urban flows will be revised to replace "removal" with "treatment". CAWD and RTP end-of-pipe discharge analyses/review is not part of the SWRP scope and will not be discussed in the SWRP.
4	Robert Jaques	Three of the seven projects for which Conceptual Designs were prepared propose to use urban stormwater runoff to help recharge the Seaside Groundwater Basin. Aquifers in that Basin are a domestic water supply source. The Seaside Basin Watermaster is an arm of the Superior Court of Monterey County, created by the 2006 Adjudication Decision that governs the management of the Basin. One of the Watermaster's principle roles is to ensure that the Basin is managed such that there is no degradation in water quality. Specifically, the Adjudication Decision contains this language with regard to water quality: The Watermaster will take any action within the Seaside Basin, including, but not limited to, capital expenditures and legal actions, which in the discretion of Watermaster is necessary or desirable to accomplish any of the following: • Prevent contaminants from entering the Groundwater supplies of the Seaside Basin, which present a significant threat to the Groundwater quality of the Seaside Basin, whether or not the threat is immediate; Urban stormwater runoff typically contains numerous constituents that could be harmful to water quality. For this reason, the Watermaster would require that any such recharge project obtain from the Watermaster a permit to store water, via recharge, into the Basin. Obtaining a permit requires filing a storage application using the attached Storage Application template. The template was prepared for use by parties that are pumping (these are referred to as "Producers" in the Adjudication Decision), but I expect that the Watermaster Board would direct that we use the same application template for proposed recharge projects. If the Watermaster Board approves the application then the Watermaster would issue a permit to authorize the recharge to be performed. Please have this language added to the description of those three projects so that project proponents will be aware of this requirement if they decide to proceed with any of those projects.	Section 6.3 and Del Monte Manor Park and Drywell Project Concepts, Appendix F	Project Concepts	The following language will be added to the project concepts for projects that propose to infiltrate treated stormwater into the Seaside Groundwater Basin (two projects, three proposed locations). "Following the 2006 Adjudication Decision that governs management of the Seaside Groundwater Basin, implementation of this project would require filing a storage application and obtaining a permit from the Seaside Basin Watermaster to store water, via recharge, in(to) the Seaside Groundwater Basin. This permit is obtained through filing a Watermaster Storage Application. The Wastermaster has the authority to take the necessary actions to prevent contaminants from entering the Groundwater supplies of the Seaside Basin, which present a significant threat to the Groundwater quality of the Seaside Basin, whether or not the threat is immediate." A copy of the Watermaster Storage Application will also be included as an attachment to the project concepts in Appendix F.

Comment	Author	Comment	Section	Topic	Project Team Recommended Response
5	Agnes Topp	One thing I did notice on the project description for the Carmel stormwater diversion, which I'd missed earlier, is that the watershed on the northeast side of the project extends out beyond the limits of the City. Do you have access to TELR to see the limits of the watershed on the County side of the City limit? It's not a huge amount of additional acreage, but something like 30 or 40 acres of residential area though. If that part of the County isn't covered by TELR, let me know and I can give you a rough outline.	Carmel Stormwater Diversion Project Concept, Appendix F	Project Concepts	The TELR catchments are available for the City of Carmel and unincorporated Monterey County within the Carmel stormwater diversion project Rio Park Expansion watershed and were reviewed for the SWRP. No revision needed.
6	Patrick Treanor	Jurisdiction listed should be City of Carmel-by-the-Sea *and* Carmel Area Wastewater District.	Section 6.3 and Carmel Stormwater Diversion Project Concept, Appendix F	Project Concepts	The jurisdiction for the Carmel stormwater diversion project will be listed as, "City of Carmel-by-the-Sea *and* Carmel Area Wastewater District."
7	Patrick Treanor	Dry weather runoff is probably minor and would occur when the system has lots of capacity; so I would say that would be feasible.	-	Project Concepts	We thank the commenter for the input. No revision needed.
8	Patrick Treanor	"First flush" flows would need to be calculated as instantaneous flows using Time of Concentration to determine Intensity to determine Runoff Flow. Because the flow criteria is determined on an annual volume basis (not instantaneous flow) I am not able to tell you what percent of the "first flush" flows could be diverted to the sewer. I understand that this is conceptual so I guess it doesn't really matter at this stage.	Section 6.4	Project Concepts	The first flush was assumed to be equivalent to the 85th percentile storm event for concept sizing. This detail will be added to Section 6.4
9	Public Meeting Comment	Ensure that project implementation is a collaborative effort. Identified projects should not be in conflict with each other.	Section 5.2.1 and Appendix D, Water Recovery Study Section 3.3.6, Table 9, and Appendix C	Project Identification and Implementation	Project footprints were identified through geospatial analysis as described in Section 5.2.1. Project footprints do not overlap; project drainage areas may overlap. Overlapping drainage areas were identified in the Water Recovery Study as described in Appendix D of the SWRP - Section 3.3.6, Table 9, and Appendix C. Prior to moving forward with project design, overlapping drainage areas may need to be considered. This level of coordination is outside of the SWRP Scope of Work. No revision needed.
10	Public Meeting Comment	As other projects are designed, consider on-site runoff capture instead of off-site capture.	Section 5.3	Project Identification	On-site runoff capture was considered as part of project identification for all projects (along with off-site runoff capture, as applicable). Project identification is described in Section 5.3. Project sizing for all projects is outside of the SWRP Scope of Work. No revision needed.
11	Public Meeting Comment	Consider including Phase II Permit requirements while designing projects.	Section 6.4	Project Concepts	As described in Section 6.4, project sizing did consider Phase II permit requirements. No revision needed.

Water Recovery Study-Focused Comments

Comment	Author	Comment	Section	Topic	Project Team Response
12	Tom Reeves	What will be the demand for potable water in 50 years?	-	Policy	Comment is outside of the SWRP and Water Recovery Study Scope of Work. No revision needed.
13	Tom Reeves	If that demand can be met by desalination, is there a better/less expensive alternative?	SWRP Appendix D, Water Recovery Study Section 2 and 3.2	Alternative Water Supply Project Types	The technical-based identification/selection of stormwater capture method is provided and described in Section 2 of the Water Recovery Study. Planning level unit project cost ranges are provided in Section 3.2. Cost range comparison to typical costs for desalination is provided. Policy/economic-based selection of alternative water supply capture methods is outside of the SWRP and Water Recovery Study Scope of Work. No revision needed.
14	Tom Reeves	If stormwater and urban runoff can provide all or a portion of source water, how much of that source water do we need?	-	Policy	Comment is outside of the SWRP and Water Recovery Study Scope of Work. No revision needed.
15	Tom Reeves	If there are physical limits to how much urban runoff/stormwater we can utilize, what are those limits? Can those limits be changed by the building of new infrastructure or if in the case of a regulatory/permitting restriction, changing those limits?	SWRP Appendix D, Water Recovery Study Section 2, 3.3.3, and 4.2	Water Infrastructure Improvements	The scope of the Water Recovery Study included an examination of feasible sources, as described in Section 2. Permitting complexity related to sources was examined and provided in Section 3.3.3. A discussion of infrastructure/storage improvements is provided in Section 4.2. A detailed analysis of the supply limits of identified sources is outside of the scope of the Water Recovery Study/SWRP. No revision needed.
16	Tom Reeves	What is the economic tipping point at which building those improvements makes utilizing urban runoff/stormwater uneconomical?	-	Policy	Comment is outside of the SWRP and Water Recovery Study Scope of Work. No revision needed.

Comment	Author	Comment	Section	Topic	Project Team Response
17	Tom Reeves	If surface water reservoirs are to play a part in utilizing urban runoff/stormwater, how can those limited impoundments most efficiently be used? (Who would manage those reservoirs? How could they be managed to maximize yield?)	SWRP Appendix D, Water Recovery Study Section 2.1,	Policy	Reservoir management improvements are discussed in Section 2.1. Reservoir management responsibilities are outside of the scope of the Water Recovery Study/ SWRP. No revision needed.
18	Tom Reeves	If urban runoff/stormwater is a viable source of water, how best do we distribute the benefit back to the various communities who are cooperating?	-	Policy	The captured stormwater is being directed to the RTP/CAWD WWTP or recharged. Distribution would occur per mechanisms proposed/underway at the RTP/CAWD WWTP and through management of water supply aquifers. Agreements for Water Rights may need to be negotiated. This comment is outside of the SWRP and Water Recovery Study Scope of Work. No revision needed.
19	Tom Reeves	What's the best way to treat and store urban runoff/stormwater so that it can be used for potable purposes (should it go to a regional plant? Are there opportunities for smaller satellite treatment systems? Are there opportunities for injecting treated water into aquifers that are unfit for drinking without treatment by pushing those non-potable waters aside with the injected water as has been done in other parts of the US?)	SWRP Appendix D, Water Recovery Study, Section 2 and 4.2	Alternative Water Supply Project Types and Water Infrastructure Improvements	Options for storage and treatment of captured stormwater and dry weather runoff is discussed in Section 2 and 4.2. Policy/economic-based decisions related to alternative water supply capture methods are outside of the SWRP and Water Recovery Study Scope of Work. No revision needed.
20	Tom Reeves	How close can the Cities of Pacific Grove and Monterey come to achieving the SWRCB's goal of zero discharge?	SWRP, Section 4.2.2 and 4.2.6	Policy	As stated in the SWRP Section 4.2.2, "As summarized in the Monterey Peninsula IRWMP (MPWMD and DD&A, 2014), the ASBS Special Protections generally include the elimination of dry weather runoff to the ASBS, developing measures to prevent wet weather runoff from altering natural water quality in the ASBS, and conducting adequate monitoring to examine if natural water quality and the marine life beneficial use is protected." Plans to reduce dry and wet weather flows to the Pacific Grove ASBS are discussed in the SWRP Section 4.2.6. This comment is outside of the SWRP and Water Recovery Study Scope of Work. No revision needed.

Comment	Author	Comment	Section	Topic	Project Team Response
21	Tom Reeves	If unused allocations from the Castroville Seawater Intrusion Project (CSIP) are more than the regional sewage treatment plant can handle in the winter season, then are there alternatives to treating urban runoff/stormwater during the winter (and likely throughout the year) that wouldn't rely on the existing sewage treatment system?	SWRP Appendix D, Water Recovery Study, Section 3.1 and 4.2	Water Infrastructure Improvements	The projects proposed as part of the Water Recovery Study assume some combination of first flush, wet weather, and dry weather flow capture as discussed in Section 3.1. For some cases, infrastructure improvements to capture additional wet weather flows for supplementary supply are discussed in Section 4.2. An analysis of the ability of the RTP/CAWD WWTP to receive wet weather flows is outside of the SWRP and Water Recovery Study scope of work. No revision needed.
22	Tom Reeves	If Salinas' agricultural wash water is a good source of water for treatment, what does that mean in terms of allocating potable water credits to the Peninsula communities (does that great source of water take all of the capacity away? Is there an allocation of capacity in place so that Peninsula communities can share in the benefits?)	-	Policy	This comment is outside of the SWRP and Water Recovery Study Scope of Work. No revision needed.

APPENDIX I
IRWMP Decision Support Tools

APPENDIX I: IRWMP DECISION SUPPORT TOOLS

This Appendix includes decision support tools relating to prioritizing and funding of projects and/or project opportunities listed in the final SWRP that are included as part of IRWMP project lists for project implementation.

These items are provided on the following pages of this appendix:

* * * *

Monterey Peninsula, Carmel Bay, and South Monterey Bay Integrated Regional Water Management Plan Update, Chapter 6: Project Review Process

Chapter 6 Project Review Process

IRWM Standard 6

The IRWM Plan must contain a process or processes to select projects for inclusion in the IRWM Plan. The selection process(es) must include the following components:

- Procedures for submitting a project to the RWMG
- Procedures for review of projects considered for inclusion into the IRWM Plan. These procedures must, at a minimum, consider the following factors:
    - How the project contributes to the IRWM Plan objectives
    - How the project is related to resource management strategies selected for use in the IRWM Plan
    - Technical feasibility of the project
    - Specific benefits to DAC water issues
    - Environmental Justice (EJ) considerations
    - Project costs and financing
    - Economic feasibility, including water quality and water supply benefits and other expected benefits and costs
    - Project status
    - Strategic considerations for IRWM Plan implementation
    - Contribution of the project in adapting to the effects of climate change in the region
    - Contribution of the project in reducing GHG emissions as compared to project alternatives
    - Whether the Project Proponent has adopted or will adopt the IRWM Plan
    - For IRWM regions that receive water supplied from the Sacramento-San Joaquin Delta, how the project or program will help reduce dependence on the Sacramento-San Joaquin Delta for water supply (not applicable to Monterey Peninsula Region)
- Procedures for displaying the list(s) of selected projects

Review factors must be evaluated for each project and compared for all projects in a systematic manner. The results should be used to promote and prioritize projects in the selection process, while keeping in consideration the unique goals and objectives of the IRWM Region.

6.1 Procedures for Submitting a Project for Inclusion in the IRWM Plan

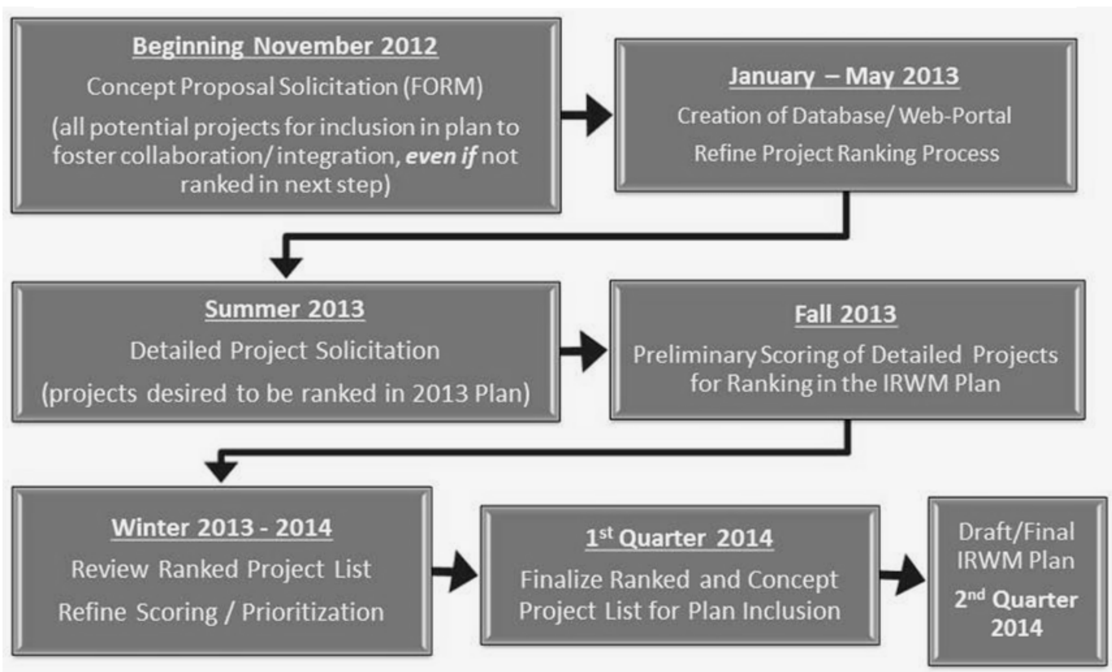
Prioritization of projects is a required element of an IRWM Plan and aids regional decision-making on issues such as project sequencing and quantitative allocations of limited financial, economic, social, and natural resources. Consistent with IRWMP standards, projects that utilize multiple water management strategies, meet Regional priorities, accomplish multiple objectives, and are feasible score higher and are more likely to move forward during implementation of the Plan.

This IRWM Plan incorporates a process to include a large number of stakeholder-sponsored projects with the potential for significant cost; however, given the scope and cost of some of the projects, it is unlikely that all projects can be fully funded by both local and State IRWM funds in the immediate future. Project sponsors may need to seek alternative funding sources in order to close funding gaps.

For the 2007 IRWM Plan, the Stakeholder Group and Technical Advisory Committee developed a system to compare and prioritize projects with vastly different characteristics. A 100-point system was used to evaluate the suite of selected projects, with each project evaluated both against other projects and on whether a project would meet measurable regional objectives. Project characteristics that were deemed more important to the Region were allocated more points. Points were awarded in four different categories – water management strategies, objectives, regional priorities, technical and financial feasibility, and readiness to proceed. The result was an evaluation that describes both the strengths and weaknesses of each project and the project package as a whole. The categories and distribution of points used during project evaluation is outlined in section 6.1.2 and 6.1.3.

The Regional Water Management Group (RWMG) solicited projects for inclusion in the 2013 Update to the Integrated Regional Water Management (IRWM) Plan with a goal of creating a comprehensive project list that included concept proposals and projects that were prioritized and ready to implement. The projects included in this IRWM Plan are consistent with Plan objectives. All projects were required to undergo a thorough review process before they could be formally included in the IRWM Plan. **Figure 6-1** shows an overview of the process.

Figure 6-1: Project Solicitation Process for 2013 IRWM Plan (Update)



For inclusion in the plan, Project Proponents were required to first complete a short concept proposal form. Proposals that met eligibility criteria were included in the IRWM Plan Update and were moved to Step 2, allowing their project to be ranked (or prioritized). Concept proposals were required to meet the following minimum eligibility criteria to be included in the IRWM plan. The concept proposal will:

- assist the Monterey Peninsula region in achieving at least one of its IRWM Plan objectives,
- implement at least one of the region's Resource Management Strategies,
- provide water resource benefits to the region, and
- be consistent with Proposition 84 IRWM Guidelines and Department of Water Resources standards and requirements.

The concept proposal form was available for download starting in the first quarter of 2013 and could be completed and emailed to the MPWMD by accessing a PDF file located on the MP IRWM website. As of approximately March 1, 2013, the new website[1] was ready and the on-line form was available. Projects

[1] www.mpirwm.org

and proposals included in the 2007 Monterey Peninsula IRWM Plan were not automatically included in the 2013 IRWM Plan unless a concept proposal form was completed. The Project Proponent was required to follow specific steps in order to submit a project:

- complete a concept proposal for each project
- ensure the project information was up to date
- respond to requests for information within the established deadline
- request that a project be removed if it was no longer being pursued

Projects submitted to the plan as concept proposals are contained in **Appendix 6-a**.

6.1 Project Review Procedure

6.1.1 Detailed Project Solicitation and Scoring/Ranking (Step 2)

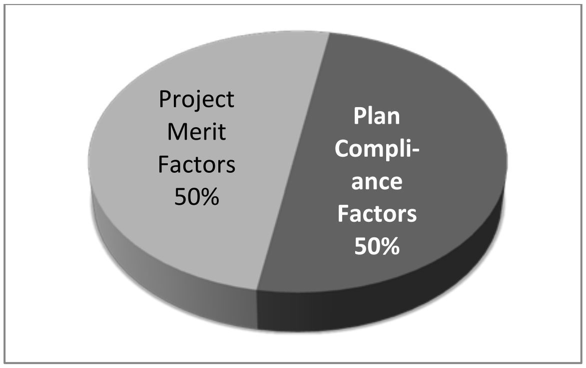
Project Proponents were not required to complete Step 2 in order to be included in the IRWM Plan. However, a detailed project submittal was required to be completed in order to be eligible for inclusion in an implementation grant application to the IRWM Grant Program and to be ranked in the plan.

Step 2 included submittal of detailed project information using a web-based "Project Solicitation Form" as described below that allowed detailed objective scoring and results in an overall ranked or prioritized list of projects. Projects were added to the Project List by the Project Proponent(s) and in the first quarter of 2014, stakeholders were provided an opportunity to comment on the ranked list of projects through an email announcement of their availability on the mpirwm.org website. In the case of multi-entity projects, a lead entity or "Project Proponent" was required to be designated. For projects to be ranked and prioritized, Project Proponents were required to complete and submit the detailed Project Solicitation Form available at www.mpirwmp.org no later than July 19, 2013.[2] To remove a project, the Project Proponent was required to submit a written request for removal to the RWMG. The request for removal must include: the project title, consent to remove the project from all project lists, and the reason for removal of the project. In the event of multi-entity projects, all entities must agree in writing to a project's removal from the IRWM Plan. However, no projects were removed during the project ranking process or preparation of this plan update.

Each project was ranked based on a score developed from answers on the Project Solicitation Form, which included a methodology for scoring that is summarized below. Two categories of factors were included in the scoring: (1) factors related to how well the project complied with the IRWM Plan, such as policy consistency and ability to assist the region in meeting its goals, and (2) factors related to the individual merits of the project, such as feasibility, readiness to proceed, and costs. Scores from each of these categories comprised one-half of the overall project score as shown in **Figure 6-2**. A detailed description of project scoring criteria, factors, relative weighting, and raw scoring is provided below.

[2] Detailed Project Solicitation forms were available at the MP IRWMP website March 1, 2013.

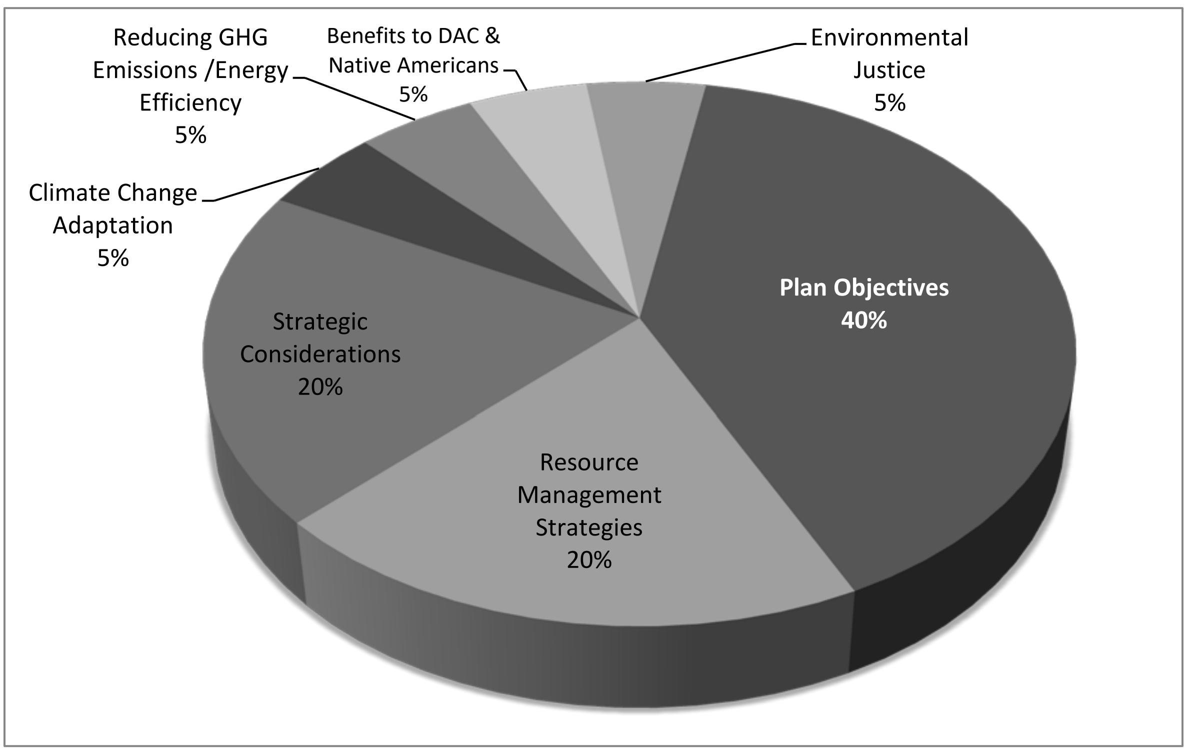
Figure 6-2: Relative Weighting: Plan Compliance vs. Project Merit Factors



6.1.2 IRWM Plan Compliance Factors (50% of total score)

Within the Plan Compliance category, projects were scored based upon the following specific factors and the relative weighting is shown in **Figure 6-3**. Following each factor, (in *italics)* is the methodology used to assign raw scores to projects based upon the project information submitted in the Project Solicitation Form. The appropriate weighting factor was applied to the raw score to give a weighted score to be used in the overall ranking.

Figure 6-3: Relative Weighting of Plan Compliance Factors



- **How the project contributed to the IRWM Plan Objectives** (40% of Plan Compliance Factors)
  - Number of objectives and high priority objectives that the project addressed

    Up to 53 points: Each project received one (1) point for meeting each of 26 objectives (26 max points). Plus, up to an additional 3 points could be received if specific metrics of each of the nine (9) high priority objectives were met.
- **How the project related to Resource Management Strategies** (20% of Plan Compliance Factors)
  - Number of different California Water Plan Management Outcome Categories and number of strategies that the project included.

    Total of up to 35 points, including 1 point per RMS, plus one point for every CWP management outcome category.
- **Strategic considerations for IRWM Plan implementation and project merit** (20% of Plan Compliance Factors)
  - Inter-Regionalism: Did the project involve active inter-regional collaboration or partnerships?

    5 points: project addresses inter-regional issues
  - Partnerships: How many entities were actively partnering to implement the project?

    5 points: project involved three or more partners that included both government agencies and NGOs; or

    2 points: project involved two or more partners: 0 points: project involved only one entity (no partnerships).
  - Monitoring and reporting of project performance: Would the project establish and document achievement of the performance criteria?

    5 points: project presents a plan for monitoring/reporting performance
  - Integration with land use planning: Was the project consistent with local plans, ordinances, and standards? Did the project integrate with local land use and water planning? Did the project increase coordination between water resources agencies and land use planners?

    5 points: if "yes" to all three questions; 3 points if "Yes" to 2 questions; 1 point for "yes" to one question
- **Specific benefits to critical disadvantaged community (DAC) and/or Native American tribal communities' water issues** (5% of Plan Factors)
  - Did the proposed project provide specific benefits to solve critical DAC water issue(s)?

    Yes: 5 points
- **Environmental Justice considerations** (5% of Plan Factors)
  - Did the project redress inequitable distribution of environmental burdens and/or improve access to environmental goods?

    Yes: 5 points
- **Contribution to climate change adaptation** (5% of Plan Factors)

- o Would the project contribute to regional adaptation to projected climate change impacts? Does the project propose to implement one or more of the recommendations from the document: "*Evaluation of Erosion Mitigation Alternatives for Southern Monterey Bay*" (Monterey Bay Sanctuary Foundation and the Southern Monterey Bay Coastal Erosion Working Group, May 2012)?

  5 points: one point for every adaptation strategy implemented

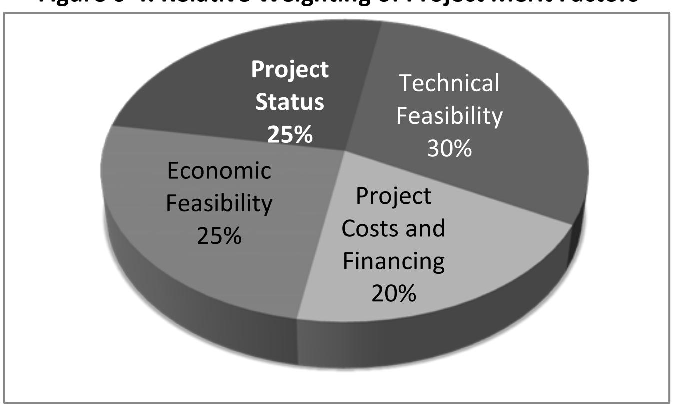
- **Contribution of the project in reducing Greenhouse Gas Emissions as compared to project alternatives** (5% of Plan Factors)
  - o Compared to project alternatives, would the project reduce regional GHG emissions and/or improve energy efficiency?

5 points: one point for every GHG mitigation strategy implemented

6.1.3 Project Merit Factors (50% of total score)

Within the Project Merit category, projects were scored based upon the following specific factors with the relative weighting shown in **Figure 6-4**. Similar to the plan compliance factors, the ***italic*** text describes the proposed methodology used to assign raw scores. These factors are based upon the project information submitted in the Project Solicitation Form (and prior to applying the weighting agreed upon at the October 24, 2012 stakeholder meeting).

Figure 6-4: Relative Weighting of Project Merit Factors



- **Technical Feasibility** (30% of Project Merit Factors)
  - o Was a common and widely accepted technology with well-documented results being used?
  - o Were geologic conditions, hydrology, ecology, and other system aspects adequately described?
  - o Were there significant data gaps?
  - o Were there sufficient technical data to indicate the project is likely to result in success?
  - o Was there enough information to support the project's estimated benefits?

  30 points: technical feasibility was documented in a project-specific pilot study or previous phase or has a documented track record of success

  -- OR score for each of the following –

  10 points: technology proposed has been established as effective in similar situations;

10 points: project site conditions were documented (geology/soil, ecology, hydrology, land use, public utilities;

10 points: project partners have experience with similar projects (e.g., similar site, similar technology).

- **Project Costs and Financing** (20% of Project Merit Factors)
  - ***10 points:*** A project cost estimate was prepared and documented in the Project Form.
  - ***10 points:*** There was an identified revenue source of at least 25% match funding.
- **Economic Feasibility** (25% of Project Merit Factors)
  - ***15 points:*** Project benefits and costs were defined at a level of detail that would allow cost-effectiveness analysis or benefit-cost analysis **-- OR –** ***project is a DAC project.***
  - ***10 points:*** Project had a cost-effectiveness or benefit-cost ratio greater than 1.
- **Project Status** (25% of Project Merit Factors)
  - What steps in project planning were completed?
    - Feasibility Studies and Conceptual Plans
    - CEQA/NEPA Completed
    - Local Cost Share Confirmed
    - Right-of-way / Land Acquisition
    - Permits Acquired
    - Construction Drawings Complete & Bids Acquired

  (*4 points for each of the above criterion met for a possible total of 24 points)*

6.2 Procedures for Communicating Selected Projects

This plan and the mpirwm.org website contains the projects that were submitted to the plan, including concept proposals aimed at increasing collaboration and integration and projects that were submitted using the detailed solicitation form to be ranked. The project ranking process was developed in collaboration with the stakeholders, vetted through the RWMG members, and is described in this chapter. An email announcement of the availability of the preliminary project rankings was sent to RWMG members and stakeholders on January 14, 2014. The email and attachments are included in **Appendix 6-b.** The full detail of the projects submitted to the plan for ranking is in **Appendix 6-c**. The Monterey Peninsula IRWM website (www.mpirwm.org) contains information on the upcoming solicitations for grant programs and how to include projects in future plan updates. **Table 6-1** shows the results of the project ranking process.

Table 6-1: Results of Project Prioritization

"Raw Scores" (Shaded Cells) were populated with the project information from Relevant Project Solicitation sheets within this file

"Weighted Scores" automatically calculate based on the Stakeholder-vetted Scoring and Weighting Table presented at the Feb. 6, 2013 stakeholder meeting.

IRWM PLAN COMPLIANCE CRITERIA

Projects	Objectives: Raw Score (Max 53)	Objectives: Weighted Score	Resource Management Strategies: Raw Score (Max 35)	Resource Management Strategies: Weighted Score	Strategic Considerations: Inter-Regionalism: Raw Score (Max 5)	Strategic Considerations: Partnerships: Raw Score (Max 5)	Strategic Considerations: Monitor / Report: Raw Score (Max 5	Strategic Considerations: Land Use Integ.: Raw Score (Max 5)	Strategic Considerations: Weighted Score	Benefits to DAC & Native Americans: Raw Score (Max 5)	Benefits to DAC & Native Americans: Weighted Score	Environmental Justice: Raw Score (Max 5)	Environmental Justice: Weighted Score	Climate Change Adaptation: Raw Score (Max 5)	Climate Change Adaptation: Weighted Score	Reduction in GHG: Raw Score (Max 5)	Reduction in GHG: Weighted Score	Plan Compliance Total Weighted Score
Carmel Bay ASBS Project	23.2	19.9	6.0	3.9	5.0	2.0	5.0	5.0	19.4	0.0	0.0	0.0	0.0	5.0	5.7	2.0	2.3	**51.2**
Carmel River Integrated Watershed Restoration Program	20.4	17.6	2.0	1.3	0.0	5.0	5.0	1.0	12.5	0.0	0.0	0.0	0.0	1.0	1.1	0.0	0.0	**32.6**
Carmel Valley Livestock & Land Program	19.8	17.1	4.0	2.6	5.0	5.0	5.0	3.0	20.5	0.0	0.0	0.0	0.0	3.0	3.4	0.0	0.0	**43.6**
Carmel Watershed Rural Roads Erosion Assistance Program	12.6	10.9	4.0	2.6	0.0	5.0	5.0	1.0	12.5	0.0	0.0	0.0	0.0	1.0	1.1	0.0	0.0	**27.1**
Incorporation of the Peninsula in the Central Coast Action Tracker	16.1	13.9	4.0	2.6	5.0	5.0	5.0	5.0	22.8	0.0	0.0	0.0	0.0	4.0	4.6	2.0	2.3	**46.1**
Del Monte Lift Station Upgrades	4.8	4.2	1.0	0.7	0.0	2.0	5.0	3.0	11.4	5.0	5.7	0.0	0.0	0.0	0.0	0.0	0.0	**21.9**
Ecosystem Condition Profile for the Carmel River Watershed	19.5	16.8	3.0	2.0	0.0	5.0	5.0	1.0	12.5	0.0	0.0	0.0	0.0	2.0	2.3	0.0	0.0	**33.5**

PROJECT MERIT CRITERIA

Projects	Technical Feasibility: Raw Score (Max 30)	Technical Feasibility: Weighted Score	Project Cost and Financing: Raw Score (Max 10)	Project Cost and Financing: Weighted Score	Economic Feasibility: Score (Max 25)	Economic Feasibility: Weighted Score	Project Status: Raw Score (Max 24)	Project Status: Weighted Score	Project Merit Total Score	**GRAND TOTAL PROJECT SCORE**	**PROJECT POINT %**
Carmel Bay ASBS Project	30.0	34.2	20.0	22.8	0.0	0.0	8.0	9.4	**66.4**	**117.6**	**18%**
Carmel River Integrated Watershed Restoration Program	30.0	34.2	0.0	0.0	0.0	0.0	0.0	0.0	**34.2**	**66.8**	**10%**
Carmel Valley Livestock & Land Program	30.0	34.2	20.0	22.8	0.0	0.0	0.0	0.0	**57.0**	**100.6**	**15%**
Carmel Watershed Rural Roads Erosion Assistance Program	30.0	34.2	0.0	0.0	0.0	0.0	0.0	0.0	**34.2**	**61.3**	**9%**
Incorporation of the Peninsula in the Central Coast Action Tracker	30.0	34.2	20.0	22.8	0.0	0.0	22.0	26.0	**83.0**	**129.1**	**19%**
Del Monte Lift Station Upgrades	30.0	34.2	20.0	22.8	0.0	0.0	0.0	0.0	**57.0**	**78.9**	**12%**
Ecosystem Condition Profile for the Carmel River Watershed	30.0	34.2	10.0	11.4	10.0	11.4	20.0	23.6	**80.6**	**114.1**	**17%**

Monterey Peninsula, Carmel Bay, and South Monterey Bay Integrated Regional Water Management Program Application Form for Implementation Projects and Concept Proposals 2018/2019

MONTEREY PENINSULA, CARMEL BAY AND SOUTH MONTEREY BAY INTEGRATED REGIONAL WATER MANAGEMENT PROGRAM

APPLICATION FORM FOR IMPLEMENTATION PROJECTS AND CONCEPT PROPOSALS

2018/2019

GENERAL INSTRUCTIONS:

Both implementation project proposals and concept proposals are being accepted at this time. Only implementation projects, however, will be eligible for IRWM Implementation Grant funds.

For concept proposals: If you would like to submit a concept proposal, you need only complete Sections I and II of this application.

For implementation projects: There will be two rounds of Proposition 1 IRWM Implementation Grant solicitations (Round 1 in early 2019, Round 2 in 2020). If you are interested in having your project considered for Round 1, you must complete all sections of this application. If you are not interested in having your project considered for Round 1, you need only complete Sections I and II.

For those interested in applying for Round 1: In addition to this application form, stakeholders who are interested in having their projects considered for Round 1 must also complete DWR's Project Information Form. The Project Information Form will be due on February 8, 2019.

Both this form ("Project Application Form") and DWR's form ("Project Information Form") should be submitted to: Maureen Hamilton, Monterey Peninsula Water Management District - mhamilton@mpwmd.net

THIS APPLICATION FORM IS DUE January 14, 2018

THE PROJECT INFORMATION FORM IS DUE FEBRUARY 8, 2019

SECTION I. PROJECT SUMMARY AND IRWM OBJECTIVES

1. Project Proponent (Name of Organization Applying):

2. Type of Entity:

☐ Local Public agency ☐ Nonprofit organization ☐ Public Utility ☐ Mutual Water Company

☐ Federally Recognized or State Indian Tribe

3. Name and Title of Contact Person:

4. Phone:

5. Email:

6. Project Title:

7. Type of Proposal: Is your project an implementation project (developed, with budget) or a concept proposal?

- ☐ Implementation project
- ☐ Concept proposal

8. Project Summary: Briefly describe your project (one paragraph):

9. Project Location: Projects must be located within the Monterey Peninsula, Carmel Bay and South Monterey Bay IRWM region,[1] or otherwise be of direct benefit to the Monterey Peninsula, Carmel Bay and South Monterey Bay IRWM region. Where is your project located?

10. IRWM Criteria

To be eligible for inclusion in the IRWM Plan, projects must include one or more of the following elements. Please check all that apply:

- ☐ Water reuse and recycling for non-potable reuse and direct and indirect potable reuse
- ☐ Water-use efficiency and water conservation
- ☐ Local and regional surface and underground water storage, including groundwater aquifer cleanup or recharge projects
- ☐ Regional water conveyance facilities that improve integration of separate water systems
- ☐ Watershed protection, restoration, and management projects, including projects that reduce the risk of wildfire or improve water supply reliability
- ☐ Storm water resource management, including, but not limited to, the following:
  - Projects to reduce, manage, treat, or capture rainwater or storm water
  - Projects that provide multiple benefits such as water quality, water supply, flood control, or open space
  - Decision support tools that evaluate the benefits and costs of multi-benefit storm water projects
  - Projects to implement a storm water resource plan
- ☐ Conjunctive use of surface and groundwater storage facilities
- ☐ Water desalination projects
- ☐ Decision support tools to model regional water management strategies to account for climate change and other changes in regional demand and supply projections
- ☐ Improvement of water quality, including drinking water treatment and distribution, groundwater and aquifer remediation, matching water quality to water use, wastewater treatment, water pollution prevention, and management of urban and agricultural runoff
- ☐ Regional projects or programs as defined by the IRWM Planning Act

[1] The Monterey Peninsula, Carmel Bay, and South Monterey Bay IRWM region includes: land areas within the San Jose Creek and Carmel River watersheds, portions of the Seaside Groundwater Basin and former Fort Ord, and most of the Monterey Peninsula (the Greater Monterey County region includes and runs north from Marina, as well as all most remaining areas of Monterey County, with the exception of Pajaro Valley).

11. IRWM Plan Objectives

The following objectives have been identified for the Monterey Peninsula, Carmel Bay and South Monterey Bay IRWM Plan. Please select all of the objectives that the project will address, and very briefly explain (unless it is *entirely obvious*) how your project will address each objective. (For concept proposals, you need not provide the justification.)

	Objective	Justification
Water Supply Goal		
☐	WS-1. Meet existing water supply replacement needs of the Carmel River system and Seaside Groundwater Basin.	
☐	WS-2. Maximize use of recycled water and other reuse and where feasible, expand sewer services to areas with onsite systems to increase sources of water for recycling.*	
☐	WS-3. Develop opportunities for stormwater capture and reuse pursuant to the Stormwater Resource Plan.	
☐	WS-4. Evaluate, advance, or create water conservation throughout the Region.*	
☐	WS-5. Improve water supplies to achieve multiple benefits, beneficial uses and environmental flows.	
☐	WS-6. Seek long-term sustainable supplies for adopted future demand estimates.	
☐	WS-1. Meet existing water supply replacement needs of the Carmel River system and Seaside Groundwater Basin.	
Water Quality Goal		
☐	WQ-1. Improve inland surface water quality for environmental resources (e.g. steelhead), including headwaters and tributaries of streams, and to protect potable water supplies.*	
☐	WQ-2. Improve ocean water quality, including, but not limited to, Areas of Special Biological Significance (ASBS), by minimizing pollutants in stormwater discharges.	
☐	WQ-3. Protect and improve water quality in groundwater basins, especially where at risk from seawater intrusion.	
Flood Protection Goal		
☐	FP-1. Develop regional projects and plans necessary to protect critical infrastructure and sensitive habitats from flood damage and sea level rise, in particular, along the Carmel Bay and South Monterey Bay shoreline.*	
☐	FP-2. Develop approaches for floodplain restoration or adaptive management that minimize maintenance and repair requirements (sustainable flood management systems).	
☐	FP-3. Promote floodplain restoration that protect quality and availability of water while preserving or restoring ecologic and stream function.	
☐	FP-4. Provide community benefits beyond flood protection, such as public access, open space, recreation, agricultural preservation, and economic development.*	
Coastal and Streamside Erosion Goal		
☐	CSE-1. Manage areas along the shoreline susceptible to erosion, including long-term strategic retreat where appropriate.	
☐	CSE-2. Identify opportunities to restore natural stream function, including meandering, in the lower 15 miles of the Carmel River and selected tributaries.	

☐	CSE-3. Reduce or prevent adverse downcutting in the main stem Carmel River and its tributaries.	
Watershed Management Goal		
☐	WM-1. Reduce human-induced sources of non-point fine sediment runoff.	
☐	WM-2. Restore natural fire frequency in headwater forests.	
☐	WM-3. Restore the natural hydrologic flow regime in disturbed watersheds where appropriate, including low impact development strategies in urbanized areas.	
☐	WM-4. Re-establish a natural level of sediment supply within the Carmel River and its tributaries.	
Environmental Protection and Enhancement		
☐	EV-1. Protect and enhance sensitive species and their habitats in the regional watersheds*; including, but not limited to, promoting the steelhead recovery by meeting accepted or approved environmental flows within the regional watersheds. .	
☐	EV-2. Assess, protect, enhance, and/or restore natural resources, including consideration of climate change, when developing water management strategies and projects.*	
☐	EV-3. Minimize adverse effects on biological and cultural resources when implementing strategies and projects.	
☐	EV-4. Identify opportunities for open spaces, trails and parks along streams and other recreational areas in the watershed that can be incorporated into projects.*	
☐	EV-5. Identify and integrate elements from appropriate Federal and State species protection and recovery plans.	
☐	EV-6. Promote watershed activities for fire fuel management and adaptive management strategies to protect water quality and water supplies from catastrophic wildfires.*	
Climate Change Goal		
☐	CC-1. Implement adaptation measures and mitigation solutions to climate change effects, including increased large storm intensity and/or frequency, sea level rise, drought and wildfire.	
☐	CC-2. Support increased education, monitoring and research to increase understanding of long-term impacts of climate change in the region.	
☐	CC-3. Increase energy conservation measures and alternatives to fossil fuel and non-renewable resources to reduce greenhouse gas emissions associated with water and wastewater facility operations and IRWM projects.	
Regional Communication and Cooperation Goal		
☐	RC-1. Identify cooperative, integrated strategies for protecting both infrastructure and environmental resources, including from climate change impacts.	
☐	RC-2. Foster collaboration among regional entities as an alternative to litigation through ongoing meetings of the RWMG and regional data sharing.	
☐	RC-3. Identify and pursue additional opportunities for public education, outreach, and communication on water resource management and climate change, including to disadvantaged communities and stakeholders with interests in water management issues.	
☐	RC-4. Build relationships with State and Federal regulatory agencies and other water forums and agencies.	

SECTION II. RESOURCE MANAGEMENT STRATEGIES AND CLIMATE CHANGE

This section is required for all implementation projects. If your project is a concept proposal, there is no need to complete this section.

12. Do you want your implementation project to be considered for Round 1?

- ☐ Yes
- ☐ No

13. Resource Management Strategies

One of the goals of integrated regional water management planning is to encourage diversification of water management approaches. Please select the strategies that your project will use (check all that apply):

Reduce Water Demand

- ☐ Agricultural Water Use Efficiency
- ☐ Urban Water Use Efficiency

Improve Operational Efficiency and Transfers

- ☐ Conveyance
- ☐ System Reoperation
- ☐ Water Transfers
- ☐ Infrastructure Reliability

Increase Water Supply

- ☐ Conjunctive Management & Groundwater Storage
- ☐ Desalination
- ☐ Precipitation Enhancement
- ☐ Recycled Municipal Water
- ☐ Surface Storage
- ☐ Storm Water Capture and Management

Improve Water Quality

- ☐ Drinking Water Treatment and Distribution
- ☐ Groundwater/Aquifer Remediation
- ☐ Matching Water Quality to Use
- ☐ Pollution Prevention
- ☐ Salt and Salinity Management
- ☐ Urban Runoff Management
- ☐ Water and Wastewater Treatment

Practice Resources Stewardship

- ☐ Agricultural Lands Stewardship
- ☐ Economic Incentives
- ☐ Ecosystem Restoration
- ☐ Forest Management
- ☐ Land Use Planning and Management
- ☐ Recharge Area Protection
- ☐ Water-Dependent Recreation
- ☐ Sediment Management
- ☐ Watershed Management
- ☐ Environmental and Habitat Protection and Improvement
- ☐ Wetlands Enhancement and Creation

Improve Flood Management

- ☐ Flood Risk Management

People and Water

- ☐ Economic Incentives (Loans, Grants, and Water Pricing)
- ☐ Outreach, Engagement, and Education
- ☐ Water and Culture
- ☐ Water-Dependent Recreation
- ☐ Regional Cooperation
- ☐ Recreation and Public Access

Other Resource Management Strategies

- ☐ Dewvaporation or Atmospheric Pressure Desalination
- ☐ Fog Collection
- ☐ Rainfed Agriculture
- ☐ Monitoring and Research

14. Climate Change Adaptation

a) Does your project contribute to climate change adaptation? If so, what climate change vulnerabilities in the region does your project respond to, specifically? Please describe how, and to what extent. Vulnerabilities for the region are described in Chapter 15 of the 2014 IRWM Plan. This chapter can be downloaded at: http://www.mpirwm.org/IRWM%20Library/IRWMPlan%20Final_whole.pdf

b) Does your project consider the effects of sea level rise on water supply conditions and identify suitable adaptation measures?

c) Does the project take into consideration changes in the amount, intensity, timing, quality and variability of runoff and recharge?

15. Reduction of Greenhouse Gas Emissions (GHGs)

a) Please describe the extent to which your project will help reduce GHGs, compared to project alternatives. *To assist you in estimating GHG emissions, please use the California Emissions Estimator Tool (CalEEMod) on the Greater Monterey County IRWM website: http://www.greatermontereyirwmp.org/performance/.*

b) If appropriate, describe the extent to which the project will help the region reduce GHGs over the next 20 years.

c) To what extent will the project help reduce energy consumption, especially the energy embedded in water use, and ultimately reduce GHG emissions?

SECTION III. PROJECT AND BUDGET NARRATIVE

Complete this and the following sections only if you would like your project to be considered for Round 1 Implementation Grant funds.

16. Project Description (1 page or so): Please describe the proposed project. Provide a general discussion of the problem the project addresses, and describe major tasks/activities. Include any other information that supports the justification for this project, including how the project can achieve any claimed benefits.

17. Project Need/Urgent Need: Is there a special, urgent, or critical need for your project? If so, explain.

18. Budget: Please complete the following budget table.

	Non-State Cost Share[2]	Requested Grant Amount	Other State Cost Share	Total Cost
(a) Project Admin				
(b) Land Purchase/Easement				
(c) Planning/Design/ Engineering/Environmental				
(d) Construction/ Implementation				
(e) Total				

19. Budget Justification: Please provide a budget justification. What is the basis for your costs? (For the final application to DWR, you will need to provide documentation, such as quotes, to justify your budget.)

20. Cost Share: DWR requires that proposals provide at minimum 50% non-State cost share. DWR awards additional points for proposals that provide more than the required 50% non-State cost share. Describe your cost share, and sources of cost share funds.

Please also state whether your agency can contribute to any costs that may be associated with the cost of preparing the final Prop 1 grant application, if any.

21. Disadvantaged Communities: Does the project provide direct water-related benefits to a project area entirely comprised of Disadvantaged Communities (DACs) and/or Economically Distressed Areas (EDAs)? If so, explain. (If you need help with this question, contact Maureen at mhamilton@mpwmd.net)

Will you be requesting a full or partial cost-share waiver based on DAC/EDA status?

22. Operations and Maintenance: Please describe how operations and maintenance of the project will be supported.

[2] Proposition 1 requires a minimum cost share of 50% of the total project cost. An applicant may request the local cost share requirement be waived or reduced for projects that directly benefit one or more DACs and/or Economically Distressed Areas (EDAs). See DWR Proposal Solicitation Package for additional details.

23. Storm Water Resource Plan Requirements: Is the project a storm water or dry weather runoff capture project? If so, is it included in a Storm Water Resource Plan?

24. Groundwater: Will the project affect groundwater levels? If so, how?

If your project is located in the Seaside Groundwater Basin, has it been considered by the Seaside Groundwater Basin Watermaster Technical Advisory Committee and does it conform to the adjudication requirements?

25. AB 1249 Requirements: Does the project address nitrate, arsenic, or hexavalent chromium contamination in the region? If so, how?

26. Stakeholder Coordination: Please briefly describe the nature of stakeholder coordination for planning, developing, and implementing the project.

SECTION IV. COMPLIANCE

Complete this section only if you would like your project to be considered for Round 1 Implementation Grant funds.

To be eligible for IRWM Implementation Grant funds, project proponents must comply with the following.

27. Adoption of IRWM Plan

Proposition 1 IRWM Program Guidelines require that each project proponent named in an IRWM Grant application adopt the IRWM Plan. Please check if your agency/organization:

☐ Has already adopted the IRWM Plan

☐ Hereby commits to adopting the IRWM Plan, if the project is selected for submission in an IRWM Grant application

28. Urban Water Management Compliance

If your agency meets the definition of an urban water supplier ("supplier, either publicly or privately owned, that provides water for municipal purposes, either directly or indirectly, to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually"), you must demonstrate compliance with certain requirements. These include:

- DWR-approved 2015 Urban Water Management Plan
- Verification from DWR that your agency submitted a validated water loss audit report (SB 555).
- Compliance with the water metering requirements (CWC section 525)

Is your agency an urban water supplier, and if so, can it meet these requirements?

☐ Yes, my agency is an urban water supplier and I can demonstrate compliance with these requirements.

☐ No, my agency is an urban water supplier but I cannot demonstrate compliance with these requirements.

☐ N/A: My agency is not an urban water supplier.

29. Surface Water Diverter Compliance
If your agency/organization is a surface water diverter, you must state whether your agency/organization has submitted to the State Water Resources Control Board your annual surface water diversion reports. Is your agency/organization a surface water diverter, and if so, can it meet this requirement?

- ☐ Yes, my agency is a surface water diverter and I can verify that we meet this requirement.
- ☐ No, my agency is a surface water diverter but we have not met this requirement.
- ☐ N/A: My agency is not a surface water diverter.

SECTION V. ROUND 1 PROJECT INFORMATION FORM

Please complete and submit the **Project Information Form** to Maureen Hamilton at mhamilton@mpwmd.net, by **February 8, 2019**.

*Complete the **Project Information Form** only if you would like your project to be considered for Round 1.*

The **Project Information Form** was developed by the Department of Water Resources (DWR). It contains the actual questions that each project proponent must address for the Region's Round 1 application for Implementation Grant funds. This **Project Information Form** is still in draft form; some questions may change between now and the final application process. If your project is selected for Round 1, you will have another opportunity to revise your responses on this form, if necessary, before the Regional Water Management Group submits its Round 1 Implementation Grant application to the State.

Note that if your project is selected for the Round 1 application, you will need to be physically present for a Pre-application Workshop (time and location TBD) during which time DWR staff will review your project information and ask questions.

The information below in blue font is provided, for your information, to help you respond to certain questions on the **Project Information Form.**

A. PROJECT INFORMATION

Question 5. DAC question: No need to provide a map at this time.

Question 8. Funding Category: Your project is a "DAC Implementation Project" only if your project directly and entirely benefits a disadvantaged community.

Question 9. Project Type: Click on "Other" to see the categories.

B. SELECTED ELIGIBILITY REQUIREMENTS

Question 2. How the Project Addresses the Critical Need(s) of the Region: Based on the objectives you selected in Section I Question 11 above, please explain how your project addresses the critical needs of the region.

Question 4. Climate Change: You need to explain how your project addresses climate change vulnerabilities specifically for the Monterey Peninsula, Carmel Bay and South Monterey Bay region, if applicable. Vulnerabilities for the region are described in Chapter 15 of the 2014 IRWM Plan. This chapter can be downloaded at: http://www.mpirwm.org/IRWM%20Library/IRWMPlan%20Final_whole.pdf)

Question 5. Regional Water Self-Reliance: This question is actually intended for regions that depend on water from the Delta watershed. However, if your project includes one of the following, it contributes to regional water self-reliance: water use efficiency, water recycling, advanced water technologies, local and regional water supply project, or improved regional coordination of local and regional water supply efforts.

Question 6. Statewide Priorities. Statewide priorities include the following (see pp. 9-10 of the Prop 1 2016 IRWM Grant Program Guidelines Volume 1 for a full description of these priorities):

☐ Make conservation a California way of life

- Building on current water conservation efforts and promoting the innovation of new systems for increased water conservation.
- Expand agricultural and urban water conservation and efficiency to exceed SB-X7-7 targets
- Provide funding for conservation and efficiency
- Increase water sector energy efficiency and greenhouse gas reduction capacity
- Promote local urban conservation ordinances and programs

☐ Increase regional self-reliance and integrated water management across all levels of government

- Ensure water security at the local level, where individual government efforts integrate into one combined regional commitment where the sum becomes greater than any single piece.
- Support and expand funding for Integrated Water Management planning and projects
- Improve land use and water alignment
- Provide assistance to disadvantaged communities
- Encourage State focus on projects with multiple benefits
- Increase the use of recycled water

☐ Protect and restore important ecosystems

- Continue protecting and restoring the resiliency of our ecosystems to support fish and wildlife populations, improve water quality, and restore natural system functions.
- Restore key mountain meadow habitat
- Manage headwaters for multiple benefits
- Protect key habitat of the Salton Sea through local partnership
- Restore coastal watersheds
- Continue restoration efforts in the Lake Tahoe Basin
- Continue restoration efforts in the Klamath Basin
- Water for wetlands and waterfowl
- Eliminate barriers to fish migration
- Assess fish passage at large dams
- Enhance water flows in stream systems statewide

☐ Manage and prepare for dry periods

- Effectively manage water resources through all hydrologic conditions to reduce impacts of shortages and lessen costs of state response actions. Secure more reliable water supplies and consequently improve drought preparedness and make California's water system more resilient.
- Revise operations to respond to extreme conditions
- Encourage healthy soils

☐ Expand water storage capacity and improve groundwater management

- Increase water storage for widespread public and environmental benefits, especially in increasingly dry years and better manage our groundwater to reduce overdraft.
- Provide essential data to enable Sustainable Groundwater Management
- Support funding partnerships for storage projects
- Improve Sustainable Groundwater Management
- Support distributed groundwater storage

- Increase statewide groundwater recharge
- Accelerate clean-up of contaminated groundwater and prevent future contamination

☐ Provide safe water for all communities
- Provide all Californians the right to safe, clean, affordable and accessible water
- adequate for human consumption, cooking, and sanitary purposes.
- Consolidate water quality programs
- Provide funding assistance for vulnerable communities
- Manage the supply status of community water systems
- Additionally, as required by Water Code §10545, in areas that have nitrate, arsenic, perchlorate, or hexavalent chromium contamination, consideration will be given to grant proposals that included projects that help address the impacts caused by nitrate, arsenic, perchlorate, or hexavalent chromium contamination, including projects that provide safe drinking water to small disadvantaged communities.

☐ Increase flood protection
- Collaboratively plan for integrated flood and water management systems, and implement flood projects that protect public safety, increase water supply reliability, conserve farmlands, and restore ecosystems.
- Improve access to emergency funds
- Better coordinate flood response operations
- Prioritize funding to reduce flood risk and improve flood response
- Encourage flood projects that plan for climate change and achieve multiple benefits

☐ Increase operational and regulatory efficiency

This action is directed towards State and federal agencies; however, consideration will be afforded to eligible local or regional projects that also support increased operational of the State Water Project or Central Valley Project

C. WORK PLAN, BUDGET, AND SCHEDULE

Please summarize the work plan and budget information that you provided (in detail) in Section III above.

D. OTHER PROJECT INFORMATION

Question 5. Does the project address a contaminant listed in AB 1249? These contaminants are, specifically: nitrate, arsenic, hexavalent chromium, and perchlorate.

A “disadvantaged community” (or DAC) is defined as a community with an annual median household income that is less than 80% of the statewide annual median household income, or according to the latest census data, less than $51,026. A “small disadvantaged community” is defined as a DAC that has a yearlong population of no more than 10,000 people.

HOW TO SUBMIT YOUR APPLICATION:

This Project Application Form is due **January 14, 2019**.

The Project Information Form is due **February 8, 2019**.

Please email your completed applications to Maureen Hamilton, at mhamilton@mpwmd.net.

If you do not have email access, please hand-deliver one copy of your application to:

Maureen Hamilton
MPWMD
5 Harris Court, Suite
Monterey, CA 93940

Or by mail:

Maureen Hamilton
MPWMD
P.O. Box 85
Monterey, CA 93942-0085

Proposition 1 Integrated Regional Water Management (IRWM) Round 1 Implementation Grant Project Solicitation Schedule 2018/2019

Proposition 1 Integrated Regional Water Management (IRWM)
Round 1 Implementation Grant Project Solicitation Schedule 2018/2019

Department of Water Resources (DWR) Timeline for Round 1 Implementation Grants

- Oct 5, 2018: DWR released Draft Project Solicitation Package (PSP) and Guidelines; comments due December 14, 2018
- November – early December: Central Coast Funding Area (CCFA) preparing joint comments on Draft PSP
- Early 2019: DWR releases Final PSP released
- DWR will schedule **Pre-Application Workshops** with each Funding Area following release of PSP. The Central Coast IRWM regions are requesting a workshop in June 2019.
- RWMG must provide DWR with information on proposed projects *at least two weeks prior* to the workshop: A Proposal Summary, plus a "Project Information Form" for each project.
- DWR will get back to regions with comments within 4 weeks after the workshop.
- Application to DWR will be due 12 weeks after the workshop date.

Prop 1 IRWM Grant Funds Available to Central Coast Funding Area

Prop 1 Allocation to CCFA:	$43,000,000
Minus State costs (10%):	- $4,300,000
Remaining for CCFA:	$38,700,000

Of that amount:

DAC Funds (20% total allocation):	$8,600,000
General Implementation Grant Funding:	$30,100,000

Prop 1 IRWM Grant Funds Available to the Monterey Peninsula, Carmel Bay and South Monterey Bay Region

Total Prop 1 funds available:
DAC Funds: $931,966
General Implementation: $3,261,882
TOTAL: $4,193,848

Prop 1 funds spent to date:
DAC Involvement (50% of total DAC): $465,983

For Round 1, DWR is proposing that 35% of DAC Implementation funds and 50% of General Implementation funds be provided, leaving the rest for Round 2 in 2020.

Round 1: 50% of General Implementation allocation, 35% of remaining DAC allocation
DAC Implementation: $163,094
General Implementation: $1,630,941
TOTAL: $1,794,035

Round 2 (2020): *50% of Implementation allocation, 65% of remaining DAC allocation*
DAC Implementation: $302,889
General Implementation: $1,630,941
TOTAL: $1,933,830

Proposed Project Solicitation Schedule for IRWMP:

- October 5, 2018: Draft Project Solicitation Package (PSP) was released by DWR.

- Tuesday November 27, 2018: Solicitation begins. Project proponents have approximately weeks to complete the **Project Application Form** (Tuesday Nov 27 – Monday Jan 14). The process will also be reviewed at the December 6 RWMG meeting.

  Those who are interested in having their projects put forward in Round 1 will also need to submit DWR's Project Information Form. The **Project Information Form** will be due Monday February 8, 2019.

- January 14, 2019: Project Application Forms due. Subcommittee ranks projects.

- January 21, 2019: Prioritized project list prepared by TAC (prior to January 24 RWMG meeting).

- January 24 RWMG Meeting: Discuss project ranking with RWMG, and consider ranked Project List for Round 1. RWMG takes a first look at projects on the table for Round 1.

- February 8, 2019: Project Information Forms due.

- February, March and April RWMG Meetings: Project proponents present their projects to the RWMG. RWMG selects projects to put forward.

- April or May RWMG Meeting: Must decide which projects to put forward, in time for June Funding Area Pre-Application Workshop.

- June 2019 (tbd): Pre-Application Workshop with DWR. Proposal Summary and Project Information Forms are due to DWR two weeks *prior* to the workshop.

Local Cost Share

Proposition 1 requires a minimum cost share of 50% of the total project cost. Applicants must demonstrate that a minimum of 50 percent of the total proposal costs will be paid for with non-State funds (Water Code §79742(C)). Costs incurred after January 1, 2015 (the effective date of Proposition 1) can be used as local cost share; in-kind services may also be used for local cost share.

An applicant may request the local cost share requirement be waived or reduced for projects that directly benefit one or more DACs and/or Economically Distressed Areas (EDAs). The 2018 Guidelines, Appendices E and F provide details regarding what documentation must be submitted to support claimed benefits to DACs and/or EDAs. Project benefits may be claimed based on either by population or geographic area. If documentation submitted is reasonable, cost share waivers will be will be determined as follows:

DAC/EDA Benefit Cost Share Waiver

- 76% - 100%: 100 percent cost share waiver
- 51% - 75%: 75 percent cost share reduction waiver
- 25% - 50%: 50 percent cost share reduction waiver
- Less than 25%: No cost share reduction waiver

Eligible Project Types
Subject to regional priorities, projects may include, *but are not limited to*, the following elements (Water Code §79743 (a - j)):

- Water reuse and recycling for non-potable reuse and direct and indirect potable reuse
- Water-use efficiency and water conservation
- Local and regional surface and underground water storage, including groundwater aquifer cleanup or recharge projects
- Regional water conveyance facilities that improve integration of separate water systems
- Watershed protection, restoration, and management projects, including projects that reduce the risk of wildfire or improve water supply reliability
- Stormwater resource management, including, but not limited to, the following:
    - Projects to reduce, manage, treat, or capture rainwater or stormwater
    - Projects that provide multiple benefits such as water quality, water supply, flood control, or open space
    - Decision support tools that evaluate the benefits and costs of multi-benefit stormwater projects
    - Projects to implement a stormwater resource plan developed in accordance with Part 2.3 (commencing with Section 10560) of Division 6 including Water Code § 10562 (b)(7)
- Conjunctive use of surface and groundwater storage facilities
- Water desalination projects
- Decision support tools to model regional water management strategies to account for climate change and other changes in regional demand and supply projections
- Improvement of water quality, including drinking water treatment and distribution, groundwater and aquifer remediation, matching water quality to water use, wastewater treatment, water pollution prevention, and management of urban and agricultural runoff
- Regional projects or programs as defined by the IRWM Planning Act (Water Code §10537).

Eligible proposals must do the following. The following requirements may be applied at the project level depending on the individual PSP:

- Advance the purpose of Proposition 1 Chapter 7, Regional Water Security, Climate, and Drought Preparedness (Water Code §79707(c) and §79740) which are, as follows:
    - Assist water infrastructure systems adapt to climate change
    - Provide incentives for water agencies throughout each watershed to collaborate in managing the region’s water resources and setting regional priorities for water infrastructure

Eligible also projects must:

- Promote State planning priorities and sustainable community strategies, consistent with Government Code §65041.1 and §65080 (Water Code §79707 (i)
- Be included in a Stormwater Resource Plan that has been incorporated into and IRWM plan, unless exempt per Water Code §10563(c)(2)(B). (Applies only to stormwater and dry weather runoff capture projects.)
- Be supported by the local Groundwater Sustainability Agency. (Applies only to projects that affect Groundwater levels.)

    In the Monterey Peninsula IRWM region, any groundwater projects will be routed to the Seaside Groundwater Basin Watermaster TAC for review.