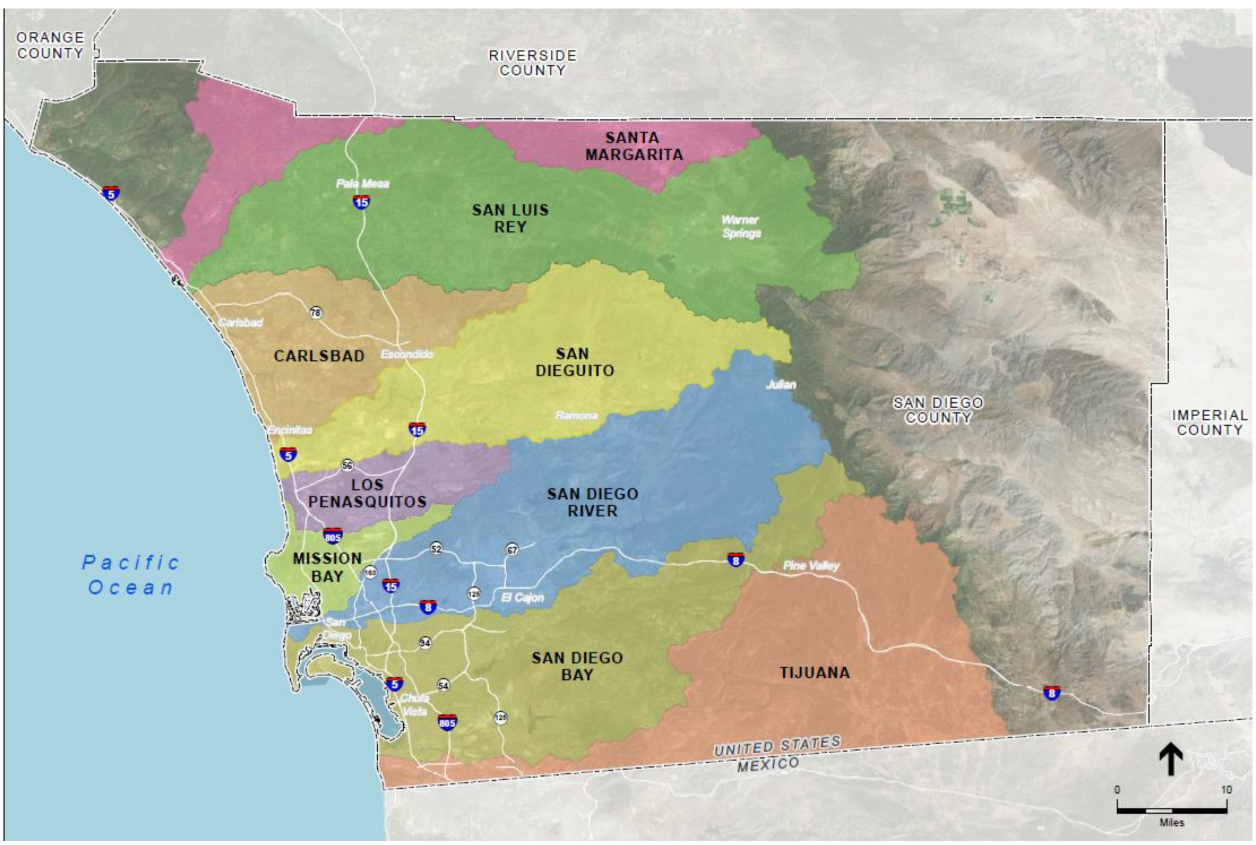
Final

San Diego Regional Storm Water Resource Plan

Prepared for
San Diego Region Copermittees
County of San Diego Public Works

March 2017

Funding Provided by
State Water Board Proposition 1 Water Planning Fund



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550 West C Street
Suite 750
San Diego, CA 92101
619.719.4200
www.esassoc.com

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EXECUTIVE SUMMARY

This Storm Water Resource Plan (SWRP) has been prepared for the San Diego Region, which consists of nine Watershed Management Areas (WMAs) within San Diego County as defined by the County Municipal Storm Water Permit Order (R9-2013-0001), and contains the region's largest hydrologic units, which extend to Orange and Riverside Counties adjacent to the north and east, and into Mexico to the south. The WMAs are further composed of hydrologic areas and sub-areas that have been designated in the Municipal Storm Water Permit. All of the San Diego County WMAs drain from higher elevations in the east to coastal waters (e.g., lagoons, estuaries, bays) in the west. The upper portions of the larger WMAs are generally less populated and urbanized. As the region's rivers and creeks flow to the coastal areas, population and urbanization increase, with greater impervious surfaces and potential non-point source pollution. A greater number of State 303d listed impaired water bodies generally characterize the lower portions of the WMAs. The region's rivers and creeks are characterized by increased seasonal surface flow from rain events in the winter and spring months. During the dry season from April to September, base flows decrease significantly and rivers and creeks may become dry unless sufficient groundwater flows are present. In urbanized areas, dry-weather flows from seepage from landscape irrigation may occur. Non-storm water flows from the municipal separate storm sewer system are prohibited under the San Diego County Municipal Storm Water Permit.

Much work has been done by the San Diego Copermittees to date to define the water quality conditions in the San Diego WMAs through over ten years of monitoring and reporting. High priority water quality conditions have been defined in the Water Quality Improvement Plans (WQIPs) prepared by the Copermittees in accordance with the San Diego County Municipal Storm Water Permit. These high priority water quality conditions include fecal indicator bacteria in coastal waters and hydromodification in a number of WMAs. Additional priority water quality conditions are defined in the WQIPs. Interim and final water quality goals and the strategies and timelines to meet these goals are defined in the WQIPs for each WMA. This SWRP guides project sponsors to develop and submit projects that meet these goals and are consistent with the priorities, strategies, and timelines of the WQIPs.

A goal of the SWRP is to identify opportunities to enhance utilization of storm water as a resource. The San Diego Region has been successful in collecting and using storm water for water supply in reservoirs located in the upper elevations of several WMAs. Limited groundwater aquifers and low permeability soils have limited beneficial use of storm water in the lower more urbanized portions of the WMAs. Beneficial uses of collected storm water and dry weather flows are further assessed in the SWRP to address the goal of using storm water as a resource. This analysis includes a public parcel assessment and a quantitative analysis of the opportunities for stormwater capture and beneficial uses, including recharge into groundwater aquifers, irrigation, and diversion and treatment at an existing facility for potable use. The quantification of these opportunities was then used to assess and prioritize listed SWRP projects to assess the water supply benefit provided by these projects compared to the larger set of opportunities.

Watershed and regional plans have been developed that identify opportunities, strategies, and priority conditions and goals for water quality, water resources, flood management, community, and natural resource benefits within San Diego County. The San Diego Integrated Regional Water Management Plan (IRWMP) is a regional plan that identifies water resource goals and priorities. The WQIPs, IRWMP, and other flood management, natural resource, and capital project plans form the basis for this SWRP.

The California State Legislature passed Senate Bill (SB) 985 requiring regions to develop SWRPs in order to receive grants for storm water and non-storm water runoff capture projects from any voter-approved bond after January 1, 2014, including the Proposition 1 bond act. The goal of a SWRP is to prioritize those storm-water-related projects that most effectively address the regional and watershed-based stormwater water quality and beneficial use goals. This SWRP achieves this goal by guiding project sponsors to develop and submit projects that provide multiple benefits to maximize water supply, water quality, environmental, flood, and other community benefits, and are prioritized in existing watershed-based plans that have specific water quality and beneficial use goals for storm water and dry-weather flows. Project sponsors are further guided to develop quantitative measures to assess and demonstrate that projects meet these watershed-based goals. Storm water and dry-weather flow water quality and beneficial use projects (or projects that have these as key elements) applying for Proposition 1 grant funding must be listed in a SWRP.

The San Diego Region SWRP has been developed in accordance with the State Water Resources Control Board SWRP Guidelines (December 15, 2015). Per these guidelines, a plan can be based on existing planning documents and local ordinances as a “functionally equivalent Plan”. The San Diego Region SWRP is a functionally equivalent plan that uses existing regional and watershed plans, such as the WQIPs and IRWMP, and has been prepared in accordance with the requirements of Water Code section 10560 et seq. The demonstration of compliance with the SWRP guidelines is documented in the index of Water Code requirements in the SWRP sections that address the checklist and self-certification in Appendix A. This SWRP is a regional storm water planning document prepared in accordance with the SWRP guidelines to encourage multi-benefit storm water, water quality, and beneficial use project development and to meet requirements for application of projects in the County of San Diego for state grant funding under Proposition 1 and other future funding opportunities.

The County of San Diego and the San Diego Municipal Separate Storm Sewer Systems (MS4) Copermittees have prepared this SWRP, which includes nine of the WMAs within the county. The SWRP approach allows for consistency across the region with project evaluation criteria, prioritization, metrics, and measurement methods described in the guidelines. As this is a functionally equivalent SWRP that builds on existing regional and watershed plans, project identification and development is completed through these other planning efforts. By bringing these plans together as part of this SWRP, this plan provides the tools for project sponsors to work regionally and on a watershed basis to better integrate projects that provide multiple benefits. This integration is achieved through the project integrated analysis and prioritization tools for listing in this SWRP, which are presented in Section 5 as flow charts and examples of project analysis and scoring, and in a checklist provided in Appendix E.

SWRP-listed projects also undergo an additional quantification analysis and prioritization for water quality and water supply benefits. This additional assessment compares the quantities that project sponsors provided for these benefits to the regional set of projects. An additional color scoring is provided for the storm water water quality benefit to further quantify and prioritize the listed projects. This additional prioritization for water quality projects provides a comparison of the level of benefit provided to the watershed goals and priorities presented in the current, applicable WQIP. For water supply projects, the additional prioritization is based on a comparison of the stormwater capture and use annual volumes with those of the larger set of opportunities identified and quantified through the public parcel assessment. This additional prioritization is incorporated into the SWRP online OPTI system. The prioritization process can be accessed online through the Integrated Regional Watershed Management (IRWM) OPTI system.[1]

To submit a project for inclusion in this SWRP, a project sponsor uses the three-step online SWRP project checklist. Project sponsors complete the checklist by responding to questions on project eligibility (step 1), project metrics (step 2), and watershed prioritization (step 3). More detailed discussion and examples of each of the steps and the scoring is provided in Section 5. The SWRP has been structured to ensure this plan remains current and provides an ongoing planning tool for the identification and development of multi-benefit projects that meet regional and watershed planning goals. Once the checklist is completed, an overall score will be generated, along with an additional color score based on the project quantities provided for projects with water quality and/or water supply as a main benefit, and the project will be listed in the SWRP project database. This can be done at any time. The project list will be continually updated as projects are identified and developed through existing watershed and regional planning documents, and added or updated using the online checklist tool. OPTI allows applicants to periodically update project information to improve the scoring and ranking of projects through greater multiple benefit integration and development of project quantitative measurements identified as project metrics. Updates can be made prior to grant solicitations by using the online system.

Additional tools to supplement existing regional and watershed plans are provided in the SWRP to identify and develop storm water capture and beneficial use opportunities through the public parcel assessment and mapping presented in Section 5.2 and Appendix H. Opportunities to consider multi-benefit stream and riparian habitat restoration and enhancement are provided in public parcel assessment and mapping tools in Appendix E. Worksheets that provide suggested methods and example calculations to determine the quantifiable measures of how a project will achieve the benefits are provided in Appendix G.

1 Available at http://irwm.rmcwater.com/sd/login.php.

As grant solicitations through Proposition 1 are announced, project sponsors will need to check specific project eligibility and grant application requirements. The SWRP project checklist addresses the SWRP Guidelines, which cover storm water capture projects, the IRWM Program, and conservation projects with water quality elements. Additional project information is generally required in grant-specific applications. Submission of grant applications is the responsibility of the grant sponsor and is a separate effort from development of this SWRP.

The SWRP brings together regional planning on storm water management, and will be incorporated into the San Diego IRWM Plan to fulfill this need. The SWRP is integrated into the IRWM Plan through the adoption of the SWRP by the IRWM governing body (the Regional Water Management Group). The online SWRP project checklist and listing tool is part of the IRWM regional project database. Calls for projects for future grant solicitations will be done through the IRWM outreach efforts.

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CHAPTER 1
Introduction

This Storm Water Resource Plan is based on the State Water Resources Control Board Guidelines adopted December 15, 2015.

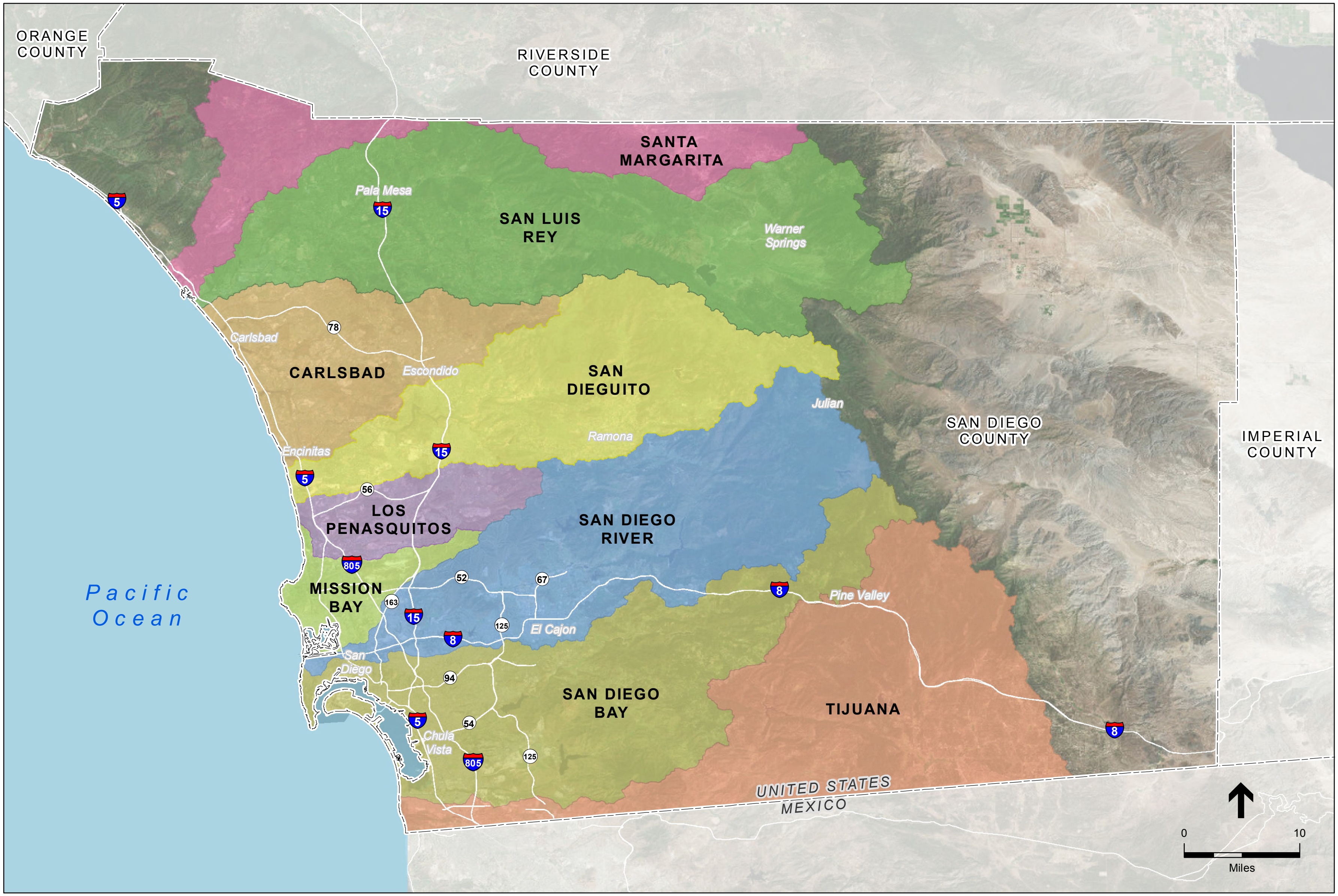
http://www.waterboards.ca.gov/water_issues/.../draft_guidelines_120315.pdf

1.1 Background – San Diego Region Functionally Equivalent Storm Water Resource Plan

On August 28, 2014, the California State Legislature passed Senate Bill (SB) 985, amending the Stormwater Resource Planning Act. The act requires regions to develop Storm Water Resource Plans (SWRPs) in order to assist in developing multi-benefit stormwater management solutions. The act also requires a public agency to develop a SWRP in order to be eligible to receive grants for storm water and dry weather runoff capture projects from bond acts approved by voters after January 1, 2014. SWRPs are to list and prioritize in a quantitative manner projects designed to capture storm water for potential future use and to provide multiple benefits to maximize water supply, water quality, and environmental and other community benefits. These projects would also have the benefit of reducing the pollution storm water carries to receiving water bodies, which in turn can assist agencies with compliance with applicable Municipal Separate Storm Sewer Systems (MS4) permits and Total Maximum Daily Loads (TMDLs).

SB 985 required the State Water Resources Control Board (SWRCB) to promulgate guidance for compliance with the act by July 1, 2016. Guidelines for SWRPs were provided in draft for public comment and review in August 2015, and were brought to the State Water Board for adoption in December 2015. The guidelines serve as a guide for the State Water Board and other bond-fund-dispensing agencies to use in determining whether an adequate SWRP has been prepared prior to the granting of funds for storm water and dry weather runoff capture projects. The SWRCB adopted the guidelines, which are the basis for the development of this SWRP, on December 15, 2015.

The County of San Diego and the San Diego MS4 Copermittees have prepared this Functionally Equivalent San Diego Regional SWRP (SWRP), which includes nine of the Watershed Management Areas (WMAs) within the county, shown in Figure 1-1. This SWRP approach allows for consistency across the region with project evaluation criteria, prioritization, metrics, and measurement methods for success described in the guidelines. The SWRP includes WMA-specific sections that allow for presentation of watershed-specific information, determination of priority projects using the regional criteria and methods on a WMA level, and presentation of WMA-specific partners, community outreach efforts, and plan implementation and strategies.



SOURCE: ESRI, 2016; SanGIS, 2016

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Figure 1-1
Watershed Management Areas Covered Under the San Diego Regional SWRP

1.2 Purpose and Objective of the SWRP

The purpose of this SWRP is to provide the tools and guidance to support the region in developing multi-benefit storm water or dry weather runoff projects to achieve watershed and regional planning goals. This SWRP provides eligible project sponsors the tools to submit multi-benefit projects for integrated analysis, prioritization, and listing in the SWRP, which will aid in regional planning and also allow the projects to be eligible for grant funding under Proposition 1. These analysis and prioritization tools are not meant to exclude projects but rather to assist in developing projects that enhance utilization of storm water as a resource to achieve regional and watershed goals more effectively and, additionally, have a greater opportunity for funding. ***The objective of the SWRP is therefore to identify and prioritize projects to "bring to the top" those multi-benefit projects that can best meet the identified priorities and goals on a watershed basis, and which will also be more competitive for statewide grant funding.***

This SWRP is not a compliance plan. It is a planning document prepared in accordance with the SWRP Guidelines to be a valuable regional storm water planning document and to meet requirements for application of projects in the region for state grant funding under Proposition 1. The integrated analysis and prioritization tools (Section 5) follow the SWRP Guidelines.

1.3 Functional Equivalency Provided by Regional and Watershed Plans

Per the adopted guidelines, a plan meeting the provisions of the Water Code need not be referred to as a "Storm Water Resource Plan." An existing planning document or a collection of existing documents and local ordinances may be utilized as a "*functionally equivalent Plan*", including but not limited to watershed management plans, integrated resource plans, urban water management plans, green infrastructure plans, water quality improvement plans, salt and nutrient management plans, TMDL implementation plans, or similar plans that include storm water and dry weather runoff capture and use as a component of the watershed goals and objectives. The watershed approach is essential to integrate storm water management with other basic aspects of aquatic resource protection and overall water management, including flood control, water supply, and habitat conservation. If an individual planning document does not meet the standards of the Water Code, a collection of local plans and ordinances and regional plans may constitute a functional equivalent, if the plans and ordinances collectively meet all of the requirements of Water Code section 10560 et seq. (see Checklist and Self-Certification in Appendix A of the guidelines).

Watershed and regional plans have been developed that identify opportunities, strategies, and priority conditions and goals for water quality, water resources, flood management, community, and natural resource benefits within San Diego County. These existing plans, shown in Figure 1-2, have been used to develop this *functionally equivalent plan*. Each of the regional and watershed plans addresses one or more of the five key benefits in accordance with the Guidelines: water quality, water resources, environment, flood risk, and community. Section 5.1 provides references and descriptions of these existing planning documents.

The documents used most extensively in this SWRP are the Water Quality Improvement Plans (WQIPs) developed by the San Diego County Copermittees for each WMA (see Reference Section for specific WMA WQIPs). The WQIPs identify the water quality priorities and strategies to meet water quality goals and compliance targets on a watershed basis. The WQIPs are used to address the SWRP guidelines for Watershed Identification (Section VI.A) and Water Quality Compliance (Section V). Required watershed information is also based on the San Diego Integrated Regional Water Management (IRWM) Plan (RWMG, 2013) and the Copermittees' Annual Monitoring Reports (Weston, 2009, 2010). Watershed Management Plans, where applicable, have also been used to develop this document. Jurisdictional planning documents for flood management, capital improvement projects, community development and recreational opportunities, and greenhouse gas/climate action plans also provide a foundation for this SWRP in identifying goals, strategies, and opportunities that can form the basis for multi-benefit projects. Section 5.1 describes each of these types of documents in further detail. Section 4.1 and Figure 4-1 show how the different plans are related.

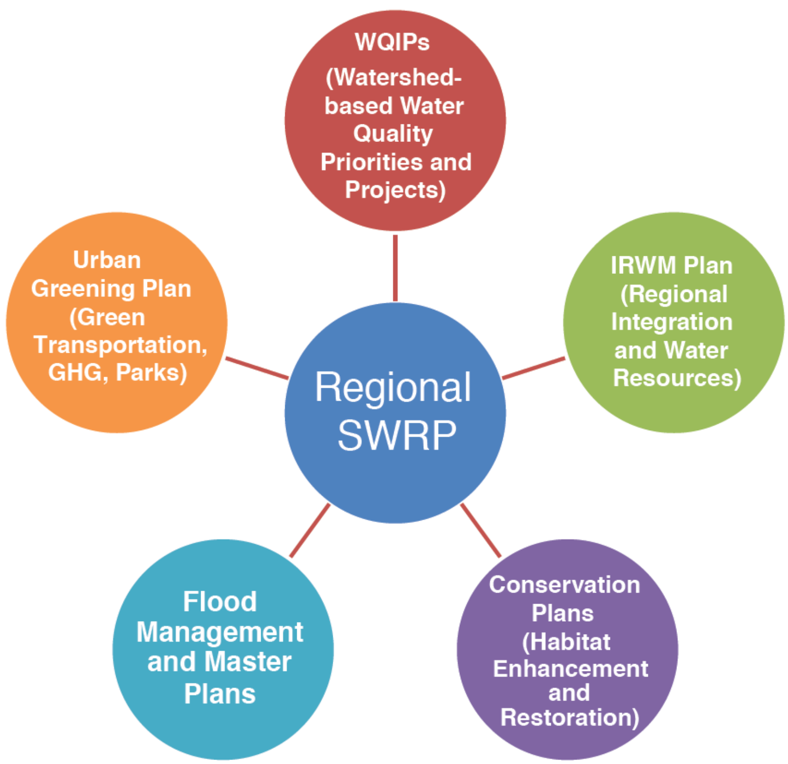

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Figure 1-2
Functionally Equivalent SWRP –
Builds on Existing and Future Watershed and Regional Plans

1.4 Identification of Projects

Projects listed in the SWRP are developed and prioritized through existing regional and watershed-based plans that have defined water quality and water resource goals, strategies, and timelines. Key elements of these projects include storm water and dry weather flow water quality and beneficial use, as well as benefits that address flood, environmental, and community goals. A goal of the SWRP is to identify opportunities to enhance utilization of storm water as a resource. The San Diego Region has been successful in collecting and using storm water for water supply in reservoirs located in the upper elevations of several WMAs. In the lower, more urbanized portions of the WMAs, there tend to be limited groundwater aquifers and low permeability soils, which have less opportunity for beneficial use of storm water.

As this is a functionally equivalent SWRP that builds on existing regional and watershed plans, project identification and development is completed through existing and ongoing planning efforts and documents, such as WQIPs, the IRWM Plan, and others. Some related planning efforts and documents include the following:

- Regional best management practices (BMPs) and green infrastructure strategies and projects have been identified through the preparation of the WQIPs.
- The Watershed Management Area Analysis (WMAA; see Reference Section for specific WMA WMAAs) conducted for several watersheds in the region has further analyzed opportunities for multi-benefit water quality projects.
- The IRWM Plan has identified water resource goals and multi-benefit projects to address issues such as local water supply augmentation, water quality, flooding, and conservation.
- Flood risk management and master plans that have been developed in the region on a jurisdictional level provide identification of flood management projects that may also have multiple benefits.
- Regional and local conservation and restoration plans, including the Multi-Species Conservation Plan (MSCP) and Multiple Habitat Conservation Program (MHCP), have been developed to identify creek and wetland restoration and enhancement projects.
- Community planning documents, including master plans and jurisdictional Climate Action Plans, identify opportunities for urban greening projects.

By bringing these plans together as part of this functionally equivalent SWRP, this plan provides the tools for project sponsors to work regionally and on a watershed basis to better integrate storm water projects that provide multiple benefits more effectively. This may include the integration of storm water water quality strategies with creek and wetland restoration projects to meet natural resource protection needs, flood management, and water quality goals identified in these watershed and regional plans. This integration is achieved through the project integrated analysis and prioritization tools for listing in this SWRP, presented in Section 5.

The goal of this SWRP is to provide tools and guidance for improved collaboration and integration between existing regional planning efforts and multi-benefit storm water and dry weather flow water quality and beneficial use projects that are competitive for statewide funding. Figure 1-3 illustrates the regional and watershed plans that provide the project identification and prioritization process for the SWRP. For example, a storm water water quality project prioritized in the WQIP could provide greater watershed benefit by incorporating a prioritized community benefit that was identified in a community greening plan. As highlighted in the graphic, the main benefit area that is not fully addressed in existing plans is water supply provided by storm water and dry weather flow capture and beneficial use. The project identification and prioritization process for this main benefit is addressed in Section 5.2 through an assessment of public parcels and identification of storm water and dry weather flow capture and beneficial use opportunities.

The identification and analysis of projects under this SWRP are not driven by specific grant solicitations and calls for projects. Projects are identified through existing, updated, and future planning documents that have specific goals and timelines to meet watershed-based goals and implementation strategies. Projects that are assessed and listed on the SWRP online database can be updated to improve ranking through collaborative efforts between these plans to achieve additional and greater benefits. As projects are further developed through planning and design activities, updates to the projects can be made online to increase the project's ranking through the determination of project metrics that quantify the benefits achieved.

The SWRP Guidelines allow for submittal and listing of programmatic projects related to storm water and dry weather runoff. Programmatic projects may include multiple individual projects that have similar goals, elements, and benefits. Examples of programmatic projects include the implementation of a set of green street projects over several years within a high priority hydrologic area, which achieve similar water quality, flood management, and community benefits, and are identified in watershed management area WQIP implementation strategies. This type of green infrastructure project can be submitted as one programmatic project for inclusion on the SWRP list. Another example of a programmatic project is the implementation of a dry weather diversion for beneficial use to address water quality and habitat impact in a coastal lagoon along with measures in the watershed to reduce dry weather flows such as incentivizing turf replacement, installation of drip irrigation, and drought-tolerant landscaping for residential and commercial properties. This programmatic project has water quality and water resources as key elements, but also has multiple benefits that include water conservation and habitat restoration. A programmatic water quality and conservation project can be submitted though a single checklist for inclusion and scoring as a programmatic project on the SWRP project list.

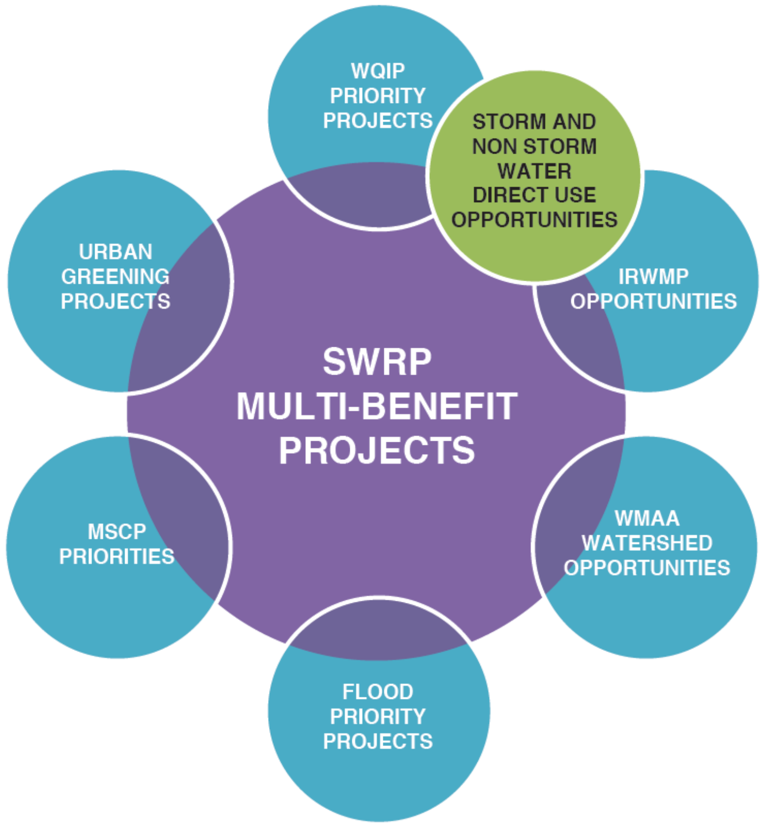

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Figure 1-3
Project Identification: Existing Watershed and Regional Plans for Storm Water and Dry Weather Flow Capture and Beneficial Use Opportunities

1.5 SWRP Project Listing and Grant Funding Opportunities

This SWRP has been structured to ensure this plan remains current and functions as an ongoing planning tool for the identification and development of multi-benefit projects. This is achieved by a process to identify, assess, prioritize, and list multi-benefit projects that can be updated through an online tool. This process is outlined in Figure 1-4, which shows that the current list of projects that have been assessed and prioritized in this SWRP is focused on projects for Rounds 1 and 2 of SWRCB storm water grant funding. (The Round 2 solicitation is expected in Spring 2018.) The project list will be continually updated using the online regional project integrated analysis and prioritization tool that is presented in more detail in Section 5.

As grant solicitations through Proposition 1 are announced, project sponsors will need to check specific project eligibility and grant application requirements. The SWRP project checklist specifically addresses the SWRP Guidelines, which covers storm water capture projects, IRWM projects, and conservation projects with water quality elements. Additional project information is generally required in grant-specific applications. Submission of grant applications is the responsibility of the grant sponsor. The County of San Diego and Copermittees are not responsible for preparing specific grant applications or completing the online checklist for a project unless they are the project sponsor. The County of San Diego and Copermittees are also not responsible for selecting projects for inclusion on the SWRP list. Announcements for new grant solicitations and calls for projects will be done through the existing IRWM stakeholder process. Instructions will be provided in the calls for projects to complete the online SWRP project checklist that will score and list projects in the online project database[1]. The submittal of projects under this SWRP should not be driven by specific grant solicitations and calls for projects, rather through the existing, updated, and future planning documents, which have specific goals and timelines to meet watershed-based goals and implementation strategies. Projects cans be entered or updated into the SWRP online database at any time.

Proposition 1 funds for multi-benefit storm water projects will be available through two solicitations or “rounds” of funding. Approximately $80 million of Proposition 1 funds were available to fund implementation projects during the first solicitation (Round 1) and were distributed in Fall 2016. An additional approximately $86 million will be available to fund implementation projects during the second solicitation (Round 2) and will likely be distributed in Spring 2018. Preparation of this SWRP was initiated to identify and prioritize projects within the region for Rounds 1 and 2.

Other future funding opportunities include future rounds of SWRP funding for individual applicants, funding through the IRWM, and conservation agency funding for projects that have water quality or storm water capture elements.

As future projects (those not included in the Round 1 and 2 project list) are identified and developed through existing, updated, and new watershed and regional planning documents, the project sponsors will complete the project checklist using the online system. These projects will undergo assessment, scoring, and inclusion in an updated project list. This SWRP is, therefore, adaptive to updates and modifications to watershed and regional goals in existing and new planning documents through the online process established for this SWRP.

This SWRP is integrated into the IRWM Plan through the adoption of the SWRP by the IRWM governing body (the Regional Water Management Group). The online SWRP project checklist and listing tool is part of the IRWM regional project database. Calls for projects for future grant solicitations will be done through IRWM outreach efforts.

1 The database is available at http://irwm.rmcwater.com/sd/login.php.

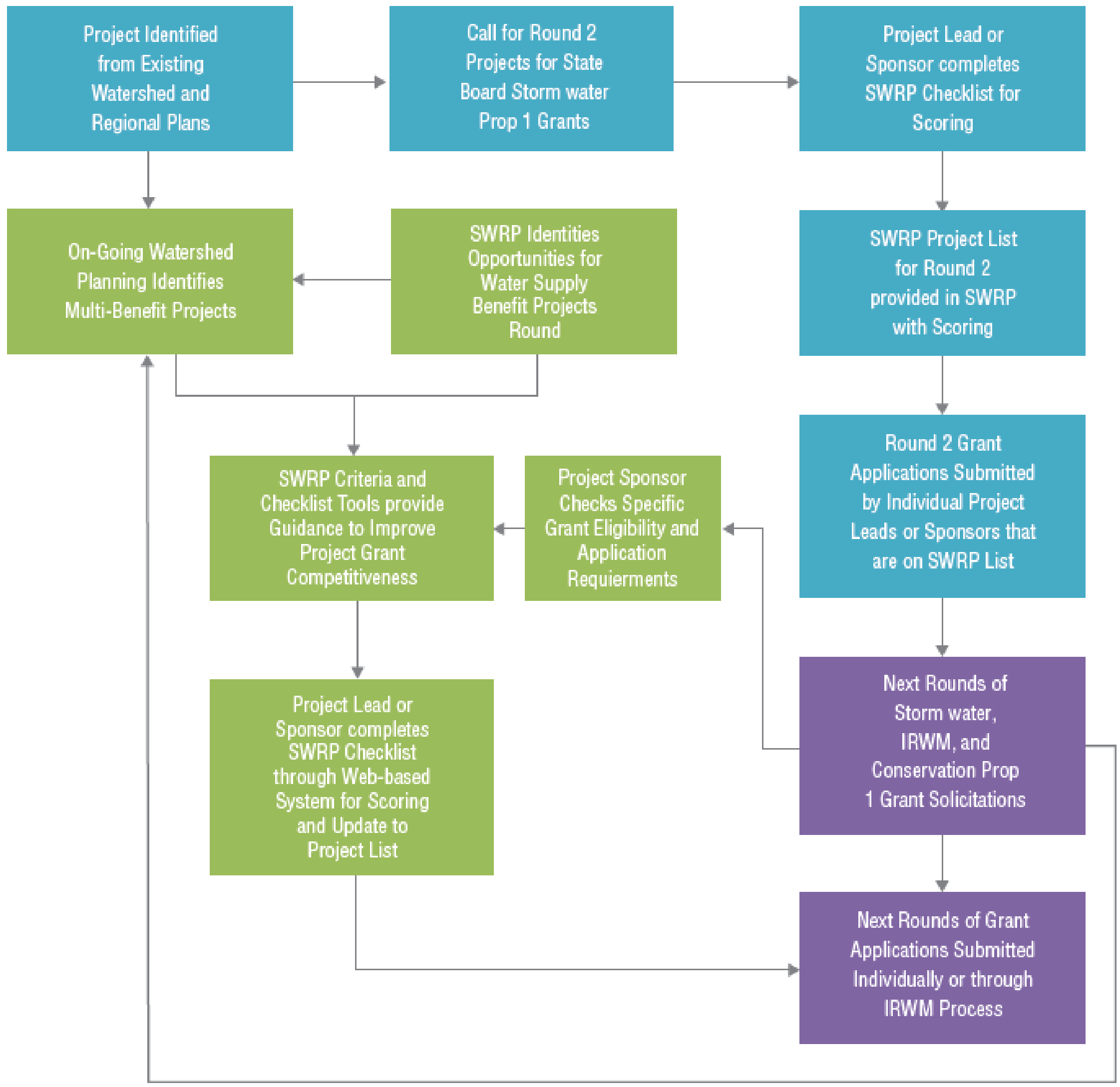

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Figure 1-4

Process for Current and Future Project Submittal for SWRP Listing and SWRP Checklist Updates

1.6 Consistency with other Plans and Policies (Section V: Standard Provisions)

Beyond the criteria and metrics of the prioritization process, project sponsors are responsible for ensuring that the projects submitted, assessed, scored, and listed in the SWRP using the online checklist comply with the applicable requirements of the following:

- Compliance with the California Environmental Quality Act,
- Consistency with applicable permits (e.g., National Pollutant Discharge Elimination System (NPDES) permits, waste discharge requirements, Areas of Special Biological Significance Compliance Plans),
- Consistency with California Health and Safety Code regarding pest and mosquito abatement,
- Consistency with the Clean Water Act sections 401 and 404 and any other federal or state laws, regulations, and permits regarding modification of a river or stream channel, and
- Project monitoring per the SWRP Guidelines

As discussed in Section 4, this SWRP is consistent with water quality control plans, applicable water quality control policies, and water rights. Section 2 discusses the process for submission and incorporation of the SWRP into the IRWM Plan.

1.7 SWRP Sections, Checklist, and Certification

The SWRP chapters and corresponding sections of the SWRP Guidelines are as follows:

Chapter	SWRP Guideline Section
Chapter 1: Introduction	Section V
Chapter 2: Coordination and Outreach	Section VI.B and Section VI.F
Chapter 3: Watershed Identification	Section VI.A
Chapter 4: Water Quality Compliance	Section V
Chapter 5: Quantitative Methods and Identification of Prioritization of Projects	Section VI.C and Section VI.D
Chapter 6: Implementation Strategy and Schedule	Section VI.E
Chapter 7: Process for Plan Updates, Program Assessment and Adaptive Management	Section V1.E

Information on where specific elements of the SWRP Guidelines are presented in this document, or in plans that compose this functionally equivalent SWRP, is provided in the plan checklist in Appendix A. The Appendix A checklist lists each of the elements in the SWRP per the Californian Water Code and the sections of the applicable plan that address each element. The Appendix A checklist has been certified by the County of San Diego for the San Diego Copermittees, which means that the County of San Diego certifies that the SWRP is complete, accurate, and addresses the elements presented in the SWRP Guidelines.

CHAPTER 2
Coordination and Outreach (SWRP Guidelines Sections VI.B and VI.F)

SWRP Guidelines Checklist

Organization, Coordination and Collaboration

- ☒ Community participation.
- ☒ Existing integrated regional water management group(s) implementing an integrated regional water management plan.
- ☒ Coordination with agencies to address the storm water and dry weather runoff management objectives for the targeted watershed.
- ☒ Nonprofit organizations working on storm water and dry weather resource planning.
- ☒ Public engagement efforts and community participation.
- ☒ Required decisions that must be made by local, state or federal regulatory agencies and coordinated monitoring.
- ☒ Coordination of existing local governmental agencies to support collaboration among two or more lead local agencies.
- ☒ Individual agency participation in isolated efforts.

Education, Outreach, Public Participation

- ☒ Outreach and Scoping: Community participation is provided for in Plan implementation.
- ☒ 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.
- ☒ 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.
- ☒ Plan describes mechanisms to engage communities in project design and implementation, including disadvantaged communities.
- ☒ Plan identifies specific audiences including local ratepayers, developers, locally regulated commercial and industrial stakeholders, nonprofit organizations, and the general public.
- ☒ Plan includes a schedule for initial public engagement and education.

Development of the SWRP was a collaborative effort that featured early involvement of water management organizations and affected stakeholders, including regulatory agencies, local jurisdictions, utilities, academic institutions, non-governmental organizations (NGOs), special interest groups, and the interested public. Involving representatives from disadvantaged communities (DACs) and Native American tribes has been a priority.

The stakeholder education and participation and public outreach program for the SWRP followed a process similar to the San Diego IRWM Plan, which was developed as a result of a two-year process that involved direct input from many stakeholder groups and members of the public, including representatives from local agencies and NGOs. In addition, the development of the San Diego County Copermittees' WMA WQIPs, which provide a significant portion of the content of this SWRP, went through an extensive stakeholder outreach and involvement process. Therefore, the collaborative effort in the development and implementation of this SWRP includes stakeholder participation and public outreach programs developed and ongoing through the IRWM Plan and WQIPs.

2.1 Stakeholder and Public Participation

2.1.1 San Diego IRWM Plan Outreach and Participation

The collaborative stakeholder process that was used to develop the IRWM Plan is explained in detail in Chapter 6 of the IRWM Plan. The San Diego Regional Water Management Group (RWMG) was formed in 2005 in accordance with provisions of the California Water Code (Section 79570 et seq.) to manage development and implementation of the IRWM Plan, and to manage the San Diego IRWM Program. The RWMG consists of the San Diego County Water Authority, the City of San Diego, and the County of San Diego. Chapter 1 of the IRWM Plan (page 1-7) provides an overview of the IRWM Program's RWMG. In addition, the stakeholder advisory body for the IRWM Region (the 34-member Regional Advisory Committee or RAC) is a collection of professionals who represent diverse groups and points of view with a stake in water management in the region, including economically vulnerable and environmental justice (EJ) communities, and climate-vulnerable communities. The RAC has met regularly since its inception and is responsible for providing input and feedback to the RWMG with regard to regional planning and funding activities. RAC meetings are open to all interested parties, including over 500 active stakeholders, and are announced via email. To ensure that DACs are notified and could participate in the public outreach meetings, additional follow-up emails and phone calls were made to known DAC stakeholders to alert them to the meeting date, time, and location. The list of participants was expanded to include the stakeholders that participated in the development of the WQIPs. Section 6.3 of the IRWM Plan provides a description of the governance structure, RAC, and various working groups that were developed to provide input on specific topics for the IRWM Plan. A comprehensive list of agencies and organizations that are involved in water management in the San Diego IRWM Region, including information about their level of involvement in the IRWM planning process is provided in Table 6-14 of the IRWM Plan.

During development of the IRWM Plan, the RWMG reached out directly to many organizations that are involved with addressing water-related issues of DACs and EJ communities within the IRWM region. During this process, it was determined that there are different types of issues and needs for different types of DAC and EJ communities. Specifically, it was determined that there is a general common set of issues for DAC and EJ communities within urban areas (that receive municipal water and sewer services), and a separate set of issues for DAC and EJ communities within rural areas that largely rely on groundwater wells for water supply and septic systems for wastewater disposal. The specific set of issues common to urban and rural DAC and EJ communities are provided in detail in Section 3.3 of the IRWM Plan.

Furthermore, Chapter 5 of the IRWM Plan provides details about each WMA in the region. For each watershed, there is a section titled "Management Issues and Conflicts" specific to the watershed, which includes information about DAC and EJ communities where applicable. These issues are taken into consideration when evaluating and selecting projects for funding through the IRWM Program.

2.1.2 WQIP Outreach and Participation

WQIPs were developed in accordance with a public participation and outreach process to solicit data, information, and recommendations from stakeholders. Stakeholder involvement is required under each WMA's MS4 permit, and was key in the development of the WQIPs. Each WQIP formed consultation panels consisting of representatives from the SDRWQCB and the environmental and development communities familiar with the water quality conditions in each WMA. Consultation panel meetings and public workshops were held during each phase of WQIP development. Public workshops provided a forum for public suggestions for water quality improvement priorities, likely sources, and potential strategies. Data provided consisted of observational data and email messages from members of the public, information from regional NGOs, and additional reports provided by the Responsible Agencies. The data included evidence of pollutants and stressors at several locations. This information was used to prioritize water quality issues and potential projects. Feedback received during this process was vital to the development of each plan. Each WQIP provides a description of the public participation process in detail, including participating panelists, feedback received, and revisions made. Development of a WQIP may vary slightly by WMA, but typically involves a six-step process, which is summarized below.

- Step (1) determines the highest priority water quality conditions in water bodies in the WMA (e.g., a creek or bay) on the basis of evidence showing that a water body is being polluted by runoff from the MS4.
- Step (2) identifies the sources of pollution for the highest priority water quality conditions.
- Step (3) formulates goals, strategies, and schedules to address the highest priority water quality conditions. The final three steps of the WQIP are designed to evaluate the progress made in addressing the priority and highest priority water quality conditions.
- Step (4) provides ongoing monitoring and assessment to evaluate the overall progress made in the WMA, including success in meeting the goals identified for the highest priority water quality conditions.
- Step (5) updates the WQIP as needed through an adaptive management process, which can entail adjustments to goals and strategies, as needed, to increase effectiveness.
- Step (6) reports on the findings of the assessments, along with any adjustments to the WQIP.

2.1.3 SWRP-Specific Outreach and Participation

A collaborative ad hoc committee for the SWRP, composed of the County of San Diego Public Works, the SWRCB, the MS4 Copermittees, and environmental consultants Environmental Science Associates (ESA) and RMC Water and Environment, was established to discuss the SWRP development and to gain stakeholder input from a directed technical group. The committee met on a regular basis between August 2016 and January 2017 to discuss development and progress of the SWRP, prioritization criteria for assessing projects, public outreach efforts, and other related topics. The SWRP ad hoc members are listed in Table 2-1.

TABLE 2-1
SWRP AD HOC COMMITTEE MEMBERS

Name	Affiliation
Harish Bagha	SWRCB
Sean Maguire	SWRCB
Stephanie Gaines	County of San Diego, Department of Public Works
Ruth de la Rosa	County of San Diego, Department of Public Works
Doug Thomsen	City of San Diego
Rosanna Lacarra	La Roc Environmental representing City of Coronado
Chris Helmer	City of Imperial Beach
David Pohl	ESA
Lindsey Sheehan	ESA
Crystal Benham	RMC Water and Environment
Rosalyn Prickett	RMC Water and Environment

Stakeholder and public participation for the SWRP was facilitated through two co-hosted RAC meetings, the first of which was held on October 5, 2016, to present SWRP project eligibility for SWRCB storm water Proposition 1 grant funding. Evaluation criteria, as well as regional quantitative metrics and project prioritization tools at the watershed level, were also presented. Example projects were presented to show the quantification of benefits using the developed metrics and prioritization. In addition, the meeting provided stakeholders with the opportunity to present projects they would like to include in the SWRP following the application procedures for SWRCB storm water Proposition 1 funding (see Section 6 of this plan). The materials for the first workshop are included in Appendix C. Input from the attendees on the project criteria, metrics, and prioritization process was requested to be submitted within two weeks of the workshop. A summary of comments is provided in Appendix D.

The second co-hosted RAC meeting was held on December 7, 2016 to present the Draft SWRP for stakeholder and public input. Notices for the two meetings were sent via email to the IRWM stakeholder list, in addition to the stakeholder list from the development of the WQIPs. Meetings were also publicly announced on the IRWM and San Diego County Water Authority websites. In addition, the workshop included a call for projects for the second round of Proposition 1 Storm Water Grant Program Implementation funding through the SWRCB. The materials for the second workshop are included in Appendix C.

The public outreach meetings that were held for development of the SWRP are shown in Table 2-2. A list of stakeholders and RAC meeting invitees and the WQIP stakeholder lists are provided in Table 2-3, and a list of attendees for the two meetings is provided below in Table 2-4. The meeting notes from the two stakeholder workshop can be found in Appendix B.

TABLE 2-2
SWRP STAKEHOLDER MEETINGS

Date	Meeting
August 11, 2016	SWRP Ad hoc committee meeting
September 19, 2016	SWRP Ad hoc committee meeting
October 5, 2016	RAC meeting- project prioritization criteria, metrics and scoring
October 21. 2016	SWRP Ad hoc committee meeting
November 29, 2016	SWRP Ad hoc committee meeting
December 7, 2016	RAC meeting to present Draft SWRP and call for Projects for Round 2 of the Prop. 1 storm water SWRCB funding

2.2 Methods of Outreach

Meetings and news updates were announced through both the San Diego IRWM website and through a targeted email distribution list. Presentations were given to agencies, organizations, and community groups, and outreach was completed for DACs and Native American tribes in the region to increase involvement and participation from stakeholders that represent these groups. For a complete description of the stakeholder involvement program, including directed outreach to DACs and Native American tribes, please refer to Section 6.4 of the IRWM Plan.

Moving forward, ongoing involvement in the SWRP process will largely occur through the project submittal and evaluation process. When storm-water-related funding sources are available, announcements will be made via the IRWM stakeholder list so that all active stakeholders are aware of the funding opportunities. These announcements and ongoing communications that occur via the IRWM Program will be consistently tracked so that the County of San Diego can verify that stakeholders, including DACs, continue to be involved in the SWRP process.

The project checklist required for inclusion in the SWRP project list includes a question on whether the project sponsor has provided opportunities, mechanisms, and a schedule for public engagement in project approach, design, and implementation. The project checklist also includes a checklist item for summarizing this public engagement. Points are awarded for outreach efforts and continued stakeholder engagement, which provides a mechanism to encourage project proponents to include stakeholder outreach and engagement in their projects.

Moving forward, the San Diego IRWM Region’s RWMG will continue to track issues and needs of DAC and EJ communities throughout the region. These issues and needs will generally be addressed via the implementation of priority projects that are identified through the SWRP, or other programs in the region.

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TABLE 2-3
LIST OF STAKEHOLDERS FOR SWRP

Federal and State Agencies	Co-permittees and Local Agencies		Tribes, Non-Profits and Other Organizations	
Bureau of Indian Affairs	Alpine Sanitation District	Mission Resource Conservation District	Agua Hedionda Lagoon Foundation**	Mission Trails Regional Park Foundation**
California Coastal Conservancy	American Water Company	Mootamai Municipal Water District	Association of Compost Producers	Pala Band of Luiseño Mission Indians
California Department of Fish and Wildlife	Buena Sanitation District	Oceanside Utilities Commission	Back Country Land Trust**	Pauma Band of Luiseño Mission Indians
California Department of Water Resources	Carlsbad Municipal Water District	Olivenhain Municipal Water District	Barona Group of Capitan Grande Band of Mission Indians	Planning and Engineering for Sustainability**
California Water Resources Control Board	City of Carlsbad	Otay Water District	Batiquitos Lagoon Foundation**	Preserve Calavera Project Wildlife**
International Boundary and Water Commission	City of Chula Vista	Orange County Public Works	Bonsall Conservancy**	Rincon Band of Luiseño Mission Indians
SDRWQCB	City of Coronado	Padre Dam Municipal Water District	Buena Vista Lagoon Foundation	River Partners**
U.S. Bureau of Land Management	City of Del Mar	Pauma Valley Community Services District	Building Industry Association of San Diego	Rose Creek Watershed Alliance**
U.S. Bureau of Reclamation	City of El Cajon	Pine Hills Mutual Water Company	California Center for Sustainable Energy**	Rural Community Assistance Corporation*
U.S. Fish and Wildlife Service	City of Encinitas	Pine Valley Mutual Water Company	California Coastal Coalition	San Carlos Area Council, Mission Trails Park
U.S. Forest Service, Cleveland National Forest	City of Escondido	Pine Valley Sanitation District	California Landscape Contractors Association	San Diego Audubon Society**
U.S. Geological Survey	City of Imperial Beach	Questhaven Municipal Water District	California Rural Water Association	San Diego CoastKeeper*
U.S. Marine Corps Camp Pendleton	City of La Mesa	Rainbow Municipal Water District	California Trout**	San Diego Country Estates
	City of Lemon Grove	Ramona Municipal Water District	Campo Band of Diegueno Mission Indians	San Diego Earthworks
	City of National City	Rancho California Water District	Cottonwood Creek Conservancy**	San Diego River Conservancy
	City of Oceanside	Rancho Pauma Mutual Water Company	Escondido Creek Conservancy**	San Diego River Park Foundation
	City of Poway	Rancho Santa Fe Community Services District	Environmental Health Coalition	San Diego Zoological Society
	City of San Diego	Rincon Del Diablo Municipal Water District	Equinox Center	San Dieguito River Valley Land Conservancy
	City of San Marcos	Rincon Ranch Community Services District	Fallbrook Land Conservancy	San Elijo Lagoon Conservancy**
	City of Santee	San Diego Association of Governments (SANDAG)	Floodplain Management Association	San Luis Rey Watershed Council
	City of Solana Beach	San Diego Chamber of Commerce	Friends of Santee's River Park	San Pasqual Band of Dieguено Mission Indians
	City of Vista	San Diego County Air Pollution Control District	Friends of Loma Alta Creek**	SDSU Center for Regional Sustainability
	County of San Diego	San Diego County Flood Control District	Friends of Mission Valley Preserve**	SDSU Department of Geography
	Cuyamaca Water District	San Diego County Water Authority	Friends of Rose Canyon**	Sierra Club**
	Descanso Community Services District	San Diego County Regional Airport Authority	Friends of Rose Creek**	Solana Center**
	East Otay Mesa Sewer MD	San Diego Gas and Electric	Groundwork San Diego-Chollas Creek*	Southern California Tribal Chairmen's Association
	Encina Wastewater Authority	San Diego Unified Port District	I Love A Clean San Diego	Southern California Wetlands Recovery Project**
	Fairbanks Ranch Community Services District	San Diego Regional Chamber of Commerce	Iipay Nation of Santa Ysabel	Surfrider Foundation San Diego**
	Fallbrook Public Utility District	San Dieguito Water District	Inaja Band of Diegueno Mission Indians of the Inaja and Cosmit Reservation	Sycuan Band of the Kumeyaay Nation
	Farm Bureau of San Diego County	San Elijo Joint Powers Authority	Industrial Environmental Association	The Nature Conservancy**
	Greater San Diego County Resource Conservation District	Santa Fe Irrigation District	Iron Mountain Conservancy**	Tribal Reservation(s)
	Helix Water District	South Bay Irrigation District	Jacobs Center for Neighborhood Innovation	Trust for Public Land**
	Julian Community Services District	Spring Valley Sanitation District	Jamul Indian Village	UC Cooperative Extension – San Diego County Farm & Home
	Julian Sanitation District	Sweetwater Authority	Kumeyaay Diegueno Land Conservancy**	Universities (UCSD, SDSU, USD, etc.)
	Lakeside Water District	Vallecitos County Water District	La Jolla Band of Luiseño Indians	UCSD Clean Water Utility
	Lakeside Sanitation District	Valley Center Municipal Water District	La Posta Band of Diegueno Mission Indians	Upper San Luis Rey Resource Conservation District
	Leucadia Wastewater District	Valley Center Parks and Recreation District	Lakeside River Park Conservancy**	Viejas Group of Capitan Grande Band of Mission Indians
	Majestic Pines Community Services District	Vista Irrigation District	Los Coyotes Band of Cahuilla and Cupeno Indians	WildCoast**
	Morro Hills Community Services District	Whispering Palms Community Services District	Los Peñasquitos Lagoon Foundation**	Winter Gardens Sewer MD
	Metropolitan Water District of Southern California	Wynola Water District	Manzanita Band of Diegueno Mission Indians	Zoological Society of San Diego
		Yuima Municipal Water District	Mesa Grande Band of Diegueno Mission Indians	

*Includes disadvantaged communities (DAC) representative
** Non-profit organization

TABLE 2-4
LIST OF RAC MEETING ATTENDEES FOR SWRP

October 5, 2016	December 7, 2016
RAC Members	RAC Members
Lan Wiborg, City of San Diego (chair)	George Adrian, City of San Diego (chair)
Amanda Loeper for Kimberly O'Connell, UC San Diego Clean Water	Alex Yescas for Mike Seits, Floodplain Management Association
Ann Van Leer, Escondido Creek Conservancy	Ann Van Leer, Escondido Creek Conservancy
Arne Sandvik for Albert Lau, Padre Dam	Bob Kennedy, Otay Water District
Bill Hunter, Santa Fe Irrigation District	Brian Olney, Helix Water District
Bob Kennedy, Otay Water District	Chris Helmer, City of Imperial Beach
Brian Olney, Helix Water District	Crystal Najera, City of Encinitas
Chris Helmer, City of Imperial Beach	Greg Thomas, Rincon del Diablo Municipal Water District
Chris Roesink for Patrick Crais, California Landscape Contractors Association	Jennifer Hazard for Olga Morales, RCAC
Crystal Najera, City of Encinitas (and alternate Ligeia Heagy, Carlsbad Municipal Water District)	Jennifer Sabine, Sweetwater Authority
Greg Thomas, Rincon del Diablo Municipal Water District	Jona Lee for Jack Simes, U.S. Bureau of Reclamation
Jack Simes, U.S. Bureau of Reclamation	Joey Randall for Kimberly Thorner, Olivenhain Municipal Water District
Jennifer Hazard, Alter Terra	John Flores, San Pasqual Band of Mission Indians (and alternate Rob Roy, La Jolla Band of Indians)
Joey Randall for Kimberly Thorner, Olivenhain Municipal Water District	Kelly Craig for Robyn Badger, Zoological Society of San Diego
John Flores, San Pasqual Band of Mission Indians (and alternate Rob Roy, La Jolla Band of Indians)	Kimberly O'Connell, University of California – San Diego Clean Water
Kristin Kuhn for Travis Pritchard, San Diego Coastkeeper	Leigh Johnson, University of California Cooperative Extension Michael McSweeney (and alternate S. Wayne Rosenbaum), Building Industry Association
Lauma Willis, Department of Water Resources – Southern Region Office	Mike Thornton, SEJPA
Leigh Johnson, University of California Cooperative Extension	Oscar Romo for Jennifer Hazard, University of California – San Diego
Mark Stadler for Toby Roy, San Diego County Water Authority	Patrick Crais, California Landscape Contractors Association
Marilyn Thoms, County of Orange	Phil Pryde, San Diego River Park Foundation
Michael McSweeney, Building Industry Association	Ronald Wootton, Buena Vista Lagoon Foundation
Mike Thornton, SEJPA	Sarah Pierce, San Diego Association of Governments
Pablo Figueroa for Olga Morales, RCAC	Stephanie Gaines for Ramin Abidi, County of San Diego
Phil Pryde, San Diego River Park Foundation	Toby Roy (and alternate Mark Stadler), San Diego County Water Authority
Ramin Abidi, County of San Diego	Travis Pritchard, San Diego Coastkeeper
Sarah Pierce, San Diego Association of Governments	
RWMG Staff and Consultants	RWMG Staff and Consultants
Andrew Funk, City of San Diego	Andrew Funk, City of San Diego
Crystal Benham, RMC Water and Environment	Goldy Herbon, San Diego County Water Authority
Goldy Herbon, City of San Diego	Jen Sajor, RMC Water and Environment
Loisa Burton, San Diego County Water Authority	Loisa Burton, San Diego County Water Authority
Mark Stephens, City of San Diego	Mark Stephens, City of San Diego
Rosalyn Prickett, RMC Water and Environment	Rosalyn Prickett, RMC Water and Environment
Sally Johnson, RMC Water and Environment	Ruth Kolb, City of San Diego
Stephanie Gaines, County of San Diego	Sally Johnson, RMC Water and Environment
Interested Parties to the RAC	Interested Parties to the RAC
Alex Heide, City of Poway	David Pohl, ESA
Amanda Sousa, San Diego Housing Commission	Michelle Berens, Helix Water District
Antonia Estevez-Olea, LWA	Antonia Estevez-Olea, Larry Walker Associates
Bryn Evans, Dudek	Boushra Salem, City of Chula Vista
Boushra Salem, City of Chula Vista	Maria Margarita Borja, City of San Diego
Chiara Clemente, Regional Water Quality Control Board - Region 9	Hengameh Maher, City of San Diego
David Pohl, ESA	Dawnn Jackson, City of San Diego
Doug Thomsen, City of San Diego	Michelle Huynh, City of San Diego
George Wilkins, San Luis Rey Watershed Council and La Jolla Tribe	Roshan Christoph, Amec Foster Wheeler
Heidi Brow, Pala Tribe	Roberto Yano, JPA/SD Metro
Helen Davies, City of Escondido	Tony Hancock, Brown & Caldwell
Jana Vierola, San Diego County Water Authority	Martha Davis, City of San Diego
Janice Duvall, San Diego County Office of Education	Malik Tamimi, City of La Mesa
Lisa Skutecki, Brown and Caldwell	Cat Rom, City of San Diego
Maria Margarita Borja, City of San Diego	Jennifer Carroll, City of San Diego
Marsha Westropp, Orange County Water District	Lindsey Sheehan, ESA
Martha Davis, City of San Diego	Ruth de la Rosa, County of San Diego
Mo Lahsaie, City of Oceanside	Amanda Sousa, San Diego Housing Commission
Nathan White, City of San Diego	Matt Widelski, City of Encinitas
Ray Teran, Viejas Band of Kumeyaay Indians	Anne Bamford, IEA
Ruth de la Rosa, County of San Diego	Lois Yum, City of San Diego
	Kyrsten Rosenthal, City of San Diego

2.3 Storm Water and Dry Weather Runoff Management Objectives

Storm water and dry weather runoff management objectives were addressed through stakeholder involvement for each WMA Copermittee WQIP process. The WQIPs specifically address the issue of storm water and dry weather runoff management objectives as they relate to water quality, pollutant load reduction, and elimination of non-storm-water flows from the MS4 permits (these objectives are discussed in Section 5.3). The WQIPs were required to address storm water and dry weather flow management. Therefore, the groups and stakeholders involved in the development of the WQIPs are part of the coordination for the SWRP development and implementation. Stakeholders included those defined by Phase I and Phase II programs of the MS4 program. Phase I stakeholders include Copermittees, whereas Phase II stakeholders typically include public institutions, military bases, public campuses, prison and hospital complexes, etc. Phase I stakeholders that participated in each Copermittee WMA WQIP are included in Table 2-5 below. Examples of WQIP Phase II stakeholders include but are not limited to: San Diego County Fairgrounds, University of California, Veterans Administration San Diego Healthcare System, North County Transit District, and Marine Corps Air Station Miramar.

TABLE 2-5
STAKEHOLDERS INVOLVED IN WQIP PROCESS

Watershed Management Area	Stakeholders/Participating Agencies
Santa Margarita River	City of Menifee City of Murrieta City of Temecula City of Wildomar County of San Diego Riverside County Flood Control and Water Conservation District
San Luis Rey River	California Department of Transportation (Caltrans) City of Oceanside City of Vista County of San Diego
Carlsbad	City of Carlsbad City of Encinitas City of Escondido City of Oceanside City of San Marcos City of Solana Beach City of Vista County of San Diego
San Dieguito River	City of Del Mar City of Escondido City of Poway City of San Diego City of Solana Beach County of San Diego

Watershed Management Area	Stakeholders/Participating Agencies
Los Peñasquitos	Caltrans City of Del Mar City of Poway City of San Diego County of San Diego
Mission Bay	Caltrans City of San Diego
San Diego River	Caltrans City of El Cajon City of La Mesa City of San Diego City of Santee County of San Diego
San Diego Bay	Caltrans City of Chula Vista City of Coronado City of Imperial Beach City of La Mesa City of Lemon Grove City of National City City of San Diego County of San Diego San Diego County Regional Airport Authority San Diego Unified Port District (Port of San Diego)
Tijuana River	City of Imperial Beach City of San Diego County of San Diego

2.4 Required Decisions That Must Be Made By Local, State, or Federal Regulatory Agencies for Plan Implementation

2.4.1 SWRP Development, Implementation, and Updates

At the local level, the SWRP ad hoc working group is responsible for leading the development of the SWRP and continued adaptive management of the SWRP. The SWRP ad hoc working group reviewed and commented on the draft versions of the SWRP and confirmed that comments and input from the stakeholder workshops were addressed as applicable. The draft SWRP was made available to the Copermittees for review and input prior to plan finalization. The overall development of the SWRP was a coordinated effort of the Copermittees that was led by the SWRP ad hoc working group. The implementation of the SWRP that includes coordinating the submission of projects as part of the IRWM Online Project Tracking and Integration (OPTI) web-site will be coordinated through the IRWM program.

2.4.2 SWRP Adoption

As the Lead Agency for the development of the SWRP on behalf of the Copermittees, the County of San Diego will adopt the plan. It is recommended that each watershed jurisdiction adopt the SWRP as well, but this is not required.

Chapter 6 of the IRWM Plan describes how the IRWM Program's governance structure has evolved over time to best implement the Plan recommendations. Coordination between local governmental agencies is a pillar of the IRWM planning process. Significant updates or amendments to the IRWM Plan (including adoption of the SWRP by the San Diego Region's RWMG), will potentially require the agencies that comprise the RWMG to re-adopt the IRWM Plan. Therefore, upon conclusion of the SWRP and after information from the SWRP is incorporated into the San Diego IRWM Plan during a 2017 update, the RWMG agencies will need to re-adopt the IRWM Plan.

2.4.3 Regional MS4 Permit Compliance

The SDRWQCB regulates discharges from Phase I MS4s in the San Diego Region under the Regional MS4 Permit. The Regional MS4 Permit covers 38 municipal, county government, and special district entities (referred to jointly as Copermittees) located in San Diego County, southern Orange County, and southwestern Riverside County who own and operate large MS4s that discharge storm water (wet weather) runoff and non-storm water (dry weather) runoff to surface waters throughout the San Diego Region. Each Copermittee has a memorandum of understanding with cooperating agencies within the region to ensure collaboration of WQIP implementation.

2.4.4 Project Monitoring and Reporting

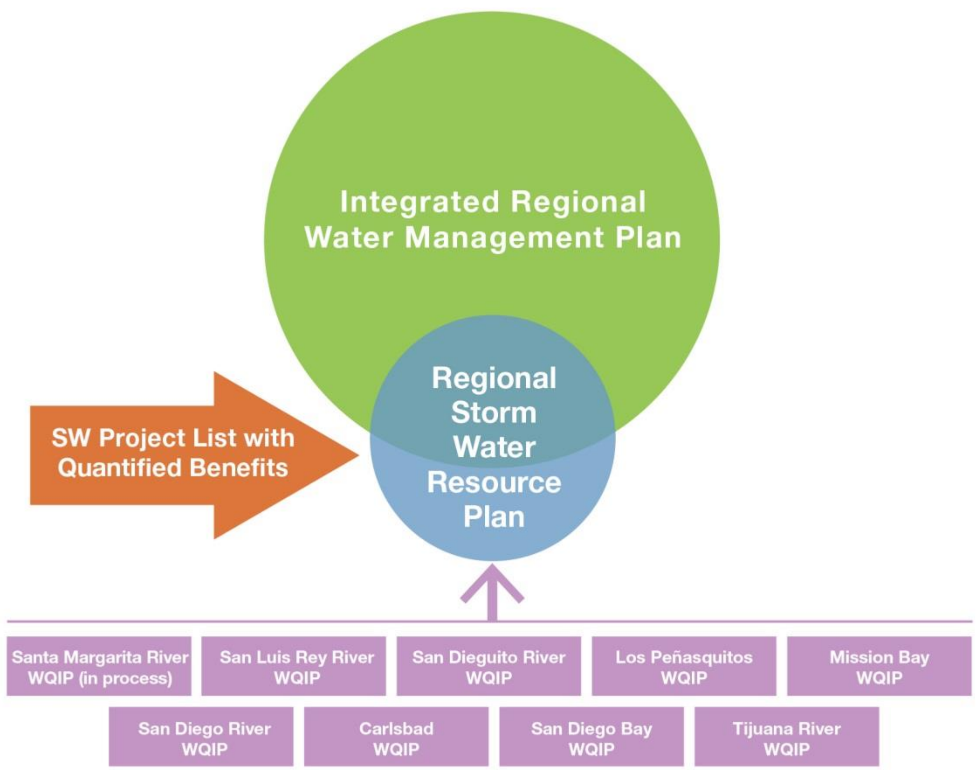
The monitoring and visualization requirements under the SWRP will be implemented and reported based on the individual project metrics and monitoring plan. The project applicant will be responsible for ensuring that monitoring is being conducted and reported in accordance with the grant agreement so that the project's metrics for success are met. The monitoring and reporting will depend on the type of project and grant requirements, which vary between programs. For those projects that are funded through SWRCB Prop 1 Storm Water Grant Program and DWR's IRWM Grant Program, regional projects may be overseen through a regional monitoring program under existing cooperative agreements. Applicants will be responsible for uploading to the designated state database the data generated to address the monitoring and visualization requirements.

2.5 Relationship to Other Plans

As described in Chapter 1, this SWRP is consistent with regional and local water plans, such as the WQIPs for each watershed in the region, and the IRWM Plan.

The goal of the WQIPs is to further the Clean Water Act's objective to protect, preserve, enhance, and restore water quality and beneficial uses. By prioritizing and addressing water quality conditions that are influenced by storm drain discharges, the participating agencies and stakeholders for each watershed are able to utilize key resources to address the most important issues.

The San Diego IRWM Program is an "umbrella" planning process that consolidates and synthesizes information from existing processes throughout the IRWM Region. The IRWM Plan is consistent with other regional and local plans developed by Metropolitan Water District of Southern California, the San Diego Water Authority, and local agencies, and incorporates goals and elements of these individual plans. Chapter 10 of the IRWM Plan provides detailed information about the planning documents that were used as the basis of information within the IRWM Plan. The SWRP brings together regional planning on storm water management, and will be incorporated into the IRWM Plan to fulfill this need. SWRP projects with information in the OPTI online system are included in IRWM planning by virtue of being in the online database. The San Diego IRWM Plan will be amended in 2017 to include additional information about the SWRP and coordination between the SWRP and IRWM activities, and will also address new requirements from the DWR that were issued in 2016.



NOTE: SW = Storm water

SWRP . 160618

Figure 2-1
SWRP Relationship to Other Plans

CHAPTER 3

Watershed Identification (SWRP Guidelines Section VI.A)

SWRP Checklist Guidelines

- ☒ Plan identifies watershed and subwatershed(s) for storm water resource planning
- ☒ 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.
- ☒ 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.
- ☒ 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).
- ☒ 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).
- ☒ 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).
- ☒ Plan describes the local entity or entities that provide potable water supplies and the estimated volume of potable water provided by the water suppliers.
- ☒ Plan includes map(s) showing location of native habitats, creeks, lakes, rivers, parks, and other natural or open space within the sub-watershed boundaries.
- ☒ Plan identifies (quantitative, if possible) the natural watershed processes that occur within the sub-watershed and a description of how those processes have been disrupted.

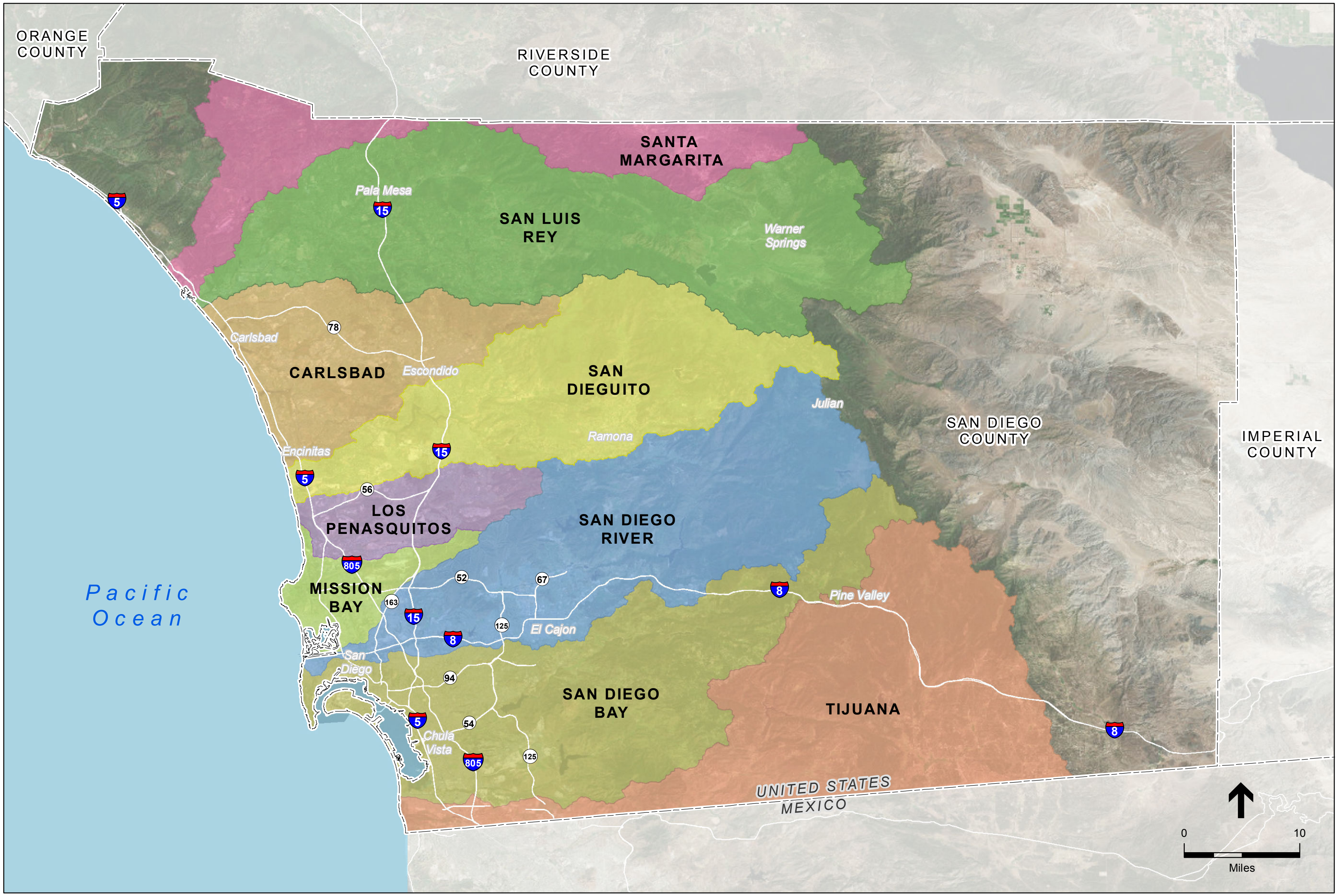
The SWRP addresses nine WMAs within San Diego County (Figure 3-1). The WMAs are defined by the Municipal Storm Water Permit Order 2001-01. Table 3-1 shows the hydrologic units (HUs) and hydrologic areas (HAs) that comprise each watershed management area. The San Juan WMA was not included in this document since the portion of the watershed in San Diego County is within federal jurisdiction at Camp Pendleton.

As described in Chapter 3.2 of the IRWM Plan, the WMAs are appropriate for watershed management because they take into account Regional Board jurisdiction, political jurisdictions, physical and hydrologic characteristics, the imported water supply service area, and wastewater service considerations. Each of the watershed management areas flows from higher elevations in the east, to coastal waters (e.g., lagoons, estuaries, bays) in the west. They all see seasonal surface flow from rain events in the winter and spring months and are much drier in the summer, with irrigation and urban and agricultural runoff dominating the surface flows.

This section provides the current WMA conditions and priorities based on the current WQIPs as background to the rest of this document. As water quality conditions and priorities may change in the future, including updates to the State 303d list, the WQIPs will be updated in accordance with the MS4 Permit. As future listing in the SWRP requires identification of a project's prioritization in the most current WQIP for project with water quality benefits, updates to priority water quality conditions and goals will be reflected in SWRP listed projects.

TABLE 3-1
WATERSHED MANAGEMENT AREAS

Hydrologic Unit(s)	Hydrologic Areas	Watershed Management Area
Santa Margarita (902.00)	Ysidora (902.10) De Luz (902.20) Pechanga (902.50) Aguanga (902.80) Oakgrove (902.90)	Santa Margarita River
San Luis Rey (903.00)	Lower San Luis Rey (903.10) Monserate (903.20) Warner Valley (903.30)	San Luis Rey River
Carlsbad (904.00)	Loma Alta (904.10) Buena Vista Creek (904.20) Agua Hedionda (904.30) Encinas (904.40) San Marcos (904.50) Escondido Creek (904.60)	Carlsbad
San Dieguito (905.00)	Solana Beach (905.10) Hodges (905.20) San Pasqual (905.30) Santa Maria Valley (905.40) Santa Ysabel (905.50)	San Dieguito River
Peñasquitos (906.00)	Miramar Reservoir (906.10) Poway (906.20) Scripps (906.30)	Los Peñasquitos
Peñasquitos (906.00)	Miramar (906.40) Tecolote (906.50) Vacation Isle (906.60) Fiesta Island (906.70) Mission Bay (906.80)	Mission Bay
San Diego (907.00)	Lower San Diego (907.10) San Vicente (907.20) El Capitan (907.30) Boulder Creek (907.40)	San Diego River
Pueblo San Diego (908.00)	Point Loma (908.10) San Diego Mesa (908.20) National City (908.30)	
Sweetwater (909.00)	Lower Sweetwater (909.10) Middle Sweetwater (909.20) Upper Sweetwater (909.30)	San Diego Bay
Otay (910.00)	Coronado (910.10) Otay (910.20) Dulzura (910.30)	
Tijuana (911.00)	Tijuana Valley (911.10) Potrero (911.20) Barrett Lake (911.30) Monument (911.40) Morena (911.50) Cottonwood (911.60) Cameron (911.70) Campo (911.80)	Tijuana River



SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

Figure 3-1

San Diego County Watershed Management Areas

3.1 Santa Margarita River

3.1.1 Santa Margarita River Watershed Management Area Description

The Santa Margarita River WMA (HU 902.00) is the largest WMA assessed in the SWRP, encompassing 494,396 acres, with approximately 75 percent of the watershed lying in Riverside County and the remaining 25 percent in the northern portion of San Diego County. The County of San Diego is the sole San Diego Region Copermittee with land jurisdiction in the Santa Margarita River WMA (Figure 3-2).

The WMA extends from the Palomar Range in the northeast, to the Santa Margarita Lagoon along the coast, and consists of nine HAs, five of which are in San Diego County: Ysidora (902.10), De Luz (902.20), Pechanga (902.50), Aguanga (902.80), and Oak Grove (902.90). These HAs are also broken down into 33 hydrologic subareas (HSAs), 15 of which are in San Diego County. The HUs and Areas for the Santa Margarita River WMA are shown in a map provided in Figure 3-3. This SWRP covers only the portion of Santa Margarita River WMA that is within San Diego County and not the portions that extend into Riverside County.

The Santa Margarita River WMA consists of a single major drainage, the Santa Margarita River, which is fed by several smaller tributaries, including De Luz, Sandia, and Rainbow Creeks in San Diego County (Figure 3-4).

3.1.2 Land Use

Land use within the full Santa Margarita River WMA (both San Diego and Riverside Counties) is classified primarily as undeveloped (61 percent). Other land use classifications include residential (10 percent), agriculture (9 percent), military (8 percent), and open space/parks and recreation (7 percent). Commercial, industrial, public facility, transportation, under construction, and water land uses each make up less than 2 percent of the remaining land use acreage (Weston, 2012).

Figure 3-5 shows the division of land by agency, including the Camp Pendleton Marine Corps Base and Falbrook Naval Weapons Station, which occupy approximately 8 percent of the watershed area in the southwestern portion of the watershed. Two tribal nations live within the WMA as well: the Pechanga Reservation and the Pauma and Yuima Reservation. Additionally, portions of the WMA are managed as the Cleveland National Forest and by the Bureau of Land Management (BLM).

3.1.3 Water Quality

3.1.3.1 Applicable TMDLs and Special Biological Habitats

Santa Margarita River WMA TMDLs

TMDLs identify the total pollutant loading that a receiving water can accept and still meet water quality standards. The Regional Board is required to develop TMDLs or follow an alternative regulatory process to address 303(d) listed impairments. Since the 2006 SWRCB Section 303(d) list was published, several pollutants/stressors to the Santa Margarita River WMA water bodies have been delisted. These include Sandia Creek (manganese and nitrogen), Temecula Creek (nitrogen), and Long Canyon Creek (total dissolved solids (TDS)).

On February 9, 2005 the San Diego Regional Water Quality Control Board (SDRWQCB) adopted Resolution No. R9-2005-0036, an Amendment to the Water Quality Control Plan for the San Diego Basin to Incorporate TMDLs for Total Nitrogen and Total Phosphorus in the Rainbow Creek Watershed. The TMDLs for total nitrogen and total phosphorus discharges into Rainbow Creek were calculated to be 1,658 and 165 kilograms per year, respectively. Attainment of these targets requires a 74 percent reduction in total nitrogen loading and an 85 percent reduction in total phosphorus loading from the watershed. The TMDL was approved by the SWRCB in November 2005 and by the United States Environmental Protection Agency (USEPA) on March 22, 2006, and it became effective under state law on February 1, 2006, the date of Office of Administrative Law approval (Weston, 2012).

The Santa Margarita Lagoon was studied in response to Investigation Order R9-2006-076. The TMDL for this lagoon is scheduled to be completed by January of 2019. Additionally, this lagoon was assessed as part of Bight ’08 Regional Study using the sediment quality objective assessment. A nutrient management plan is under development for the lagoon.

TABLE 3-2
TMDLS IN THE SANTA MARGARITA RIVER WMA

Sub Watershed	Water Body Name	Pollutant	Adoption Date
Santa Margarita HU	Rainbow Creek	Nitrogen and Phosphorus	February 9, 2005
Santa Margarita HU	Santa Margarita Lagoon	Nutrients/Eutrophication	In Progress

3.1.3.2 Priority Water Quality Conditions

The WQIP for the Santa Margarita River WMA is currently under development. Priority and high priority water quality conditions for this WMA have not yet been identified through the WQIP process. Potential environmental water quality issues in the Santa Margarita River WMA include surface water and groundwater quality degradation, habitat loss, invasive species, and channel bed erosion (San Diego County, 2009). The 2010 SWRCB Section 303(d) list was adopted by the SWRCB on August 4, 2010, and was finalized by the USEPA on October 11, 2011. The several step process for identifying priority and high priority water quality conditions include review of the SWRCB Section 303d listings and the TMDLs approved or planned for impaired segments of the receiving waters (Section 3.1.3.1).

The upper portion of the watershed in Riverside County has been under continuous development, and pollutants/stressors within the watershed include eutrophic conditions, nutrients, pathogens, salinity, pesticides, metals/metalloids, toxicity, and other inorganics. Potential sources of these contaminants include urban runoff/storm sewers, agriculture/nurseries, septic tanks, natural sources, flow regulation/modification, and unknown point and nonpoint sources (SWRCB, 2010).

In addition to SWRCB Section 303(d) listings and TMDLs (Section 3.1.3.1), the results of the Copermittees annual water quality monitoring program and the 2011 Long Term Effectiveness Assessment (LTEA) (Weston, 2011) are also used in the development of the priority and high priority water quality conditions. These results include linkages between MS4 outfall water quality and potential contributions to recovering water quality. The results of annual monitoring and the LTEA have indicated the following linkages and water quality priorities for dry weather and wet weather water conditions:

- Dry Weather Flows
  - Nutrients, indicator bacteria, TDS, sulfate, and pH were identified as medium and high-priority constituents in dry weather MS4 flows.
  - Within the annual monitoring program monitored drainage area, nutrients (nitrate as N, nitrate/nitrite as N, total nitrogen, and total phosphorus) and TDS were identified as high priorities and indicator bacteria (fecal coliform and Enterococcus) was identified as a medium priority constituent in two MS4 outfalls during dry weather.
  - These results are consistent with historical data.
- Wet Weather Flows
  - The indicator bacteria fecal coliform, TDS, and TSS were identified as medium or high-priority constituents in wet weather MS4 flows.
  - Within the annual monitoring program monitored drainage area, fecal coliform and TDS were identified as high priority constituents in one MS4 outfall during wet weather.
  - These results are consistent with historical data.

These results with the Section 303(d) listing and TMDLs will be used to develop priority and high priority water quality conditions in the WQIP. Until the WQIP is finalized, the above water quality priorities may be used to identify and prioritize water quality opportunities in the Santa Margarita River WMA.

3.1.4 Water Resources and Systems

The San Diego County portion of the Santa Margarita River WMA lies within the jurisdiction of the San Diego County Water Authority, which in 2015, provided the following imported water supplies to its member agencies located in the watershed: 8,000 acre feet (AF) to Camp Pendleton U.S. Marine Corps (USMC) Base, 26,400 AF to The City of Oceanside, 12,300 AF to Fallbrook Public Utilities District (PUD), and 20,200 AF to Rainbow Municipal Water District (SDCWA, 2015). Those agencies also function as wastewater agencies within the watershed. (Figure 3-6). In addition, localized groundwater pumping and surface water diversions from the Santa Margarita River provide water supplies to Camp Pendleton and the unincorporated community of De Luz.). The City of Oceanside treats up to 25 million gallons per day of water received from the SDCWA and up 6 million gallons per day of local brackish groundwater from the Mission Basin (City of Oceanside, 2017).The Rainbow MWD produces approximately 20,000 AF of water to serve its customers each year (Rainbow Water District, 2017).

Groundwater supplies are sourced from the Santa Margarita Valley Groundwater Basin (Figure 3-4) (California Department of Water Resources (DWR), 2004m). Well yields in the basin range from 200 to 1,980 gallons per minute (gpm). Natural recharge of the alluvial aquifer is primarily from percolation in the Santa Margarita River, with smaller amounts contributed by infiltration of precipitation falling to the valley floor. The total storage capacity of the basin is estimated to be 61,600 AF. Groundwater in this basin is mainly sodium chloride in character, but sodium bicarbonate is also present. TDS concentrations ranged from 337 to 9,030 mg/L in 1956. Groundwater in the northwestern part of the basin is largely suitable for domestic and irrigation uses (DWR, 2004m). Groundwater in the southwestern part of the basin is marginal to inferior for domestic and irrigation uses. Magnesium, sulfate, chloride, nitrate, and TDS concentrations are locally high for domestic use; whereas, chloride, boron, and TDS concentrations are locally high for irrigation use (DWR, 2004m). The Pauma Reservation uses groundwater wells on reservation lands (Rancho California Water District (RCWD), 2007).

3.1.5 Natural Resources

Figure 3-7 shows the parks and open space within the portion of the Santa Margarita River WMA located in San Diego County, including the Santa Margarita Preserve.

The Santa Margarita River is the longest free flowing, un-dammed river in Southern California and has largely escaped the development common to the region. It supports the largest populations of seven federally or state-listed endangered species (County of San Diego, 2008). Habitats within the Santa Margarita River WMA include chaparral, riparian woodlands, coastal marshes, oak woodlands, and montane habitats. The portion of the Santa Margarita River WMA located in San Diego County provides critical habitat for 8 species, including Thread-Leaved brodiaea, Least Bell’s vireo, San Diego fairy shrimp, Spreading navarretia, Arroyo Southwestern toad, Laguna Mountains skipper, and the Southwestern willow flycatcher, and the Western Snowy plover (Figure 3-7).

3.1.6 Watershed Processes

Despite its comparatively good condition, the Santa Margarita River WMA has been impacted by historic and current agricultural uses, as well as residential, commercial, and industrial development. The 2008 Santa Margarita Watershed Urban Runoff Management Plan (WURMP) (San Diego County, 2008a) focuses on reducing urban runoff and water quality concerns associated with urban runoff. Additionally, the WURMP (San Diego County, 2008a) noted that upstream channelization and other flood management efforts can lead to increased sedimentation downstream following a storm event. Since the Santa Margarita watershed spans two counties, cross-jurisdictional management is key to maintaining the existing quality of the watershed.

3.2 San Luis Rey River

3.2.1 San Luis Rey Watershed Management Area Description

The San Luis Rey River WMA (HU 903.00) encompasses 358,927 acres, which is the second largest WMA in the San Diego Region. Most of the WMA consists of County lands, with portions of Oceanside, and Vista, near the coast (Figure 3-8). The watershed extends from the Palomar and Hot Springs Mountains, as well as several other mountain ranges along the Anza Borrego Desert Park, to the Pacific Ocean in Oceanside. The San Luis Rey River WMA consists of three HAs: Lower San Luis Rey (903.10), Monserate (903.20), and Warner Valley (903.30) (Figure 3-9). These HAs are comprised of 11 HSAs.

The San Luis Rey River WMA consists of a single major drainage, the San Luis Rey River, which is fed by many smaller tributaries (Figure 3-10).

3.2.2 Land Use

Land use within the San Luis Rey River WMA is classified primarily as undeveloped (53 percent). Other land use classifications include residential (16 percent), agriculture (14 percent), parks (9 percent), military (3 percent), and transportation (2 percent). Commercial recreation, commercial, industrial, public facility, and water land uses each make up 1 percent or less of the land use acreage (Weston, 2012).

Figure 3-11 shows the division of land by agency, including a portion of the Camp Pendleton Marine Corps Base. Multiple tribal nations live within the WMA as well, including the Pauma and Yuima, Pala, Rincon, San Pasqual, La Jolla, Los Coyotes, and Santa Ysabel. Additionally, portions of the WMA are managed as the Cleveland National Forest and by the BLM, including BLM Lands and National BLM conservation areas.

3.2.3 Water Quality

3.2.3.1 Applicable TMDLs and Special Biological Habitats

San Luis Rey River WMA TMDLs

There is one TMDL for bacteria that has been adopted regionally and applies to receiving waters within the San Luis Rey River WMA—the Revised TMDL for Indicator Bacteria, Project 1—Twenty Beaches and Creeks in the San Diego Region. The receiving waters covered by the Bacteria TMDL are summarized in Table 3-3. There are no other TMDLs affecting the watershed that are currently in development by the Water Board.

TABLE 3-3
TMDLS IN THE SAN LUIS REY RIVER WMA

Sub Watershed	Water Body Name	Pollutant	Adoption Date
Lower San Luis HA	Pacific Ocean Shoreline at San Luis Rey River mouth	• Total Coliform • Fecal Coliform	February 10, 2010

	• Enterococcus

SOURCE: LWA, 2016a

Special Biological Habitats

Biological habitats of special significance are areas designated with the BIOL beneficial use. In the San Luis Rey River WMA, the following water bodies and areas are of special significance and can be classified as impaired for BIOL beneficial use:

- Pilgrim Creek
- San Luis Rey River
- Plaisted Creek

3.2.3.2 Priority Water Quality Conditions

The San Luis Rey River WMA WQIP (Larry Walker Associates (LWA), 2016a) provides a detailed description of the process for determining the Priority Water Quality Conditions for this WMA. The WQIP identified receiving water conditions and impacts from MS4 discharges to assess and develop a list of priority water quality conditions. An initial list of priority water quality conditions was developed and then compared with the public input that was provided during the October 7, 2013 workshop and the public data call. The priorities identified in previous planning documents were also considered. Many of the same concerns were provided during the workshop and were evident in the third-party data. Finally, the overall potential for improvement of MS4 discharges to affect conditions within the overall WMA was considered. The list of priority water quality conditions was then finalized on the basis of these factors. The final list of priority water quality conditions is presented in Table 3-4.

TABLE 3-4
PRIORITY WATER QUALITY CONDITIONS IN THE SAN LUIS REY RIVER WMA

Condition	Dry Weather	Wet Weather
Priority Water Quality Conditions	• Nitrogen and Phosphorus • Eutrophic Conditions • Total Dissolved Solids • Index of Biotic Integrity • Chloride • Toxicity	• Nitrogen and Phosphorus • Total Dissolved Solids • Toxicity

SOURCE: LWA, 2016a

3.2.3.3 Highest Priority Water Quality Conditions

The San Luis Rey River WMA WQIP (LWA, 2016a) provides the details of the process that assessed and identified the Highest Priority Water Quality Conditions based on the list of priority water quality conditions presented above in Table 3-4. The MS4 Permit provides the

Copermittees with the discretion to justify the highest priority water quality conditions for program development and implementation on the basis of a number of factors, including the potential to improve watershed health, available resources, and best professional judgment.

According to the methodology, the highest priority water quality conditions are priority water quality conditions that either (1) are associated with a TMDL, Areas of Special Biological Significance (ASBS) requirements, or other water quality regulations, or (2) have been elevated to highest priority on the basis of an evaluation of additional selection criteria. Based on this assessment, the WQIP (LWA, 2016a) identified the impairment (by bacteria) of water contact recreation beneficial use (REC-1) at the Pacific Ocean Shoreline, at the San Luis Rey River mouth and also in the Lower San Luis Rey River (west of Interstate 15) as the highest priority water quality conditions (Table 3-5).

TABLE 3-5
HIGHEST PRIORITY WATER QUALITY CONDITIONS IN THE SAN LUIS REY RIVER WMA

Condition	Dry Weather	Wet Weather
Highest Priority Water Quality Conditions	• Bacteria at San Luis Rey River mouth • Bacteria in lower San Luis Rey River	• Bacteria at San Luis Rey River mouth • Bacteria in lower San Luis Rey River

SOURCE: LWA, 2016a

Priority water quality conditions not associated with regulatory drivers were further considered for elevation to a highest priority on the basis of four additional factors:

(1) The supporting data set is sufficient to adequately characterize the degree to which the priority water quality condition changes seasonally, and over the geographic area, to support its consideration as a highest priority water quality condition.

(2) Storm water/non-storm-water runoff is a predominant source for the priority water quality condition.

(3) The priority water quality condition is controllable by the Responsible Agencies.

(4) The priority water quality condition would not be addressed by strategies identified for other highest priority water quality conditions in this Water Quality Improvement Plan.

This analysis is presented in the San Luis Rey River WMA WQIP (LWA, 2016a) and determined that most of the priority water quality conditions will be addressed by strategies applicable to the highest priority water quality conditions, which justifies not elevating these conditions to highest priority.

3.2.4 Water Resources and Systems

The San Luis Rey River WMA lies within the jurisdiction of the San Diego County Water Authority. The SDCWA provides water to the following agencies located in the San Luis Rey River WMA: City of Oceanside (26,400 AF annually), Vista Irrigation District (ID) (17,800 AF), Vallecitos Water District (15,300 AF), Valley Center MWD (26,000 AF), Fallbrook PUD (12,300

AF), Rainbow MWD (20,200 AF), and Yuima MWD (4,900 AF) (SDCWA, 2015) (Figure 3-12). In addition, a small portion of the Camp Pendleton USMC Base is located within the San Luis Rey River WMA; the USMC is responsible for providing water services within Camp Pendleton. In addition, three of the tribal nations located within the San Luis Rey Watershed have regulated Public Water Systems that supply water to their respective reservations, including the Pala, La Jolla, and San Pasqual reservations. The Rincon reservation purchases raw water from Escondido and the Vista ID, and the San Pasqual reservation purchases treated water from Valley Center MWD.

There are two water supply reservoirs in the San Luis Rey Watershed (Figure 3-10):

- Lake Henshaw, owned by Vista ID, can store up to 56,000 AF of surface water
- Turner Reservoir, owned by Valley Center MWD, can store up to 2,800 AF of surface water

Wastewater agencies within the San Luis Rey River WMA include the City of Oceanside, Fallbrook PUD, the Valley Center Community Services District, the City of Vista, the Rainbow Municipal Water District, and the Pauma Valley Community Services District (Figure 3-12). The Pala Band of Mission Indians operates a tertiary wastewater treatment plant that serves most of the buildings located on the Pala Reservation.

Groundwater basins underlying the San Luis Rey Watershed include the San Luis Rey Valley Basin, with an estimated total storage capacity of 240,000 AF (DWR, 1975); Warner Valley Basin, with an estimated total storage capacity of 550,000 AF (DWR, 1975); and Ranchita Town Area Basin, with an unknown estimated storage capacity (Figure 3-10).

In the San Luis Rey Valley Basin, water in this basin is of calcium-bicarbonate, calcium-sulfate-bicarbonate, and calcium-sulfate types, with a TDS content of 530 to 7,060 mg/L, and an average of approximately 1,258 mg/L (DWR, 2004j). Values for total dissolved solids ranged from 960 to 3,090 mg/L in 1983 (Izbicki 1985). Groundwater in the Warner Valley Basin is dominantly sodium bicarbonate in character, though some calcium bicarbonate water is found in the southern part of the basin (DWR 1967). Some sulfate and chloride rich water is found near Warner Hot Springs in the eastern part of the basin (DWR 1967). Analyses of water sampled in the 1960s show a range in TDS content from 168 to 638 mg/L and an average about 304 mg/L (DWR 1967). Water from one public supply well has a TDS content of 263 mg/L. Groundwater is generally rated suitable for irrigation and domestic uses except near Warner Hot Springs, where it is rated inferior for irrigation use because of sodium content and for domestic use because of high fluoride concentrations (DWR 1967). Groundwater extracted from wells in the Ranchita Town Area Groundwater Basin is of sodium bicarbonate character and ranges in TDS content from about 250 to 500 mg/L (DWR 1967). The water is classified as suitable for domestic and irrigation uses (DWR 1967).

Flow down the San Luis Rey River and its tributaries and infiltration of runoff provide the majority of recharge for the basins. Vista ID and the City of Oceanside operate pumps in the Warner Valley and San Luis Rey Valley basins respectively.

3.2.5 Natural Resources

Figure 3-13 shows the parks and open space within the San Luis Rey River WMA, including Guajome Regional Park, San Luis Rey River Park, Keys Creek Preserve, Hellhole Canyon Preserve, Wilderness Gardens Preserve, Mount Olympus Preserve, Palomar Mountain, and Anza-Borrego Desert Park.

Figure 3-13 also shows that the San Luis Rey River WMA provides critical habitats for 7 species, including Thread-Leaved brodiaea, Least Bell's vireo, San Diego fairy shrimp, Spreading navarretia, Arroyo Southwestern toad, Laguna Mountains skipper, and the Southwestern willow flycatcher.

3.2.6 Watershed Processes

Prior to the 1960's, groundwater pumping in the western portion of the watershed led to lowering of groundwater levels, which led to seawater intrusion. Imported water eventually reduced the need to pump groundwater, however, increased development and increased irrigation with imported water has led to increased salt loading in the watershed and decreased groundwater quality.

The damming of the San Luis Rey River with the Henshaw Dam has changed the hydrology of the river. Dams, water diversions, and flood control structures have had severe impacts on steelhead trout populations by cutting off access to upstream spawning and rearing habitats and reducing the flows necessary for trout immigration. Additionally, the Henshaw Dam and channelization of the San Luis Rey River has reduced transport and deposition of sand along the coast. Sand replenishment along the beaches is currently an important issue in the San Luis Rey River WMA.

3.3 Carlsbad

3.3.1 Carlsbad Watershed Management Area Description

The Carlsbad WMA is under the jurisdiction of several cities: Carlsbad, Escondido, San Marcos, Encinitas, Vista, Oceanside, and Solana Beach. The remaining area of the WMA is classified as unincorporated lands under County of San Diego jurisdiction (Figure 3-14). The watershed extends from above the headwaters of Lake Wohlford in the east to the Pacific Ocean in the west.

The Carlsbad WMA HU (904.00) encompasses 135,345 acres and consists of six HAs: Loma Alta (904.10), Buena Vista Creek (904.20), Agua Hedionda (904.30), Encinas (904.40), San Marcos (904.50), and Escondido Creek (904.60) (Figure 3-15).

The Carlsbad WMA contains several major stream systems that are each associated with one of the HAs. The Loma Alta Creek and Encinas Creek drain to the ocean, while Buena Vista Creek and Agua Hedionda Creek drain into their similarly named lagoons. San Marcos Creek drains into Batiquitos Lagoon and Escondido Creek drains into San Elijo Lagoon. The stream systems and other water features within the Carlsbad WMA are shown in Figure 3-16.

3.3.2 Land Use

Land use within the overall Carlsbad WMA is classified primarily as residential (36 percent), followed by open space/parks and recreation (18 percent), undeveloped land (16 percent), transportation (12 percent), agriculture (6 percent), industrial (3 percent), commercial (3 percent), and public facility (3 percent) uses. Commercial recreation, under construction, and water land uses each make up less than 3 percent of the remaining acreage (Weston, 2012).

Figure 3-17 shows the division of land by agency. One tribal nation lives within the WMA on the San Pasqual Reservation. Additionally, a few small areas of the WMA are managed by the BLM in the east of the watershed.

3.3.3 Water Quality

3.3.3.1 Applicable TMDLs and Special Biological Habitats

Carlsbad WMA TMDLs

Two TMDLs have been adopted in the Carlsbad WMA, including the Loma Alta Slough Bacteria TMDL (SDRWQCB, 2014)and the Revised TMDL for Indicator Bacteria, Project 1—Twenty Beaches and Creeks TMDL (SDRWQCB, 2010), which covers the shoreline along the San Marcos HA. Additionally, several lagoons and Agua Hedionda creek are on the Section 303(d) List of Water Quality Limited Segments for water quality impairments due to nutrients/eutrophication, bacteria, sediment/siltation, TDS, or a combination of these pollutants. TMDLs are in progress to address these impairments. The list of TMDLs adopted or in progress for the Carlsbad WMA is presented in Table 3-6.

TABLE 3-6
TMDLS IN THE CARLSBAD WMA

Subwatershed	Water Body Name	Pollutant	TMDL Adoption Date
Loma Alta (904.10)	Loma Alta Slough	Total Coliform Fecal Coliform Enterococcus	June 26, 2014
Loma Alta (904.10)	Loma Alta Slough	Nutrients/Eutrophication	In progress
Loma Alta (904.10)	Pacific Ocean Shoreline at Loma Alta Creek Mouth	Bacteria	In progress
Buena Vista Creek (904.20)	Buena Vista Lagoon	Nutrients/Eutrophication Sedimentation/Siltation Bacteria	In progress
Buena Vista Creek (904.20)	Pacific Ocean Shoreline adjacent to Buena Vista Lagoon	Bacteria	In progress
Agua Hedionda (904.30)	Lower Agua Hedionda Creek	TDS	In progress
San Marcos (904.50)	Pacific Ocean Shoreline	Bacteria	February 10, 2010
Escondido Creek (904.60)	San Elijo Lagoon	Nutrients/Eutrophication Sedimentation/Siltation Bacteria	In progress

Escondido Creek (904.60)	Pacific Ocean Shoreline at San Elijo Lagoon	Bacteria	N/A
SOURCE: MOE, 2014			

Special Biological Habitats

In the Carlsbad WMA, the following water bodies and areas are of special significance and can be classified as impaired for BIOL beneficial use:

Impairment of BIOL:

- Pacific Ocean from Loma Alta HA
- Buena Vista Lagoon and Pacific Ocean from Lower Buena Vista Creek HA
- Agua Hedionda Lagoon, Agua Hedionda Creek, the Pacific Ocean, and Santa Ysabel Creek in the Agua Hedionda HA
- Batiquitos Lagoon and the Pacific Ocean in the Lower San Marcos HA
- San Elijo Lagoon, Escondido Creek, and the Pacific Ocean in the Escondido Creek HA

3.3.3.2 Priority Water Quality Conditions

The Carlsbad WMA WQIP (Mikhail Ogawa Engineering [MOE], 2014) provides a detailed description of the process for determining the Priority Water Quality Conditions for this WMA. The WQIP identified receiving water conditions and impacts from MS4 discharges to assess and develop a list of priority water quality conditions. Priority water quality conditions are defined as receiving water conditions for which there is evidence that MS4 discharges may cause or contribute to the condition. An initial list of priority water quality conditions was developed and then compared with the public input that was provided during the November 2014 and July 2014 public workshops. The priorities identified in previous planning documents were also considered. Many of the same concerns were provided during the workshop and were evident in the third-party data. Finally, the overall potential for improvement of MS4 discharges to affect conditions within the overall WMA was considered. The list of priority water quality conditions was then finalized on the basis of these factors. The final list of priority water quality conditions is presented in Table 3-7.

TABLE 3-7
PRIORITY WATER QUALITY CONDITIONS IN THE CARLSBAD WMA

Water Body	Dry Weather	Wet Weather
All water bodies within the WMA	• Trash	• Trash
All water bodies within the WMA	• Riparian Habitat	• Riparian Habitat
Loma Alta Slough	• Eutrophic • Indicator Bacteria	• Indicator Bacteria
Loma Alta Creek	• Toxicity	
Pacific Ocean Shoreline at Loma Alta Creek Mouth	• Indicator Bacteria	• Indicator Bacteria
Buena Vista Lagoon	• Indicator Bacteria • Sediment/Siltation • Nutrients	• Indicator Bacteria • Sediment/Siltation
Agua Hedionda Creek	• Indicator Bacteria • Nutrients Category	• Indicator Bacteria • Toxicity • Nutrients Category
Buena Creek	• Nitrate and Nitrite	
Pacific Ocean Shoreline at Moonlight Beach	• Indicator Bacteria	• Indicator Bacteria
San Marcos Creek, Lower	• Nutrients	
Encinitas Creek	• Toxicity	
San Marcos Lake	• Nutrients	• Nutrients
San Marcos Creek- Upper	• Nutrients	• Nutrients
San Marcos Creek- Upper below Via Vera Cruz	• Indicator Bacteria	• Indicator Bacteria
Escondido Creek	• Toxicity • Nutrients Category	• Indicator Bacteria • Nutrients Category
San Elijo Lagoon	• Indicator Bacteria • Sediment/Siltation N/A • Eutrophic	• Sediment/Siltation N/A

SOURCE: MOE, 2014

3.3.3.3 Highest Priority Water Quality Conditions

The Carlsbad WMA WQIP (MOE, 2014) presents the process that assessed and identified the Highest Priority Water Quality Conditions based on the list of priority water quality conditions presented above in Table 3-7. The Carlsbad WMA WQIP (MOE, 2014) used a similar method to the San Luis Rey River WMA WQIP (LWA, 2016a) as discussed in Section 3.2.3.3. The highest priority water quality conditions for the Carlsbad WMA are provided in Table 3-8.

TABLE 3-8
HIGHEST PRIORITY WATER QUALITY CONDITIONS IN THE CARLSBAD WMA

Condition	Dry Weather	Wet Weather
Loma Alta Slough	• Bacteria at San Luis Rey River mouth • Bacteria in lower San Luis Rey River	• Bacteria at San Luis Rey River mouth • Bacteria in lower San Luis Rey River
Buena Vista Lagoon	• Nitrogen and Phosphorus • Eutrophic Conditions • Total Dissolved Solids • Index of Biotic Integrity • Chloride • Toxicity	• Nitrogen and Phosphorus • Total Dissolved Solids • Toxicity
Agua Hedionda		
Pacific Ocean Shoreline at Moonlight Beach	• Bacteria	• Bacteria
San Marcos Creek	• Nutrients	• Nutrients
Escondido Creek	• Riparian Habitat Degradation	• Riparian Habitat Degradation

SOURCE: MOE, 2014

3.3.4 Water Resources and Systems

The San Diego County Water Authority supplies water to ten water agencies in the Carlsbad WMA: 22,300 AF to City of Escondido annually, 26,400 AF to City of Oceanside, 20,600 AF to Carlsbad MWD, 22,000 AF to Olivenhain MWD, 5,700 AF to Rincon del Diablo MWD, 11,200 AF to Santa Fe ID, 7,100 AF to San Dieguito WD, 15,300 AF to Vallecitos WD, 26,000 AF to Valley Center MWD and 17,800 AF to Vista ID (SDCWA, 2015). The San Pasqual Band of Indians operates a Public Water System and also purchases water from the Valley Center Municipal Water District. As such, within the Carlsbad Watershed there is a large amount of imported water use and limited amounts of other water supplies.

The Carlsbad Watershed is home to three potable water treatment plants: Escondido/Vista (capacity of 65 million gallons per day [MGD]), McCollom (capacity of 34 MGD), and Badger (capacity of 40 MGD). Water produced at these plants comes from storage or surface water in both the Carlsbad Watershed and the San Dieguito Watershed, and may be used outside the Carlsbad Watershed (RWMG, 2013).

Carlsbad desalination opened on December 14, 2015 in Carlsbad, California, adjacent to the north end of the Encina Power Station. The San Diego County Water Authority (Water Authority) is the recipient of the fresh water produced by the plant, which has an estimated output of 50 MGD.

Wastewater systems within the Carlsbad WMA include the Buena Sanitation District, the Leucadia Wastewater District, the Solana Beach Sanitation District, and the Rancho Santa Fe Community Services District. The La Salina Wastewater Treatment Plant treats sewage from areas west of I-5, downtown and along the coast. La Salina also treats waste to the secondary level by conventional biological treatment followed by clarification. The Encina Water Pollution Control Facility treats about 22 MGD of wastewater, with a capacity of over 40 MGD.

Figure 3-18 shows a map of the water agencies and wastewater agencies within the Carlsbad WMA.

There are five major surface water bodies, which are used to store water, in the Carlsbad WMA (Figure 3-16):

- Lake Wohlford, owned by the City of Escondido, can store up to 6,506 AF of surface water
- Dixon Lake, owned by the City of Escondido, can store up to 2,606 AF of surface and imported water
- Lake San Marcos, a privately owned lake, that store surface water and has a capacity of 480 AF.
- Olivenhain Reservoir, owned by the Water Authority, stores up to 24,375 AF of natural runoff and water from Lake Hodges Reservoir (located in the San Dieguito River WMA)
- San Dieguito Reservoir, owned by the San Dieguito WD and the Santa Fe ID, stores up to 883 AF of imported water from the Water Authority.

Groundwater basins underlying the Carlsbad Watershed include the Batiquitos Lagoon Basin (Capacity Unknown), San Elijo Valley Basin (Capacity Unknown), San Marcos Valley Basin (Capacity Unknown), and Escondido Valley Basin (estimated total storage capacity 24,000 AF (DWR, 1975)) (Figure 3-16).

In the Batiquitos Lagoon Basin, groundwater is dominantly sodium chloride in character and has an average TDS content of about 1,280 mg/L with a range from about 788 to 2,362 mg/L (DWR 1967). The groundwater in this basin was rated inferior for irrigation because of high chloride content and marginal for domestic use because of high sulfate and TDS concentrations (DWR 1967) (DWR, 2004a).

In the San Elijo Valley Basin, groundwater mineral content in is variable, depending on the source unit. Water from the eastern of the basin is of a mixed sodium, calcium, chloride, and sulfate character. In the western part basin, the water is of sodium-chloride character. TDS concentration ranges from 1,170 to 5,090 mg/L, with concentrations lowest in the eastern part of the basin and increasing toward the west (DWR, 2004i).

In the San Marcos Valley Basin, groundwater is chiefly magnesium chloride character in the northern part of the basin and sodium chloride in the southwestern part of the basin (DWR 1967). TDS content measured prior to 1967 ranged between 500 and 750 mg/L; groundwater was rated suitable for domestic use and marginal for irrigation in the northern part of the basin, but inferior in the south (DWR, 1967; DWR, 2004k).

In the Escondido Valley Basin, groundwater is generally sodium chloride in type, with subordinate amounts of magnesium, calcium, bicarbonate, and nitrate ions (DWR 1967). TDS content ranges from 250 to more than 5,000 mg/L (DWR 1967). Local sources of groundwater in this basin are categorized as suitable to inferior for domestic use. The water categorized as inferior typically contains high nitrate, TDS, or sulfate content (DWR, 1967; DWR, 2004c).

Major recharge areas within the aforementioned groundwater basins include corresponding rivers or creeks and their tributaries as well as through stormwater infiltration.

3.3.5 Natural Resources

Figure 3-19 shows the parks and open space within the Carlsbad WMA, including Bottle Peak Preserve, Brengle Terrace Park, Buena Vista Park, Daley Ranch Park, Double Peak Regional Park, Escondido Creek, Hosp Grove Park, Lake Wohlford Park, Poinsettia Park, Sage Hill Preserve, San Elijo Lagoon Ecological Reserve, and Val Sereno Preserve. Areas of the watershed designated under the MSCP are also shown.

Figure 3-19 shows the critical habitat for 6 species within the Carlsbad WMA, including Thread-leaved brodiaea, San Diego fairy shrimp, Spreading navarretia, Riverside fairy shrimp, Southwestern willow flycatcher, and Western snowy plover.

Remaining native habitats within the watershed primarily include upland vegetation consisting of coastal sage scrub, chaparral scrub, and small areas of oak woodlands. In addition, the watershed contains native grasslands, riparian forests/woodlands, riparian scrubs, marsh/wetlands, and open water areas.

All four of the coastal lagoons located in the Carlsbad WMA (Agua Hedionda, Batiquitos, Buena Vista, and San Elijo) are important natural resources located within the Carlsbad Watershed (Figure 3-16).

3.3.6 Watershed Processes

The Carlsbad Watershed has water quality-related issues that are typical of areas with high urban development. Potential impacts to the watershed's water bodies and lagoons due to urbanization and highway development include increased sedimentation and water quality issues. Urbanization also increases the amount of invasive species in the watershed, which can jeopardize native species and habitats. Although other issues may exist within the watershed, the Carlsbad WURMP (San Diego County, 2008b), which has a goal of reducing discharge of pollutants from MS4s, lists sedimentation, nutrient loading, and bacteria and pathogens as the primary management issues within the Carlsbad Watershed.

Due to urban development, many of the surface water bodies that drain into the watershed's lakes and lagoons have been channelized or otherwise modified, which causes increased sedimentation entering these water bodies Sedimentation has been linked to bacteria loading, as sediments may provide a breeding location for bacteria. Bacteria-related issues have led to temporary closures of recreational areas as well as impacts to natural resources (RWMG, 2013).

3.4 San Dieguito

3.4.1 San Dieguito Watershed Management Area Description

The San Dieguito River WMA includes portions of the City of Del Mar, the City of Escondido, the City of Poway, the City of San Diego, the City of Solana Beach, and unincorporated areas of San Diego County (Figure 3-20). The watershed extends from the Volcan Mountains in the east to San Dieguito Lagoon and the Pacific Ocean in the west.

The WMA drains an area of approximately 221,320 acres in west-central San Diego County, and consists of five HAs: Solana Beach (905.10), Hodges (905.20), San Pasqual (905.30), Santa Maria Valley (905.40), and Santa Ysabel (905.50). These five HAs are divided into 23 HSAs (Figure 3-21).

The San Dieguito River is the primary drainage in the watershed, with headwaters originating in the Witch Creek Basin. There are multiple tributaries that join the San Dieguito River, which all ultimately flow into the Pacific Ocean via the San Dieguito Lagoon (Figure 3-22).

3.4.2 Land Use

Land use within the San Dieguito River WMA is classified primarily as vacant and undeveloped land (39 percent). Other major land use classifications are open space/parks and recreation (22 percent), residential (18 percent), and agriculture (14 percent). Transportation, commercial, industrial, public facility, under construction, and water land use classifications combined comprise the remaining 7 percent of the watershed (San Diego County Association of Governments (SANDAG), 2009).

Figure 3-23 shows the division of land by agency. Two tribal nations live within the WMA on the Mesa Grande and the Santa Ysabel Reservations. Additionally, portions of the WMA are managed as the Cleveland National Forest and by the BLM, including BLM national conservation areas.

3.4.3 Water Quality

3.4.3.1 Applicable TMDLs and Special Biological Habitats

San Dieguito River WMA TMDLs

One TMDL has been developed in the San Dieguito River WMA: the Revised TMDL for Indicator Bacteria, Project 1—Twenty Beaches and Creeks in the San Diego Region (Table 3-9). The 2010 303(d) listing individually analyzed for the bacteria indicators (Enterococcus, fecal coliform, and total coliform) and identified total coliform as impairing the shellfish beneficial use at the mouth of the San Dieguito Lagoon (SDRWQCB, 2010).

All 2010 303(d) listings, whether a TMDL has been completed or is scheduled, were identified as receiving water conditions for the WQIP. Table 3-9 summarizes the 2010 303(d) listed impaired water bodies and the TMDLs in the San Dieguito River WMA, and the pollutants listed as causing the impairment.

TABLE 3-9
TMDLS AND WATER QUALITY LIMITED SEGMENTS IN THE SAN DIEGUITO RIVER WMA

Subwatershed	Water Body Name	Pollutant or Stressor	TMDL Adoption Date
Santa Ysabel (905.50)	Upper Santa Ysabel	• Toxicity	To be developed
Santa Ysabel (905.50)	Sutherland Reservoir	• Color • Iron • Manganese • Total nitrogen as N and pH	To be developed
San Pasqual (905.30)	Cloverdale Creek	• Total dissolved solids (TDS) • Phosphorus	To be developed
Hodges (905.20)	Green Valley Creek	• Sulfates • Chloride • Manganese • Phentachlorophenol (PCP)	To be developed
Hodges (905.20)	Kit Carson Creek	• TDS • PCP	To be developed
Hodges (905.20)	Lake Hodges	• Color • Manganese • Mercury • Nitrogen • Phosphorus • Turbidity • pH	To be developed
Solana Beach (905.10)	San Dieguito River	• Enterococcus • Fecal coliform • Nitrogen • Phosphorus • TDS • Toxicity	To be developed
Solana Beach (905.10)	Pacific Ocean Shoreline at San Dieguito Lagoon Mouth	• Total coliform	February 10, 2010
Solana Beach (905.10)	Pacific Ocean Shoreline at San Dieguito Lagoon Mouth	• Total coliform	To be developed

Special Biological Habitats

In the San Dieguito River WMA, the following water bodies and areas are of special significance and can be classified as (1) impaired for BIOL beneficial use; (2) impaired for other beneficial use(s); or (3) not impaired or not assessed:

- Impairment of BIOL:
  - None

- Impairment of other beneficial use(s):
  - Pacific Ocean Shoreline at the San Dieguito Lagoon Mouth (2010 303(d) listed for impairment of Shellfish Harvesting beneficial use (SHELL) due to total coliform)
- Not impaired or have not been assessed:
  - San Dieguito Lagoon
  - Blue Sky Ecological Reserve
  - Boden Canyon Ecological Reserve
  - Lake Hodges Ecological Reserve

3.4.3.2 Priority Water Quality Conditions

The San Dieguito River WMA WQIP (Amec, 2015a) provides a detailed description of the process for determining the Priority Water Quality Conditions for this WMA. The WQIP identified receiving water conditions and impacts from MS4 discharges to assess and develop a list of priority water quality conditions. Priority water quality conditions are defined as receiving water conditions for which there is evidence that MS4 discharges may cause or contribute to the condition. An initial list of priority water quality conditions was developed and then compared with the public input that was provided during the September 5, 2013, workshop and the public data call. The priorities identified in previous planning documents were also considered. Many of the same concerns were provided during the workshop and were evident in the third-party data. Finally, the overall potential for improvement of MS4 discharges to affect conditions within the overall WMA was considered. The list of priority water quality conditions was then finalized on the basis of these factors. The final list of priority water quality conditions is presented in Table 3-10.

TABLE 3-10
PRIORITY WATER QUALITY CONDITIONS IN THE SAN DIEGUITO RIVER WMA

Water Body	Dry Weather	Wet Weather
San Dieguito River Above Sutherland Reservoir	• Color	• Color
Cloverdale Creek	• Eutrophic conditions (phosphorus) • TDS	
Green Valley Creek	• Chlorinefates • Sulfates	• Chlorine
Carson Creek	• TDS	
Felicita Creek	• TDS	
Lake Hodges	• Enterococcus • Color • Eutrophic conditions (nitrogen and phosphorus)	• Fecal coliform • Color
San Dieguito River	• Indicator Bacteria (Enterococcus and fecal coliform) • Toxicity • TDS • Eutrophic conditions (nitrogen)	• Indicator Bacteria (Enterococcus and fecal coliform) • Toxicity

Pacific Ocean Shoreline at San Dieguito Lagoon Mouth	• Indicator Bacteria (Enterococcus and fecal coliform)	• Indicator Bacteria (Enterococcus and fecal coliform)

SOURCE: AMEC, 2015a

3.4.3.3 Highest Priority Water Quality Conditions

The San Dieguito River WMA WQIP (AMEC, 2015a) provides the details of the process that assessed and identified the Highest Priority Water Quality Conditions based on the list of priority water quality conditions presented above in Table 3-10. The San Dieguito River WMA WQIP (AMEC, 2015a) used a similar method to the San Luis Rey River WMA WQIP (LWA, 2016a) as discussed in Section 3.2.3.3. The highest priority water quality conditions are presented in Table 3-11.

TABLE 3-11
HIGHEST PRIORITY WATER QUALITY CONDITIONS IN THE SAN DIEGUITO RIVER WMA

Highest Priority Condition	Dry Weather	Wet Weather
Potential Impairment of REC-1 at Pacific Ocean Shoreline	Indicator bacteria at San Dieguito River above Lake Hodges	Indicator bacteria at San Dieguito River above Lake Hodges
Potential Impairment of REC-1 at Pacific Ocean shoreline		Indicator bacteria at San Dieguito River below Lake Hodges

SOURCE: AMEC, 2015a

3.4.4 Water Resources and Systems

There are four water supply reservoirs within the San Dieguito Watershed, which contain either imported water or surface water runoff, or a combination of both sources. Each reservoir is summarized below (Figure 3-22):

- Sutherland Reservoir, owned by the City of San Diego, and can store up to 29,508 AF of natural runoff
- Lake Ramona, owned by the Ramona Municipal Water District, can store up to 12,000 AF of imported water from the Water Authority
- Lake Poway, owned by the City of Poway, can store up to 3,330 AF of imported water from the Water Authority
- Hodges Reservoir, owned by the City of San Diego, can store up to 30,633 AF of natural runoff and imported water from the Water Authority.

The San Diego Country Water Authority provides water to the following member agencies in the San Dieguito Watershed: Santa Fe ID (11,200 AF annually), San Dieguito WD (7,100 AF), Olivenhain MWD (22,200 AF), City of San Diego (191,700 AF), Rincon del Diablo MWD (8,900 AF), City of Poway (11,100 AF), and Ramona MWD (6,100 AF) (SDCWA, 2015). Two potable water treatment facilities are located in the San Dieguito Watershed: Bargar, which can treat up to 4 MGD potable water and Berglund, which can produce up to 24 MGD (RWMG, 2013). The Bargar filtration plant was built to treat water from Sutherland Reservoir. But due to unreliable rainfall and runoff, water was not always available for treatment, held back to comply with city regulations that require maintaining a specific water elevation in the lake. The cost to treat a small amount of water was much higher than purchasing treated water from imported suppliers, so Bargar is not currently in operation.

Wastewater systems within the San Dieguito River WMA include the Solana Beach Sanitation District and the Rancho Santa Fe Community Services District (CSD), the Fairbanks Ranch CSD, and the Whispering Palms CSD.

The San Pasqual Academy Wastewater Treatment Plant treats domestic wastewater generated from the Academy campus and has a capacity of 0.05 MGD. The Rancho Santa Fe Wastewater Treatment Plant has an average flow of 0.350 MGD and a rated capacity of 0.450 MGD, and generally provides treatment services for Rancho Santa Fe and other surrounding communities in the unincorporated areas of the county. The Fairbanks Ranch Water Pollution Control Facility treats an average wastewater flow of 0.163 MGD. Whispering Palms Water Reclamation Facility treats an average wastewater flow of 0.260 MGD.

Figure 3-24 shows a map of the water agencies and wastewater agencies within the San Dieguito River WMA.

Groundwater basins underlying the San Dieguito Watershed include the San Pasqual Valley, the Santa Maria Valley, the San Dieguito Valley, and the Pamo Valley.

Groundwater in the San Pasqual Valley Basin is of mixed character. In the eastern part of the valley, groundwater is mainly calcium bicarbonate character with TDS content mostly less than 500 mg/L. In the western part of the valley, groundwater is dominantly sodium chloride in character with sulfate as a prominent minor anion (Izbicki 1983). TDS concentration in the basin ranges from 350 to 1,790 mg/L. Nitrate concentration ranges to 91.7 mg/L and elevated nitrate concentration is widespread (DWR, 2004l).

Groundwater in the Santa Maria Valley Basin is predominately sodium chloride in character; however, water of sodium sulfate and sodium bicarbonate character is found in the northern part of the basin (DWR, 1967). The most prevalent combinations of major cations are sodium-magnesium-calcium, sodium-calcium-magnesium, and sodium, and the most common major anion combinations are bicarbonate-chloride, chloride-bicarbonate, and chloride. Analyses of groundwater from this basin made in the 1960s indicate that TDS content can range from 164 to 1,287 mg/L and average about 456 mg/L (DWR, 1967). This groundwater was rated as generally suitable for domestic and irrigation uses (DWR, 1967). Water from two public supply wells has TDS concentrations of 590 and 750 mg/L (DWR, 2004n). Sulfate, nitrate, and TDS concentrations are high for domestic use (DWR, 1975) and locally high chloride content produced water rated as marginal for irrigation (DWR, 1967). High nitrate concentrations are more common in the central and eastern parts of the basin (DWR 2004n).

Groundwater in the Pamo Valley Basin is calcium bicarbonate in character and rated suitable for domestic and irrigation uses. TDS content ranges from 279 to 455 mg/L and averages about 369 mg/L (DWR, 1967; DWR, 2004f).

Recharge of the groundwater basins occurs through infiltration and percolation of flows from the San Dieguito River and other ephemeral streams.

The San Dieguito Watershed also has facilities that are part of the San Diego County Water Authority's Emergency Storage Project. The Hodges Reservoir Project connected the Hodges Reservoir to Olivenhain Reservoir (located in the Carlsbad Watershed) through pipelines and pump stations, which provides multiple benefits including a more resilient water supply and flood protection.

There are four groundwater basins in the San Dieguito River WMA: Pamo Valley (capacity unknown), San Dieguito Valley (estimated storage capacity of 52,000 AF (Izbicki, 1983) and 63,000 AF (DWR 1975)), San Pasqual Valley (estimated storage capacity of 63,000 AF (Izbicki, 1983) and 73,000 AF (DWR 1975) and Santa Maria Valley (estimated storage capacity of 77,000 AF (DWR 1975)).The majority of the San Pasqual Valley groundwater basin is owned by the City of San Diego. While public water supply is not currently developed from the San Pasqual basin, the basin represents a potential source of local water supply (RWMG, 2013).

3.4.5 Natural Resources

Figure 3-25 shows the parks and open space within the San Dieguito River WMA, including Black Mountain Park, Carmel Valley Open Space, San Dieguito Regional Park, Kit Carson Park, Mt. Woodson Open Space, Ramona Grassland Preserve, San Pasqual Trails Open Space, Santa Fe Valley Preserve, Santa Ysabel East Preserve, Santa Ysabel West Preserve, Simon Preserve, Volcan Mountain Wilderness Preserve. Areas of the watershed designated under the MSCP are also shown on Figure 3-25.

Due to relatively undeveloped nature of the San Dieguito Watershed, the watershed contains a diverse array of habitats that range from Volcan Mountain in the east to the San Dieguito Lagoon and Pacific Ocean in the west. There are several natural areas within the watershed, including the 55-mile long, 80,000 acre San Dieguito River Park, the 150 acre San Dieguito Lagoon, and natural areas associated with the watershed's surface water reservoirs (RWMG, 2013).

The San Dieguito River WMA also provides critical habitat for 6 species, including Thread leaved brodiaea, San Diego fairy shrimp, Spreading navarretia, Arroyo Southwestern toad, Southwestern willow flycatcher, and Western snowy plover (Figure 3-25).

3.4.6 Watershed Processes

Although the San Dieguito River WMA is a largely undeveloped watershed, it still suffers from the impacts of urbanization. Stakeholders within the San Dieguito Watershed have identified a number of major issues and concerns, including physical and hydrologic modifications, water quality, invasive species, and flooding associated with local surface waters. Over-grazing has also been a concern in the San Dieguito Watershed because it has reduced tree regeneration, reduced vegetative cover, caused streambank destabilization, water quality degradation, and spread non-native weeds (RWMG, 2013).

3.5 Los Peñasquitos

3.5.1 Los Peñasquitos Watershed Management Area Description

The Los Peñasquitos WMA is located within west-central San Diego County and includes portions of the City of San Diego, the City of Poway, and the City of Del Mar, as well as unincorporated areas of San Diego County (Figure 3-26). The area extends from the foothills east of the City of Poway to the coastal plain where the watershed drains into Los Peñasquitos Lagoon before flowing into the Pacific Ocean through a narrow mouth at Torrey Pines State Beach.

The Los Peñasquitos WMA (HU 906.00) is 60,424 acres and encompasses the drainage areas of Los Peñasquitos Creek (37,028 acres), Carmel Creek (11,180 acres), and Carroll Canyon Creek (11,004 acres). The remaining 1,107 acres is composed of the lagoon and coastal drainages. The Los Peñasquitos WMA consists of two HAs: Miramar Reservoir (906.10) and Poway (906.20) (Weston, 2012). The HAs are shown on Figure 3-27.

Figure 3-28 shows a map of the major water features within the Los Peñasquitos WMA. The Miramar Reservoir HA comprises the western portion of the WMA and contains the drainage areas of Carmel Creek, Carroll Canyon Creek, and the lower portion of the Los Peñasquitos Creek. The Poway HA, located to the east, is covered entirely by the upper portion of the Los Peñasquitos Creek subwatershed. The drainage areas of the three creeks flow to Los Peñasquitos Lagoon.

3.5.2 Land Use

Land use within the Los Peñasquitos WMA is classified primarily as open space/parks and recreation (31 percent), residential (27 percent), vacant and undeveloped land (12 percent), transportation (13 percent), and industrial (7 percent). Other land use classifications within the watershed, each comprising 3 percent or less of the total land use, include agriculture, commercial, commercial recreation, military, public facility, under construction, and water (SANDAG, 2009).

Figure 3-29 shows the division of land by agency. A portion of the WMA is operated by the US Fish and Wildlife Service as wildlife refuge land.

3.5.3 Water Quality

3.5.3.1 Applicable TMDLs and Special Biological Habitats

Los Peñasquitos WMA TMDLs

Two TMDLs have been adopted in the Los Peñasquitos WMA. The Pacific Ocean Shoreline at Torrey Pines State Beach at Del Mar was 303(d) listed in 2010 for total coliform as impairing shellfish beneficial use. The Sediment TMDL for the Lagoon was adopted on June 13, 2012 (SDRWQCB. 2012a). Table 3-12 summarizes the impaired 2010 303(d) listed water bodies in the Los Peñasquitos WMA.

TABLE 3-12
TMDLS AND WATER QUALITY LIMITED SEGMENTS IN THE LOS PEÑASQUITOS WMA

Subwatershed	Water Body Name	Pollutant	TMDL Adoption Date
Miramar Reservoir (906.10)	Miramar Reservoir	Total nitrogen as N	To be developed
Miramar Reservoir (906.10)	Soledad Canyon	Sediment toxicity	To be developed
Miramar Reservoir (906.10)	Soledad Canyon	Selenium	To be developed
Miramar Reservoir (906.10)	Los Peñasquitos Creek	Enterococcus, fecal coliform, selenium, total dissolved solids (TDS), and total nitrogen as N	To be developed
Miramar Reservoir (906.10)	Los Peñasquitos Lagoon	Toxicity	To be developed
Miramar Reservoir (906.10)	Los Peñasquitos Lagoon	Sedimentation and siltation	June 13, 2012
Miramar Reservoir (906.10)	Pacific Ocean Shoreline at Torrey Pines State Beach, Del Mar	Bacteria	February 10, 2010
Miramar Reservoir (906.10)	Pacific Ocean Shoreline at Los Peñasquitos River Mouth	Total coliform	To be developed
Poway (906.20)	Poway Creek	Selenium and toxicity	To be developed

Special Biological Habitats

In the Los Peñasquitos WMA, the following water bodies and areas are of special significance and can be classified as (1) impaired for BIOL beneficial use; (2) impaired for other beneficial use(s); or (3) not impaired or assessed (Amec, 2015b):

- Impairment of BIOL:
  - Los Peñasquitos Lagoon (2010 303(d) listed for sedimentation and siltation)
- Impairment of other beneficial use(s):
  - Pacific Ocean Shoreline at Los Peñasquitos River Mouth (2010 303(d) listed for impairment of Shellfish Harvesting (SHELL) due to total coliform)
  - Los Peñasquitos Creek (2010 303(d) listed for impairment of Warm Freshwater Habitat (WARM) because of *Enterococcus*, fecal coliform, and total nitrogen, and impairment of Agricultural Supply (AGR) due to TDS)
- Not impaired or assessed:
  - Del Mar Mesa/Lopez Ridge Ecological Reserve
  - Meadowbrook Ecological Reserve

3.5.3.2 Priority Water Quality Conditions

The Los Peñasquitos WMA WQIP (Amec, 2015b) provides a more detailed description of the process for determining the Priority Water Quality Conditions for this WMA. An initial list of priority water quality conditions was developed in the WQIP by comparing receiving water conditions with evidence of MS4 contributions. The initial list was then compared with the public input that was provided during the September 4, 2013, workshop and the public data call. The priorities identified in previous planning documents were also considered. Many of the same concerns were provided during the workshop and were evident in the third-party data. Finally, the overall potential for improvement of MS4 discharges to affect conditions within the overall WMA was considered. The list of priority water quality conditions was then finalized on the basis of these factors. The final list of priority water quality conditions is presented in Table 3-13.

TABLE 3-13
PRIORITY WATER QUALITY CONDITIONS IN THE LOS PEÑASQUITOS WMA

Water Body	Wet Weather	Dry Weather
Miramar Reservoir	• Impairment of WARM due to eutrophic conditions (total nitrogen as N)	
Soledad Canyon Creek	• Impairment of WARM due to selenium	• Impairment of WARM due to selenium
Soledad Canyon Creek		• Elevated *Enterococcus* near NPDES • monitoring locations
Soledad Canyon Creek	• Elevated fecal coliform near NPDES • monitoring locations	
Soledad Canyon Creek		• Elevated TDS near NPDES monitoring • locations
Poway Creek	• Impairment of WARM due to selenium and • toxicity	• Impairment of WARM due to selenium and • toxicity
Los Peñasquitos Creek	• Impairment of WARM due to Enterococcus	• Impairment of WARM due to Enterococcus
	• Impairment of WARM due to fecal coliform	• Impairment of WARM due to fecal coliform
	• Impairment of WARM due to toxicity	• Impairment of WARM due to toxicity
		• Impairment of WARM due to eutrophication1 • (total nitrogen)
		• Elevated total phosphorus and dissolved • phosphorus near NPDES monitoring locations
	• Impairment of AGR due to TDS	• Impairment of AGR due to TDS

Water Body	Wet Weather	Dry Weather
Los Peñasquitos Lagoon	• Impairment of Estuarine Conditions (EST) and BIOL due to • hydromodification, siltation, and • sedimentation	
		• Impairment of EST and BIOL due to • freshwater discharges
		• Elevated Enterococcus near NPDES • monitoring locations
	• Elevated fecal coliform near NPDES monitoring locations	
	• Elevated TDS near NPDES monitoring • locations	
		• Elevated total phosphorus, dissolved • phosphorus, benthic algae, and total nitrogen • near NPDES monitoring locations
Pacific Ocean Shoreline at Torrey Pines State Beach at Del Mar	• Impairment of REC-1 due to indicator bacteria • (total coliform, fecal coliform, Enterococcus)	• Impairment of REC-1 due to indicator bacteria • (total coliform, fecal coliform, Enterococcus)
Pacific Ocean Shoreline Los Peñasquitos River Mouth	• Impairment of SHELL due to total coliform	• Impairment of SHELL due to total coliform

SOURCE: Amec, 2015b

3.5.2.3 Highest Priority Water Quality Conditions

The Los Peñasquitos WQIP (Amec, 2015b) presents the process that assessed and identified the Highest Priority Water Quality Conditions based on the list of priority water quality conditions presented above in Table 3-13. The Los Peñasquitos WMA WQIP (Amec, 2015b) used a similar method to the San Luis Rey River WMA WQIP (LWA, 2016a) as discussed in Section 3.2.3.3. The highest priority water quality conditions are presented in Table 3-14.

TABLE 3-14
HIGHEST PRIORITY WATER QUALITY CONDITIONS IN THE LOS PEÑASQUITOS WMA

Highest Priority Condition	Dry Weather	Wet Weather
Impairment of EST and BIOL in Los Peñasquitos Lagoon		• Hydromodification, • Siltation/ Sedimentation
Impairment of EST and BIOL in Los Peñasquitos Lagoon	• Freshwater Discharges	
Potential impairment of REC-1 along the Pacific Ocean Shoreline at Torrey Pines State Beach at Del Mar	• Indicator Bacteria	• Indicator Bacteria

SOURCE: Amec, 2015b

3.5.4 Water Resources and Systems

The Los Peñasquitos WMA contains one water storage facility, Lake Miramar, and one groundwater basin, the Poway Valley basin.

There are three water agencies in the Los Peñasquitos WMA that receive water from the San Diego County Water Authority: City of Del Mar (receives 1,100 AF annually), City of San Diego (191,700 AF), and the City of Poway (11,100 AF) (SDCWA, 2015) (Figure 3-30).

Imported water is purchased from the San Diego County Water Authority and stored in the Miramar Reservoir. The reservoir has a capacity of 2,341 million gallons (CSD, 2011). Adjacent to the reservoir is Miramar Water Treatment Plant operated by the City of San Diego (Figure 3-30). The Miramar Plant produces 140 MGD, but has a 215 MGD total capacity (CSD, 2010).

Most of the wastewater in the Los Peñasquitos WMA is treated at Point Loma Wastewater Treatment Plant operated by the City of San Diego. The Point Loma Plant is located on the bluffs of Point Loma and treats approximately 175 MGD (CSD, 2012a). Wastewater is also treated at the North City Water Reclamation Plant, operated by the City of San Diego. The North City Plant can treat up to 30 MGD. Reclaimed water produced by the North City Plant is distributed to Mira Mesa, Miramar Ranch North, Scripps Ranch, Torrey Pines, and the City of Poway (CSD, 2012b).

The Poway Valley Groundwater Basin has two water bearing formations: the Alluvium and Residuum, and the Poway Group (DWR, 2004g)). Groundwater in this basin is mainly sodium chloride in character and ranges in TDS content from about 750 to 1,500 mg/L (DWR 1967). Calcium bicarbonate character water is found in wells near Beeler Creek. Water from one public supply well has a TDS content of 610 mg/L (DWR, 2004g). Recharge in the basin is mainly from direct precipitation on the valley flow and infiltration along Poway Creek, which flows into the basin from the east. Other sources of recharge include septic tank effluent and irrigation waters. It is estimated the Poway Valley Groundwater Basin contains 23,000 AF and is mainly used for agriculture and domestic uses (Amec, 2005).

3.5.5 Natural Resources

Figure 3-31 shows the parks and open space within the Los Peñasquitos WMA, including the Los Peñasquitos Canyon Open Space, Black Mountain Park, Sycamore Canyon/Goodan Ranch Preserve, Poway Community Park, Silverset Neighborhood Park, Sabre Springs Open Space, Scripps Miramar Open Space, Canyon Hills Park, Mcgonigle Canyon Open Space, Del Mar Mesa, Mira Mesa Park, Mira Mesa Vernal Pool Open Space, Carroll Canyon Open Space, Campus Point Open Space, Shaw Valley Open Space, Ashley Falls Preserve, Solana Highlands Preserve, Sorrento Hills Open Space, Torrey Pines State Reserve. Areas of the watershed designated under the MSCP are also included in Figure 3-31.

The Los Peñasquitos WMA provides critical habitat for 2 species, including San Diego fairy shrimp and the Spreading navarretia (Figure 3-31).

3.5.6 Watershed Processes

Land use changes within the Los Peñasquitos WMA began in 1823 with the advent of cattle ranching. Over the subsequent decades, land within the WMA was cleared for cattle grazing, which enabled more sediment erosion during storm events (Cole and Wahl, 2000). Urban development, including the construction of Interstates 5 and 805, increased rapidly from 1966 through 1999 and undeveloped land decreased from 87 percent to 57 percent of the watershed area (White and Greer, 2006). These changes have led to increased pollutants loads within the watershed, increased erosion, and subsequent downstream sedimentation.

With the increase of impervious surfaces in the watershed, less stormwater can infiltrate into the ground, and more is instead directed to natural waterways or the MS4, where flows are consolidated and released through storm outfalls. This means that the peak (and total) flow in the creeks is greater and occurs more rapidly than under undeveloped conditions (with fewer impervious surfaces). This can cause significant erosion in the natural drainages and canyon walls, which receive these discharges, as the geomorphology shifts to transport the larger flow. The higher peak flows possess greater energy, which can mobilize greater amounts and sizes of sediment. Sedimentation rates in Los Peñasquitos Lagoon likely increased by an order of magnitude from 0.27 mm/yr pre-settlement to 3.5 mm/yr post-settlement because of affects associated with land use changes (Cole and Wahl, 2000). Additionally, increased freshwater inputs from urban sources have greatly impacted the health of Los Peñasquitos Lagoon, impairing water quality and contributing to the loss of native salt marsh through habitat conversion.

3.6 Mission Bay

3.6.1 Mission Bay Watershed Management Area Description

The Mission Bay WMA is located entirely within the City of San Diego jurisdiction. (Figure 3-32). The watershed extends from near Poway in the east to Mission Bay and the Pacific Ocean in the west.

The Mission Bay WMA (within the Los Peñasquitos HU 906.00) encompasses 43,268 acres. The watershed includes six hydrologic areas (HAs): Scripps (HA 906.30), Miramar (HA 906.40), Tecolote (HA 906.50), Vacation Isle (HA 906.60), Fiesta Island (HA 906.70), and Mission Bay (HA 906.80). The Scripps HA is included in the Mission Bay WMA although it technically also drains to the Los Peñasquitos WMA and to the Pacific Ocean as well (Figure 3-33).

The Mission Bay WMA includes two major drainages: the Rose Creek and Tecolote Creek. Rose Creek drains to the northeast corner of Mission Bay and Tecolote Creek drains to the southeast corner of the Bay.

3.6.2 Land Use

Land use within the Mission Bay WMA is classified primarily as open space/parks and recreation (26 percent), residential (26 percent), and transportation (16 percent). Other land use classifications include vacant and undeveloped land (6 percent), water (5 percent), public facility

(5 percent), military (5 percent), industrial (4 percent), commercial (4 percent), and commercial recreation (3 percent). Agriculture and under construction land uses each make up less than 1 percent of the land use acreage (Weston, 2012).

Figure 3-35 shows the division of land by agency. Portions of the WMA are managed as a U.S. Fish and Wildlife Service (U) Wildlife Refuge.

3.6.3 Water Quality

3.6.3.1 Applicable TMDLs and Special Biological Habitats

Mission Bay WMA TMDLs

One TMDL (the Bacteria TMDL) has been adopted in the Mission Bay WMA. The receiving waters covered by the Bacteria TMDL are summarized in Table 3-15.

TABLE 3-15
TMDLS AND WATER QUALITY LIMITED SEGMENTS IN THE MISSION BAY WMA

Subwatershed	Water Body Name	Pollutant or Stressor	Adoption Date
Scripps (906.30)	Pacific Ocean Shoreline	• Bacteria	June 10, 2010
Scripps (906.30), Miramar (906.40), Tecolote (90.50)	Mission Bay Shoreline	• Bacteria	To be developed
Miramar (906.40)	Rose Creek	• Selenium • Toxicity	To be developed
Tecolote (906.50)	Mission Bay at mouth of Tecolote Creek	• Eutrophic • Lead	To be developed
Tecolote (906.50)	Tecolote Creek	• Indicator Bacteria	June 10, 2010
Tecolote (906.50)	Tecolote Creek	• Cadmium • Copper • Lead • Nitrogen • Phosphorus • Selenium • Toxicity • Turbidity • Zinc	To be developed
Scripps (906.30)	Mission Bay at Quivira Basin	• Copper	To be developed
Tecolote (906.50)	Mission Bay Shoreline at Tecolote Shores	• Enterococcus • Total Coliform	To be developed

Special Biological Habitats

In the Mission Bay WMA, the following water body is of special significance:

- Pacific Ocean Shoreline at the La Jolla ASBS (ASBS Number 29)

3.6.3.2 Priority Water Quality Conditions

The Mission Bay WMA WQIP (Amec, 2016) provides a detailed description of the process for determining the Priority Water Quality Conditions for this WMA. The WQIP identified receiving water conditions and impacts from MS4 discharges to assess and develop a list of priority water quality conditions. Priority water quality conditions are defined as receiving water conditions for which there is evidence that MS4 discharges may cause or contribute to the condition. An initial list of priority water quality conditions was developed and then compared with the public input that was provided during the September 7, 2013, workshop and the public data call. The priorities identified in previous planning documents were also considered. Many of the same concerns were provided during the workshop and were evident in the third-party data. Finally, the overall potential for improvement of MS4 discharges to affect conditions within the overall WMA was considered. The list of priority water quality conditions was then finalized on the basis of these factors. The final list of priority water quality conditions is presented in Table 3-16.

TABLE 3-16
PRIORITY WATER QUALITY CONDITIONS IN THE MISSION BAY WMA

Water Body	Dry Weather	Wet Weather
Mission Bay Shoreline at Campland	• Bacteria	• Bacteria
Mission Bay Shoreline at De Anza		• Bacteria
Mission Bay Shoreline at Leisure Lagoon	• Bacteria	• Bacteria
Mission Bay Shoreline at North Crown Point		• Bacteria
Mission Bay at Mouth of Rose Creek	• Potential eutrophic conditions (no pollutant specified) • Lead	• Lead
Mission Bay Shoreline at Visitor's Center		• Bacteria
Rose Creek	• Toxicity • TDS	• Toxicity • TSS
Tecolote Creek	• Bacteria • Potential eutrophic conditions (Phosphorus) • Turbidity	• Bacteria • Turbidity
Mission Bay Shoreline at Tecolote Shores		• Bacteria
Area of Special Biological Significance, La Jolla Shores ASBS 29		• Bacteria • Copper • Sediment
Mission Bay Shoreline at Bahia Point		• Bacteria
Mission Bay Shoreline at Bonita Cove	• Bacteria	• Bacteria
Mission Bay Shoreline at Fanuel Park	• Bacteria	• Bacteria

Water Body	Dry Weather	Wet Weather
Pacific Ocean Shoreline, Casa Beach (Children's Pool)		• Bacteria
Pacific Ocean Shoreline, La Jolla Cove	• Bacteria	• Bacteria
La Jolla Shores Beach at Avenida de la Playa	• Bacteria	• Bacteria
Pacific Ocean Shoreline, La Jolla Shores Beach at Caminito del Oro	• Bacteria	• Bacteria
Pacific Ocean Shoreline, La Jolla Shores Beach at El Paseo Grande	• Bacteria	• Bacteria
Pacific Ocean Shoreline, Pacific Beach at Grand Avenue	• Bacteria	• Bacteria
Pacific Ocean Shoreline, Pacific Beach at Pacific Beach Point	• Bacteria	• Bacteria
Pacific Ocean Shoreline, South Casa Beach at Coast Boulevard	• Bacteria	• Bacteria
Pacific Ocean Shoreline, Tourmaline Surf Park	• Bacteria	• Bacteria
Pacific Ocean Shoreline at Vallecitos Court		• Bacteria
Pacific Ocean Shoreline at La Jolla Shores Beach at Vallecitos		• Bacteria
Pacific Ocean Shoreline at Windansea Beach at Bonair Street	• Bacteria	• Bacteria
Pacific Ocean Shoreline at Windansea Beach at Palomar Ave.	• Bacteria	• Bacteria
Pacific Ocean Shoreline at Windansea Beach at Playa del Norte	• Bacteria	• Bacteria
Pacific Ocean Shoreline at Windansea Beach at Vista de la Playa	• Bacteria	• Bacteria
Pacific Ocean Shoreline at Whispering Sands Beach at Ravina Street	• Bacteria	• Bacteria

SOURCE: Amec, 2016

3.6.3.3 Highest Priority Water Quality Conditions

The Mission Bay WMA WQIP (Amec, 2016) provides the details of the process that assessed and identified the Highest Priority Water Quality Conditions based on the list of priority water quality conditions presented above in Table 3-16. The Mission Bay WMA WQIP (Amec, 2016) used a similar method to San Luis Rey River WMA WQIP (LWA, 2016a) as discussed in Section 3.2.3.3. The highest priority water quality conditions are presented in Table 3-17.

TABLE 3-17
HIGHEST PRIORITY WATER QUALITY CONDITIONS IN THE MISSION BAY WMA

Highest Priority Condition	Dry Weather	Wet Weather
Impairment of REC-1 in Tecolote Creek	• Indicator bacteria in Tecolote Creek Subwatershed	• Indicator bacteria in Tecolote Creek Subwatershed
Impairment of ASBS 29	• N/A	• Sediment in Scripps Subwatershed
Potential Impairment of REC-1 at Pacific Ocean shoreline	• Indicator Bacteria in Scripps Subwatershed	• Indicator Bacteria in Scripps Subwatershed

SOURCE: AMEC, 2016c

3.6.4 Water Resources and Systems

No water supply agencies or reservoirs exist within the Mission Bay WMA.

A small portion of the Mission Valley Groundwater Basin exists under the southern portion of the WMA. The primary source of recharge for this basin is infiltration of stream flow from the San Diego River. The DWR (1975) estimated storage capacity to be 42,000 AF for this basin. San Diego County Water Authority (1997) estimated a total storage capacity of about 40,000 ad-ft. (DWR, 2004d). In the basin, magnesium and sulfate are high for domestic use. Chloride and TDS concentrations are high for domestic and irrigation use. Seawater intrusion is suspected (DWR, 1975; DWR, 2004d).

There is one wastewater treatment plant, the Metro Biosolids Center, which is located adjacent to the Miramar Landfill. The Metro Biosolids Center provides two treatment options: thickening and digestion of the raw solids generated at the North City Water Reclamation Plant, and the dewatering of the wet biosolids from both the Point Loma Wastewater Treatment Plant and North City Water Reclamation Plant. The facility produces dewatered biosolids.

Figure 3-34 shows a map of the water features within the Mission Bay WMA. Figure 3-36 shows a map of the water agencies and wastewater agencies within the Mission Bay WMA.

3.6.5 Natural Resources

Figure 3-37 shows the parks and open space within the Mission Bay WMA, including Hickman Field Park, Kate Sessions Memorial Park, Kearny Mesa Community Park, Kelly Street Preserve, La Jolla Heights Natural Park, Marian Bear Park, Mission Bay Athletic Area, Mission Bay Park, Mt. Acadia Park, Nobel Athletic Area, Rose Canyon Open Space, Tecolote Canyon Park, Torrey Pines State Preserve, University Gardens Preserve.

The Mission Bay WMA provides critical habitat for 2 species: San Diego fairy shrimp and the Spreading navarretia (Figure 3-37).

3.6.6 Watershed Processes

In the 1940s, much of the existing coastal wetlands along Mission Bay was converted to a 4,000-acre aquatic park and residential land use area. Although Mission Bay Park is one of San Diego's principal tourism and leisure destinations, the development along the shores has led to water quality issues in the Bay and significant losses of wetlands.

Significant changes in the natural hydrology and geomorphology in the watershed have led to sedimentation issues in Mission Bay. Sources of sediment include erosion of canyon banks, exposed soils, bluffs, and scouring of stream banks, which have been exacerbated by land development in the watershed. Sediments enter Mission Bay from various sources, including Rose Creek, and impacts water quality of the Bay.

The Kendall-Frost Marsh is located in the northeast corner of Mission Bay and receives flows containing urban runoff, pollutants, and sediments from stormwater outfalls. Historically, Rose Creek was connected to the marsh and provided freshwater inflows along with nutrients and sediment to the marsh. Since Rose Creek has been channelized, it no longer provides these necessary inputs to Kendall-Frost Marsh. The City of San Diego and the Audubon Society are currently looking at wetland restoration opportunities for the northeast corner of Mission Bay, including Kendall-Frost Marsh and Rose Creek.

3.7 San Diego River

3.7.1 San Diego River Watershed Management Area Description

The San Diego River WMA (HU 907) is the second largest WMA lying entirely within San Diego County and encompasses 277,554 acres. The San Diego River WMA consists of 75 percent County of San Diego unincorporated land. The remaining jurisdictional areas of the watershed include the City of El Cajon, City of La Mesa, City of San Diego, City of Santee, as well as several unincorporated jurisdictions (Figure 3-38). Although the County of San Diego generally would have land use authority in unincorporated areas, a significant percentage of this unincorporated area is under the jurisdiction of the federal government or sovereign Indian tribes and, thus, effectively outside the jurisdictional land use authority of the County.

The WMA consists of four HAs: Lower San Diego River (907.10), San Vicente (907.20), El Capitan (907.30), and Boulder Creek (907.40). These HAs are further broken down into of 14 HSAs. The HUs and HAs for the San Diego River WMA are shown in Figure 3-39.

The San Diego River WMA consists of a single major drainage, the San Diego River, which flows through the entire WMA. Major San Diego River tributaries consist of Boulder Creek, Cedar Creek, Conejos Creek, Chocolate Creek, Los Coches Creek, San Vicente Creek, and Forester Creek (Figure 3-40).

3.7.2 Land Use

Land use within the San Diego River WMA is predominantly undeveloped (44 percent). Other land use classifications include open space/parks and recreation (23 percent), residential (19 percent), and transportation (6 percent). Agriculture, commercial, commercial recreation, industrial, military, public facility, and water land uses each make up less than 2 percent of the land use acreage (Weston, 2012).

Figure 3-41 shows the division of land by agency, including the military facilities at Marine Corps Air Station Miramar. The tribal nations of the Barona Band of Mission Indians, the Capitan Grande Group of Mission Indians, and the Inaja-Cosmit Band of Indians are located within the upper San Diego River Watershed. Part of the WMA is managed as the Cleveland National Forest. Additionally, portions of the WMA are managed by the BLM and categorized as BLM National conservation areas.

3.7.3 Water Quality

3.7.3.1 Applicable TMDLs and Special Biological Habitats

San Diego River WMA TMDLs

One TMDL, the Revised TMDL for Indicator Bacteria, Project 1—Twenty Beaches and Creeks in the San Diego Region (SDRWQCB, 2010), has been adopted in the San Diego River WMA. This covers bacteria in the Lower San Diego River as well as for Forester Creek. A draft TMDL is under development for Famosa Slough (SDRWQCB, 2016c). Table 3-18 summarizes the TMDLs and impaired 2010 303(d) listed water bodies in the San Diego River WMA and the pollutants listed as causing the impairment. The locations of these water bodies are mapped in Figure 3-40.

TABLE 3-18
TMDLS AND WATER QUALITY LIMITED SEGMENTS IN THE SAN DIEGO RIVER WMA

Sub Watershed	Water Body Name	Pollutant	Adoption Date
Lower San Diego (907.10)	Forester Creek	Bacteria	February 10, 2010
Lower San Diego (907.10)	Lower San Diego River	Bacteria	February 10, 2010
Lower San Diego (907.10)	Pacific Ocean Shoreline	Bacteria	February 10, 2010
Lower San Diego (907.10)	Famosa Slough	Eutrophication	In progress

Special Biological Habitats

In the San Diego River WMA, the following water bodies and areas are of special significance and can be classified as impaired for BIOL beneficial use:

- Impairment of BIOL:
  - Rios Canyon
  - San Diego River

3.7.3.2 Priority Water Quality Conditions

The San Diego River WMA WQIP (LWA, 2016b) provides a more detailed description of the process for determining the Priority Water Quality Conditions for this WMA. Priority water quality conditions are defined as receiving water conditions for which there is evidence that MS4 discharges may cause or contribute to the condition. An initial list of priority water quality conditions was developed in the San Diego River WMA WQIP (LWA, 2016b) by comparing receiving water conditions with evidence of MS4 contributions. The initial list was then compared with the public input that was provided during the October 3, 2013 and June 26, 2014 workshops and the public data call. The priorities identified in previous planning documents were also considered. Many of the same concerns were provided during the workshop and were evident in the third-party data. Finally, the overall potential for improvement of MS4 discharges to affect conditions within the overall WMA was considered. The list of priority water quality conditions was then finalized on the basis of these factors (Table 3-19).

TABLE 3-19
PRIORITY WATER QUALITY CONDITIONS IN THE SAN DIEGO RIVER WMA

Water Body	Dry Weather	Wet Weather
Famosa Slough and Channel	• Eutrophic	
Forester Creek	• Indicator Bacteria • Total Dissolved Solids	• Indicator Bacteria
Murray Reservoir	• Nitrogen	
Pacific Ocean Shoreline, at the San Diego River outlet, at Dog Beach	• Enterococcus • Total Coliform	• Enterococcus • Total Coliform
Lower San Diego River	• Enterococcus • Fecal Coliform • Nitrogen • Phosphorus • Total Dissolved Solids • IBI	• Enterococcus • Fecal Coliform
El Capitan Lake	• Phosphorus • Total Nitrogen as N	

SOURCE: LWA, 2016b

3.7.3.3 Highest Priority Water Quality Conditions

The San Diego River WMA WQIP (LWA, 2016b) presents the process that assessed and identified the Highest Priority Water Quality Conditions based on the list of priority water quality conditions presented above in Table 3-19. The San Diego River WMA WQIP (LWA, 2016b) used a similar method to the San Luis Rey River WMA WQIP (LWA, 2016a) as discussed in Section 3.2.3.3. The highest priority water quality conditions are presented in Table 3-20.

TABLE 3-20
HIGHEST PRIORITY WATER QUALITY CONDITIONS IN THE SAN DIEGO RIVER WMA

Highest Priority Condition	Dry Weather	Wet Weather
Forester Creek	• Indicator Bacteria	• Indicator Bacteria
Pacific Ocean Shoreline, at the San Diego River outlet, at Dog Beach	• Enterococcus • Total Coliform	• Enterococcus • Total Coliform
Lower San Diego River	• Enterococcus • Fecal Coliform	• Enterococcus • Fecal Coliform

SOURCE: LWA, 2016b

3.7.4 Water Resources and Systems

The following watershed agencies in the San Diego River Watershed received water from the San Diego County Water Authority in 2015: City of San Diego (191,700 AF annually), Helix WD (31,100 AF), Padre Dam MWD (11,300 AF), Lakeside WD (3,700 AF), and Ramona MWD (6,100 AF) (SDCWA, 2015). Wastewater agencies include: City of San Diego, Padre Dam Municipal Water District, City of La Mesa, and City of El Cajon (Figure 3-42).

There are five reservoirs in the San Diego River WMA (Figure 3-40):

- El Capitan Reservoir , owned by the City of San Diego, can store up to 112,800 AF of surface water
- San Vicente Reservoir, owned by the City of San Diego, will be able to store up to 242,000 AF of both imported and surface water after project completion
- Cuyamaca Reservoir, owned by Helix WD, can store up to 8,200 AF of surface water
- Lake Jennings, owned by Helix WD, can store up to 9,800 AF of surface water
- Lake Murray, owned by the City of San Diego, can store up to 4,800 AF of surface water

Significant groundwater resources exist within the watershed, including the Mission Valley, San Diego River Valley, and El Cajon Valley groundwater basins (Figure 3-40). For the San Diego River Valley Groundwater Basin, DWR (1975) reports a capacity of 97,000 AF. The total capacity of the El Cajon Valley groundwater basin is estimated to be about 32,500 AF (DWR 1975). Groundwater use, however, is limited in downstream portions of the WMA due to high TDS concentrations. Additionally, a petroleum plume underneath Qualcomm Stadium and its parking lots impacts groundwater in Mission Valley.

3.7.5 Natural Resources

Figure 3-43 shows the parks and open space within the San Diego River WMA, including Anza-Borrego Desert State Park, Barnett Ranch Preserve, Boulder Oaks Preserve, Cuyamaca Mountain State Park, Mission Trails Open Space, Simon Preserve, Santa Ysabel East Preserve, and

Sycamore Canyon Open Space. Figure 3-43 also shows areas of the San Diego River WMA designated under the MSCP.

The San Diego River WMA provides critical habitat for 5 species, including Least Bell’s vireo, San Diego fairy shrimp, Spreading navarretia, Arroyo Southwestern toad, and Southwestern willow flycatcher (Figure 3-43).

3.7.6 Watershed Processes

Major issues in the San Diego Watershed consist of urbanization and its effects on water quality, hydromodification, loss of habitat, and the presence of non-native species. Increased urban development has increased the impervious surface area in the watershed leading to increased urban runoff impacting surface water quality. Urbanization has, and will likely continue to, affect the watershed hydrology and sediment transport patterns without proper management. Also at risk are the loss of native habitat in the watershed due to increased development and the presence of non-native invasive species. Invasive non-native plant species has been a significant problem of concern in the San Diego Watershed for many years. Many of the invasive non-native plants contribute to flooding, are a fire risk, and degrade native habitats.

Portions of the San Diego River have been altered and constrained due to heavy mining operations. Sand mining has impacted portions of the San Diego River by allowing sand to accumulate in the River, which creates ponding of water. Ponded water rapidly decreases its dissolved oxygen levels, negatively impacting aquatic life. Many mining operations in the San Diego River valley, however, are currently being phased out and restoration projects are underway.

3.8 San Diego Bay

3.8.1 San Diego Bay Watershed Management Area Description

The San Diego Bay WMA encompasses 282,584 acres and includes many jurisdictions, including the cities of San Diego, La Mesa, Lemon Grove, Chula Vista, Coronado, National City, Imperial Beach, the San Diego Unified Port District, the San Diego County Regional Airport Authority, and the County of San Diego. A map of the jurisdictions in the San Diego Bay WMA is provided in Figure 3-44. The watershed extends from the headwaters of the Sweetwater River in the east to San Diego Bay and the Pacific Ocean in the west.

The San Diego Bay WMA is different from other WMAs in San Diego County. The WMA comprises three very distinct HUs that are not hydrologically interconnected, but that have one final downstream receiving water body, namely San Diego Bay. The three HUs are Pueblo (908.00), Sweetwater (909.00), and Otay (910.00) (Figure 3-45). The Pueblo San Diego HU is comprised of three HAs: Point Loma (908.10), San Diego Mesa (908.20), and National City (908.30). The Sweetwater HU is comprised of three HAs: Lower Sweetwater (909.10), Middle Sweetwater (909.20), and Upper Sweetwater (909.30). The Otay HU is comprised of three HAs: Coronado (910.10), Otay (910.20), and Dulzura (910.30).

Major waterways within the San Diego Bay WMA include Otay River, Sweetwater River, Chollas Creek, Paradise Creek, Paleta Creek, and Switzer Creek (Figure 3-46).

3.8.2 Land Use

Land use within the overall San Diego Bay WMA is classified primarily as open space/parks and recreation (32 percent) and vacant and undeveloped land (25 percent). Other uses include residential (23 percent) and transportation (9 percent). Agriculture, commercial, commercial recreation, industrial, military, public facility, water, and under construction land uses each comprise 2 percent or less of the overall land use acreage (Weston, 2012).

Land use categories within the San Diego Bay WMA are shown on Figure 3-47, including multiple military facilities, including Naval Submarine base San Diego, Fleet Anti-Submarine Warfare, Naval Base San Diego, Naval Amphibious Base Coronado, and Brown Field Naval Auxiliary Air Station. Four tribal nations live within the WMA: the Viejas, Cuyapaipe, Jamul Indian Village, and Sycuan Reservations. Portions of the WMA are managed as the Cleveland National Forest and the USFWS Wildlife Refuge. Other parts of the WMA are managed by the BLM, including BLM Lands, BLM Wilderness Areas, and BLM National conservation areas.

3.8.3 Water Quality

3.8.3.1 Applicable TMDLs and Special Biological Habitats

San Diego Bay WMA TMDLs

Five TMDLs have been adopted in the San Diego Bay WMA. These include three for Chollas Creek (diazinon, metals, and bacteria), a copper TMDL for the Shelter Island Yacht Basin, and a Bacteria TMDL for multiple locations along the San Diego Bay shoreline. Table 3-21 summarizes the TMDLs that have been adopted or are in progress in the San Diego Bay WMA.

TABLE 3-21
TMDLS AND WATER QUALITY LIMITED SEGMENTS IN THE SAN DIEGO BAY WMA

Subwatershed	Water Body Name	Pollutant	Adoption Date
National City (908.10)	Chollas Creek	Diazinon	August 14, 2002
National City (908.30)	Chollas Creek	Copper, Lead, Zinc	June 13, 2007
National City (908.30)	Chollas Creek	Bacteria	February 10, 2010
Dulzura (908.10)	Shelter Island Yacht Basin	Copper	February 9, 2005
Dulzura (908.10), San Diego Mesa (908.20), National City (908.30), Lower Sweetwater (909.10)	San Diego Bay Shoreline	Bacteria	June 11, 2008
Dulzura (908.10), San Diego Mesa (908.20), National City (908.30), Lower Sweetwater (909.10), Coronado (910.10)	San Diego Bay	Marine Sediment	In progress

Special Biological Habitats

In the San Diego Bay WMA, the following water bodies and areas are of special significance and are classified as (1) impaired for BIOL beneficial use, (2) impaired for other beneficial use(s); or (3) not impaired:

- Impairment of BIOL:
  - None
- Impairment of other beneficial use(s):
  - San Diego Bay: 303(d)-listed for impaired Commercial, and Sport Fishing (COMM) (Polychloric Biphenyls (PCBs));
  - San Diego Bay Shoreline, North of 24th Street Marine Terminal: 303(d)-listed for impaired Marine Habitats (MAR) (benthic community effects and sediment toxicity);
  - San Diego Bay Shoreline, Seventh Street Channel: 303(d)-listed for impaired MAR (benthic community effects and sediment toxicity);
  - Pacific Ocean Shoreline, Point Loma HA, at Bermuda Avenue: 303(d)-listed for impaired REC-1 and SHELL (total coliform);
  - San Diego Bay Shoreline, at Americas Cup Harbor: 303(d)-listed for impaired EST (copper);
  - San Diego Bay Shoreline, near Submarine Base: 303(d)-listed for impaired MAR (benthic community effects, sediment toxicity, and toxicity);
  - San Diego Bay Shoreline, Shelter Island Shoreline Park: 303(d)-listed for impaired REC-1 (Enterococcus, fecal coliform, and total coliform);
  - San Diego Bay, Shelter Island Yacht Basin: 303(d)-listed for impaired EST (dissolved copper);
  - San Diego Bay Shoreline, 32nd St. San Diego Naval Station: 303(d) listed for impaired (benthic community effects and sediment toxicity);
  - San Diego Bay Shoreline, at Harbor Island (East Basin): 303(d) listed for EST (copper);
  - San Diego Bay Shoreline, at Harbor Island (West Basin): 303(d)-listed for impaired EST (copper);
  - San Diego Bay Shoreline, at Marriott Marina: 303(d)-listed for impaired EST (copper);
  - San Diego Bay Shoreline, at Spanish Landing: 303(d)-listed for impaired REC-1 and SHELL (total coliform);
  - San Diego Bay Shoreline, Between Sampson and 28th Streets: 303(d)-listed for impaired MAR (copper and Polycyclic aromatic hydrocarbons (PAHs)), COMM (mercury and PCBs), and WARM (zinc);
  - San Diego Bay Shoreline, Downtown Anchorage: 303(d)-listed for impaired MAR (benthic community effects and sediment toxicity);

  - San Diego Bay Shoreline, G Street Pier: 303(d)-listed for impaired REC-1 and SHELL (total coliform);
  - San Diego Bay Shoreline, near Chollas Creek: 303(d)-listed for impaired MAR (benthic community effects and sediment toxicity);
  - San Diego Bay Shoreline, near Coronado Bridge: 303(d)-listed for impaired MAR (benthic community effects and sediment toxicity);
  - San Diego Bay Shoreline, near Switzer Creek: 303(d)-listed for impaired MAR (chlordane and PAHs);
  - San Diego Bay Shoreline, Vicinity of B St and Broadway Piers: 303(d)-listed for impaired MAR (Benthic community effects and sediment toxicity and REC-1 and SHELL (total coliform);
  - San Diego Bay Shoreline, at Bayside Park (J Street): 303(d)-listed for impaired REC-1 (Enterococcus and total coliform);
  - San Diego Bay Shoreline, Chula Vista Marina: 303(d)-listed for impaired EST (copper);
  - Pacific Ocean Shoreline, Coronado HA, at Silver Strand (north end, Oceanside): 303(d)-listed for impaired REC-1 (Enterococcus);
  - Pacific Ocean Shoreline, Imperial Beach Pier: 303(d)-listed for impaired REC-1 (fecal coliform and total coliform) and COMM (PCBs);
  - Pacific Ocean Shoreline, Otay Valley HA, at Carnation Ave and Camp Surf Jetty: 303(d)-listed for impaired REC-1 (total coliform);
  - San Diego Bay Shoreline, at Coronado Cays: 303(d)-listed for impaired EST (copper);
  - San Diego Bay Shoreline, at Glorietta Bay: 303(d)-listed for impaired EST (copper);
  - San Diego Bay Shoreline, Tidelands Park: 303(d)-listed for impaired REC-1 (Enterococcus and total coliform); and
  - Jamul Creek: 303(d)-listed for impaired WARM (toxicity).
- Not impaired:
  - San Diego Bay National Wildlife Refuge (NWR)–Sweetwater Marsh Unit
  - San Diego Bay NWR–South Bay Unit.

3.8.3.2 Priority Water Quality Conditions

The San Diego Bay WMA WQIP (SDBRP, 2016) provides a detailed description of the process for determining the Priority Water Quality Conditions for this WMA. Priority water quality conditions are defined as receiving water conditions for which there is evidence that MS4 discharges may cause or contribute to the condition. An initial list of priority water quality conditions was developed in the San Diego Bay WMA WQIP (SDBRP, 2016) by comparing receiving water conditions with evidence of MS4 contributions. The initial list was then compared with the public input that was provided during the September 5, 2013, workshop and the public data call. The priorities identified in previous planning documents were also considered. Many of the same concerns were provided during the workshop and were evident in the third-party data. Finally, the overall potential for improvement of MS4 discharges to affect conditions within the overall WMA was considered. The list of priority water quality conditions was then finalized on the basis of these factors. The final list of priority water quality conditions is presented in Table 3-22.

TABLE 3-22
PRIORITY WATER QUALITY CONDITIONS IN THE SAN DIEGO BAY WMA

HA/HAS, Water Body	Dry Weather	Wet Weather
Point Loma/908.1, Shelter Island Yacht Basin	• Metals (Dissolved Copper),	• Metals (Dissolved Copper),
Point Loma/908.1, Shelter Island Shoreline Park	• Bacteria	• Bacteria
Pueblo, San Diego Mesa/908.22, Chollas Creek	• Metals (Dissolved Copper, zinc, and lead)	• Metals (Dissolved Copper, zinc, and lead)
San Diego Mesa/908.22, Chollas Creek		• Bacteria
San Diego Mesa/908.22, Chollas Creek	• Diazinon	• Diazinon
San Diego Mesa/908.22, Chollas Creek	• Phosphorus	• Total Nitrogen
San Diego Mesa/908.22, Chollas Creek	• Trash	• Trash
San Diego Mesa/908.22, Chollas Creek (at Mouth)		• PAHs
San Diego Mesa/908.22, Chollas Creek (at Mouth)		• Chlordane
Diego Mesa/908.22, Chollas Creek (at Mouth)		• PCBs
San Diego Mesa/ 908.2, San Diego Bay Shoreline, between Sampson and 28th Streets	• PAHs	• PAHs
San Diego Mesa/908.2, San Diego Bay Shoreline, between Sampson and 28th Streets	• Mercury	• Mercury
San Diego Mesa/908.2, San Diego Bay Shoreline, between Sampson and 28th Streets	• PCBs	• PCBs
San Diego Mesa/908.2, San Diego Bay Shoreline, between Sampson and 28th Streets	• Zinc	• Zinc
San Diego Mesa/908.2, San Diego Bay Shoreline, near Switzer Creek (at the Mouth)		• PAHs
San Diego Mesa/908.2, San Diego Bay Shoreline, near Switzer Creek (at the Mouth)		• PCBs
San Diego Mesa/908.2, San Diego Bay Shoreline, near Switzer Creek (at the Mouth)		• Chlordane
National City/908.3, Mouth of Paleta Creek/Seventh Street Channel		• PAHs
National City/908.3, Mouth of Paleta Creek/Seventh Street Channel		• PCBs
National City/908.3, Mouth of Paleta Creek/Seventh Street Channel		• Chlordane
Lower Sweetwater (909.1), Lower Sweetwater River below reservoir	• Bacteria	• Bacteria
Lower Sweetwater (909.1), Lower Sweetwater River below reservoir	• Nutrients	• Nutrients
Lower Sweetwater (909.1)	• Trash	• Trash
Middle Sweetwater (909.2)	• Bacteria	• Bacteria
Coronado/910.1, Pacific Ocean Shoreline at Carnation Ave and Camp Surf Jetty	• Bacteria	• Bacteria
Coronado/910.1, Pacific Ocean Shoreline at Tidelands Park	• Bacteria	• Bacteria
Dulzura/910.3, Lower Otay Reservoir	• Nitrogen	• Nitrogen

SOURCE: SDBRPs, 2016

3.8.3.3 Highest Priority Water Quality Conditions

The San Diego Bay WMA WQIP (SDBRPs, 2016) presents the process that assessed and identified the Highest Priority Water Quality Conditions based on the list of priority water quality conditions presented above in Table 3-22. The San Diego Bay WMA WQIP (SDBRPs, 2016) used a similar method to the San Luis Rey River WMA WQIP (LWA, 2016a) as discussed in Section 3.2.3.3. The highest priority water quality conditions are presented in Table 3-23.

TABLE 3-23
HIGHEST PRIORITY WATER QUALITY CONDITIONS IN SAN DIEGO BAY WMA

Impaired Water Body	Pollutant/Stressor	Beneficial Use Impaired
Chollas Creek	• Bacteria • Dissolved copper, lead, and zinc	Water Quality

SOURCE: SDBRPs, 2016

3.8.4 Water Resources and Systems

The San Diego Bay WMA is served by multiple water districts receiving water from the San Diego County Water Authority in 2015, including the City of San Diego (191,700 AF), South Bay Irrigation District (13,600 AF annually), Helix Water District (31,100 AF), Otay Water District (34,500 AF), and Padre Dam Municipal Water District (11,300 AF) (SDCWA, 2015) (Figure 3-48). The Viejas Reservation and Sycuan Reservation located within the Sweetwater HU both operate onsite water systems (3-48).

The Metropolitan (Metro) Sewerage System, owned by the City of San Diego and operated by the San Diego Metro Wastewater Joint Powers Authority, serves the majority of the Pueblo HU (Figure 3-48). National City has its own wastewater division that maintains the City's sanitary sewer main and lines, closed storm collection systems, and pump stations. The Metro Sewerage System is responsible for treating most of the wastewater from cities located in the Pueblo HU, along with the western portions of the Sweetwater and Otay Watersheds. Other Wastewater Agencies within the WMA include Lemon Grove and Spring Valley (Figure 3-48).

Otay Water Treatment Plant is located near Savage Dam and is the only water treatment plant in the Otay HU. The Otay Water Treatment Plant is a conventional water treatment plant with a capacity to treat up to 40 MGD, though it currently produces approximately 34 MGD (CSD, 2011). Developed cities within the Otay HU, including portions of Chula Vista, San Diego, and Imperial Beach, are connected to the sewer system. The few developments in the unincorporated areas in the north, south, and east portion of the Otay HU are all connected to septic systems.

The Pueblo HU uses imported water and water stored in reservoirs in other HUs. The Sweetwater HU has two major reservoirs, Loveland Reservoir and Sweetwater Reservoir, which are both operated by the Sweetwater Authority. Both reservoirs trap rainfall and melting snow from the surrounding mountains and store natural runoff. Combined, both reservoirs can store approximately 52,200 AF of water. The Otay HU contains two major water supply reservoirs:

- Upper Otay Reservoir, owned by the City of San Diego, can store up to 2825 AF.
- Lower Otay Reservoir owned by the City of San Diego, can store up to 49,800 AF of surface and imported waters.

There are 3 groundwater basins located in the San Diego Bay WMA (Figure 3-46). No groundwater supply is currently developed within the Pueblo HU, but portions of the San Diego Formation (a deep confined groundwater aquifer) underlie portions of the watershed (Figure 3-46). Groundwater production in the Pueblo HU is limited due to lack of storage capacity in the basin, availability of groundwater recharge, and degraded water quality. Portions of the Mission Valley Groundwater Basin also underlie the Pueblo HU.

The Sweetwater Valley Groundwater Basin is a large groundwater basin that empties into the San Diego Bay underlying the Pueblo and Sweetwater HUs (Figure 3-46). Generally, the groundwater in the alluvium is of a sodium-calcium chloride character, with a TDS concentration ranging from 300 to more than 50,000 ppm. In the San Diego Formation, the water is of a sodium chloride character and the TDS content ranges from 600 to 1,600 mg/L (USACOE 1982). Data from 9 public supply wells shows TDS concentration ranging from 1,249 to 3,320 mg/L, with an average of approximately 2,114 mg/L. TDS, chloride and sodium content of the groundwater generally exceed the recommended limits for drinking (DWR, 2004o). Groundwater in the Sweetwater HU is pumped by the Sweetwater Authority.

The Otay Valley Groundwater Basin has unknown storage capacity, according to DWR (2004e). Groundwater in the coastal plain part of this basin has a sodium chloride character and ranges in TDS content from about 500 to more than 2,000 mg/L (DWR, 2004e). Groundwater in the eastern portion of the basin ranges from sodium-calcium bicarbonate-chloride to sodium-calcium chloride-bicarbonate in character (DWR, 1967). Concentration of TDS in water from the San Diego Formation ranges from 342 to about 12,000 throughout the region (DWR, 2004e). Groundwater is rated marginal to inferior for domestic use in the coastal plain because of high TDS content and suitable in the eastern part of the basin (DWR 1967). Water is rated marginal to inferior for irrigation use for most of the basin because of high chloride concentrations (DWR 1967). Groundwater production in the Otay HU is mostly from private wells for domestic use and irrigation in the unincorporated eastern portions of the HU. Recharge in the basin is derived from percolation of precipitation, stream-flow originating in the valley highlands, return of applied water, and from the rare releases from the Lower Otay Reservoir during flood conditions.

3.8.5 Natural Resources

Figure 3-49 shows the parks and open space within the San Diego Bay WMA, including Balboa Park, Cuyamaca Mountain State Park, Cuyamaca Rancho State Park, Lawrence and Barbara Daley Preserve, Otay Valley Regional Park, Pilcha Community Park, Stoneridge Preserve, and Sweetwater Regional Park. Approximately 36 square miles of the Otay HU is part of the MSCP (Figure 3-49).

The San Diego Bay WMA provides critical habitat for 9 species, including Least Bell’s vireo, Otay tarplant, San Diego fairy shrimp, Spreading navarretia, Quino checkerspot butterfly, Arroyo

Southwestern Toad, Riverside Fairy shrimp, Southwestern willow flycatcher, and Western snowy plover (Figure 3-49).

3.8.6 Watershed Processes

Major issues in the San Diego Bay WMA consist of surface water quality degradation, habitat degradation, and sediment toxicity in San Diego Bay due to urbanization. Due to damming, the Sweetwater River is now nearly dry most of the year except during the winter, when releases are made from the Loveland Reservoir. These release have had an impact on the arroyo toad, a federally listed endangered species and a state species of special concern. Similarly, the Otay River flows are significantly controlled via dams and reservoirs which has significantly altered the river flow regimes. The altered flow regime impacts habitat, the chemical and physical characteristics of the River, and the sediment distribution downstream (RWMG, 2013).

3.9 Tijuana

3.9.1 Tijuana Watershed Management Area Description

The Tijuana River Watershed is the largest of the San Diego watersheds. It encompasses over 1.1 million acres, 299,263 of which are in San Diego County. The Tijuana River WMA makes up 27 percent of the full Tijuana watershed and is under the jurisdiction of three separate entities, including the County of San Diego, City of San Diego, and City of Imperial Beach. The remaining area of the watershed (73 percent) is within the jurisdiction of Mexico (Figure 3-50).The Tijuana River is formed by two drainage networks that merge in the City of Tijuana, flow across the U.S. border into the Tijuana River Estuary, and ultimately drain to the Pacific Ocean.

The portion of the WMA located in San Diego County is comprised of the following eight HAs: Tijuana Valley (911.10), Potrero (911.20), Barrett Lake (911.30), Monument (911.40), Morena (911.50), Cottonwood (911.60), Cameron (911.70), and Campo (911.80). There are 18 HSAs in the Tijuana River WMA. The HUs and HAs for the Tijuana River WMA are shown in a map provided in Figure 3-51.

Major water bodies in the WMA include the Tijuana River, Cottonwood Creek, Barrett Lake, Lake Morena, Pine Valley Creek, Campo Creek, and Tijuana River Estuary (Figure 3-52). On the Mexican side of the border, major water bodies include Tecate Creek, Rio Alamar, and Rodriguez Reservoir.

This SWRP covers only the portion of the Tijuana Watershed located within San Diego County and not the portions that extend into Mexico.

3.9.2 Land Use

Dominant land uses in the U.S. portion of the watershed are vacant and undeveloped land (59 percent) and open space/parks and recreation (25 percent). Other land uses include residential (9 percent), agriculture (3 percent), and transportation (2 percent). Commercial, commercial recreation, industrial, military, public facility, construction, and water land uses account for the remaining 2 percent of the land area in the US portion of the watershed (SANDAG, 2009). The land use in the Mexican portion of the WMA is predominately vacant and undeveloped land (81.8 percent). Much of Mexico's lands classified as undeveloped are used for low-intensity cattle and goat grazing (Weston, 2012).

Land use categories within the Tijuana River WMA are shown on Figure 3-53, including military facilities at Naval Outlying Field Imperial Beach and U.S. Navy LA Posta Microwave Station. Tribal lands associated with four separate tribal reservations are located within the U.S. portion of the upper Tijuana Watershed. Those tribal reservations include the Cuyapaipe Reservation, Manzanita Reservation, La Posta Reservation, and Campo Reservation. These tribal lands account for approximately 8 percent of the total area of the Tijuana Watershed that is located within the U.S. Portions of the WMA are managed as the Cleveland National Forest and the USFWS Wildlife Refuge. Other parts of the WMA are managed by the BLM, including BLM Lands, BLM Wilderness Areas, and BLM National conservation areas.

3.9.3 Water Quality

3.9.3.1 Applicable TMDLs and Special Biological Habitats

Tijuana River WMA TMDLs

No TMDLs have been adopted for the Tijuana River WMA, but a bacteria TMDL is in progress for the Tijuana River and Estuary (Table 3-24).

TABLE3-24
TMDLS AND WATER QUALITY LIMITED SEGMENTS IN THE TIJUANA RIVER WMA

Sub Watershed	Water Body Name	Pollutant	Adoption Date
Tijuana Valley (911.10)	Tijuana River and Estuary	• Bacteria	In progress

Special Biological Habitats

Biological habitats of special significance within the Tijuana River WMA include the following portions of the Tijuana River Estuary (SDRWQCB, 2012c):

- Tijuana Estuary Natural Preserve (designated as a Natural Preserve by the State Park and Recreation Commission);
- Tijuana River National Estuarine Research Reserve, designated a National Estuarine Research Reserve by the National Oceanic and Atmospheric Administration, including Border Field State Park; and
- Tijuana Slough NWR (managed by the USFWS as part of the NWR System).

3.9.3.2 Priority Water Quality Conditions

The Tijuana River WMA WQIP (URS, 2016) provides a detailed description of the process for determining the Priority Water Quality Conditions for this WMA. The WQIP identified receiving water conditions and impacts from MS4 discharges to assess and develop a list of priority water quality conditions. Priority water quality conditions are defined as receiving water conditions for which there is evidence that MS4 discharges may cause or contribute to the condition. An initial list of priority water quality conditions was developed and then compared with the public input that was provided during the January 28, 2013 workshop and the public data call. The priorities identified in previous planning documents were also considered. Many of the same concerns were provided during the workshop and were evident in the third-party data. Finally, the overall potential for improvement of MS4 discharges to affect conditions within the overall WMA was considered. The list of priority water quality conditions was then finalized on the basis of these factors. The final list of priority water quality conditions is presented in Table 3-25.

TABLE 3-25
PRIORITY WATER QUALITY CONDITIONS IN THE TIJUANA RIVER WMA

Water Body	Dry Weather	Wet Weather
Tijuana River	• Impairment of WARM because of Sedimentation/Siltation/Solids/TSS • Elevated turbidity • Impairment of REC-1 because of indicator bacteria • Impairment of WARM because of low DO • Impairment of WARM because of nutrients • Impairment of REC-1 because of surfactants (MBAS) • Impairment of REC-2 because of trash • Impairment of WARM because of pesticides • Impairment of MUN because of synthetic organics • Impairment of WARM because of toxicity	• Impairment of WARM because of Sedimentation/Siltation/Solids/TSS • Elevated turbidity • Impairment of REC-1 because of indicator bacteria • Impairment of WARM because of low DO • Impairment of WARM because of nutrients • Impairment of REC-1 because of surfactants (MBAS) • Impairment of REC-2 because of trash
Tijuana River Estuary	• Impairment of MAR because of turbidity • Impairment of REC-1 because of indicator bacteria • Impairment of MAR because of low DO • Impairment of REC-2 because of trash	• Impairment of MAR because of turbidity • Impairment of REC-1 because of indicator bacteria • Impairment of MAR because of low DO • Impairment of REC-2 because of trash
Pacific Ocean Shoreline	• Impairment of REC-1 because of indicator bacteria	• Impairment of REC-1 because of indicator bacteria
Campo Creek	• Elevated indicator bacteria (dry weather) • Elevated nutrients (dry weather) • Elevated TDS (dry weather)	
Barrett Lake	• Impairment of WARM because of nutrients	• Impairment of WARM because of nutrients
Morena Reservoir		• Impairment of WARM because of nutrients

SOURCE: URS, 2016

3.9.3.3 Highest Priority Water Quality Conditions

The Tijuana River WMA WQIP (URS, 2016) provides the details of the process that assessed and identified the Highest Priority Water Quality Conditions based on the list of priority water quality conditions presented above in Table 3-24. The Tijuana River WMA WQIP (URS, 2016) used a similar method to the San Luis Rey River WMA WQIP (LWA, 2016a) as discussed in Section 3.2.3.3. The highest priority water quality conditions are presented in Table 3-26.

TABLE 3-26
HIGHEST PRIORITY WATER QUALITY CONDITIONS IN THE TIJUANA RIVER WMA

Highest Priority Condition	Dry Weather	Wet Weather
Tijuana River		• Sedimentation/Siltation
Tijuana River		• Turbidity
Tijuana Estuary		• Turbidity

SOURCE: URS, 2016

3.9.4 Water Resources and Systems

Two water agencies serve the Tijuana River WMA, the City of San Diego and Otay WDs, which both purchase water from the Water Authority. In 2015 the San Diego County Water Authority provided 191,700 AF to the City of San Diego and 34,500 AF to the Otay W.D. The Tijuana River WMA has two water supply reservoirs where purchased water can be stored:

- Morena Reservoir, owned by City of San Diego, can store up to 50,700 AF of surface water (CSD, 2012d).
- Barrett Reservoir, owned by City of San Diego, can store up to 34,800 AF of surface water (CSD, 2012c).

The Tijuana River WMA has four underlying groundwater basins: Tijuana, Cottonwood Valley, Campo Valley, and Potrero Valley (Fig 3-52). The Tijuana groundwater basin (estimated storage capacity 50,000 to 80,000 AF (DWR, 1975) underlies the portion of the coastal Tijuana River Valley that lies in California. In the Tijuana groundwater basin, the alluvium contains water of sodium chloride character. TDS content for this water typically ranges from 1,120 to 3,620 mg/L, although, less than 1,000 mg/L is found beneath some side canyons (Izbicki 1985). Groundwater in the San Diego Formation is sodium chloride in character and TDS content ranges from 380 to 2,360 mg/L (Izbicki 1985). Chloride and sulfate concentrations have exceeded the MCL in some wells in the basin (Izbicki 1985). The MCL for aluminum, barium, lead, selenium, and silver concentrations are exceeded individually in some wells in the basin (DWR 2006). Cottonwood Valley groundwater basin (storage capacity unknown) underlies portions of Cottonwood, Cameron, and La Posta Valley in eastern San Diego County. Groundwater in this basin is dominantly calcium bicarbonate in character with TDS content ranging from about 130 to 645 mg/L (DWR 1967). Campo Valley groundwater basin (estimated storage capacity estimated 63,450 AF (Erickson and Kingery, 1983) underlies the Campo Valley. The alluvium contains water of calcium bicarbonate character. Electrical conductivity readings are around 800 µmho (Erickson and Kingery 1983). In the 1960s, TDS concentration ranged from 219 to 480 mg/L (DWR 1967) and in the 1970s was less than 800 mg/L (DWR 2003). The groundwater in this basin was generally rated suitable for domestic and irrigation uses (DWR, 1967). Potrero Valley groundwater basin (storage capacity unknown) underlies a small valley 30 miles inland from

San Diego and about 2 miles from the Mexican border. In this basin, water character is variable, with calcium and sodium as the dominant cations and bicarbonate and chloride as the dominant anions (DWR 1967). TDS content ranges from 283 to 305 mg/L, and groundwater is designated as suitable for domestic and irrigation use (DWR 1967). Recharge for the groundwater basins in the Tijuana River WMA is primarily from percolation from ephemeral stream flow or reservoir releases. Some recharge also occurs from irrigation and discharge from septic tanks.

The Metro Sewerage System, owned by the City of San Diego and operated by the San Diego Metro Wastewater Joint Powers Authority), serves the lower portion of the WMA (Figure 3-54). The South Bay International Wastewater Treatment Plant, located in San Diego County just 2 miles west of the San Ysidro Port of Entry treats sewage originating in Tijuana, Mexico and discharges it to the Pacific Ocean. The South Bay Water Reclamation Plant is a water reclamation plant owned and operated by the City of San Diego, and located in the Tijuana River Valley (RWMG, 2013).

3.9.5 Natural Resources

Figure 3-55 shows the parks and open space within Tijuana River WMA, including Border Field State Park, Lake Morena Park, Cuyamaca Rancho State Park, Otay Mitigation Site, and Potrero Park. Areas of the Tijuana River WMA designated under the MSCP are also shown in Figure 3-55.

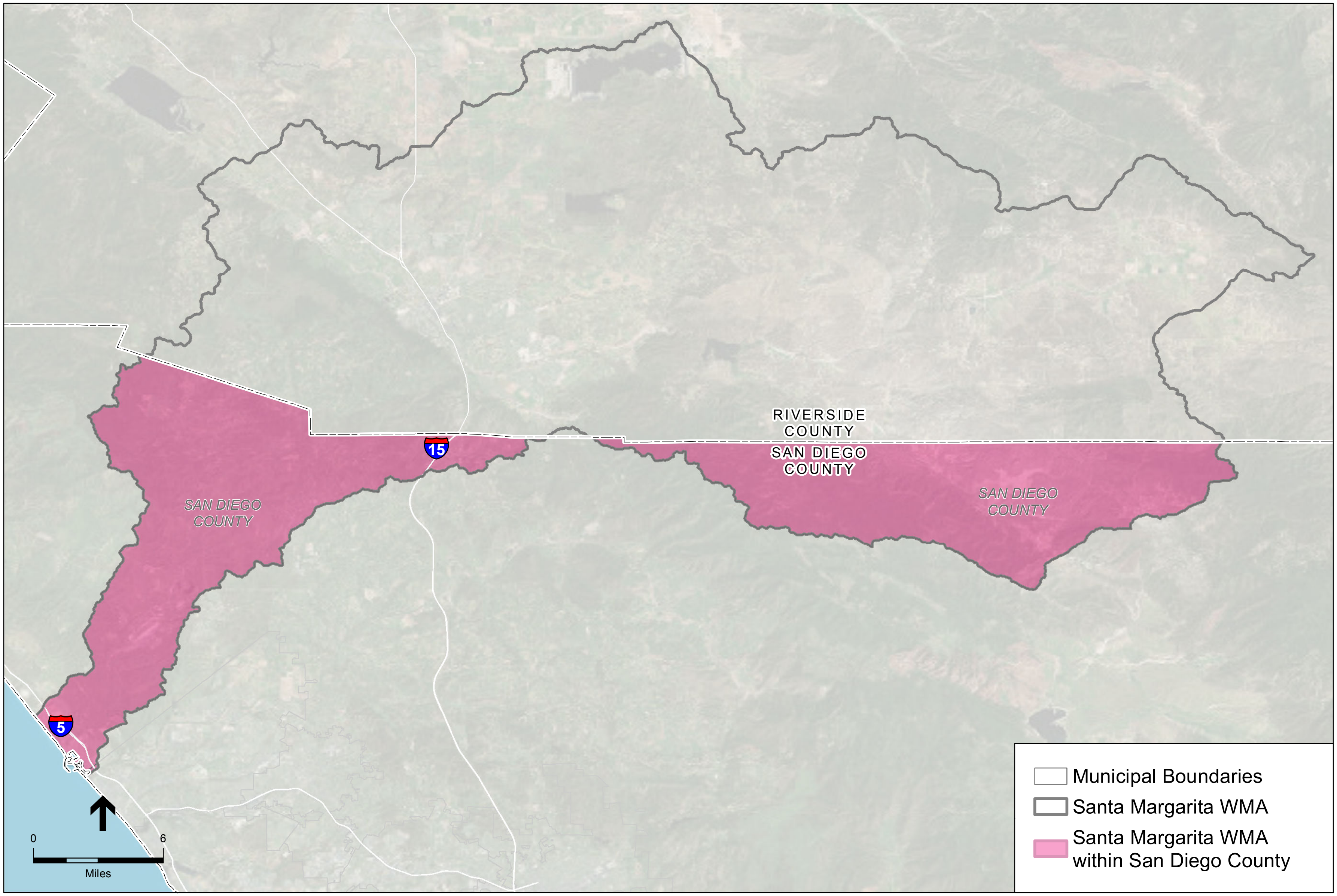
The Tijuana River WMA provides critical habitat for 9 species, including Least Bell’s vireo, Otay tarplant, San Diego fairy shrimp, Spreading navarretia, Quino checkerspot butterfly, Arroyo Southwestern Toad, Laguna Mountains Skipper, Riverside Fairy shrimp, and Western snowy plover. These critical habitats are shown in Figure 3-55.

3.9.6 Watershed Processes

The Tijuana Watershed has various environmental problems impacting both sides of the international border. Pollution impacts public health, the environment, and the economy of San Diego-Tijuana border communities.

Unplanned development, industry, and population growth in Tijuana has led to an increase in water quality issues, especially since many new developments in Mexico near the Tijuana River have no sewer infrastructure. Additionally, Mexico does not have a federal program like the US EPA’s NPDES program to minimize the threat of pollutants entering waterways.

The Department of Homeland Security has allowed for construction projects under the U.S. Border Fence program to be exempt from environmental regulations which could degrade habitat and water quality in the Tijuana Watershed. The border fence itself is also considered a significant hydromodification that impacts hydrology and natural hydrologic flows.

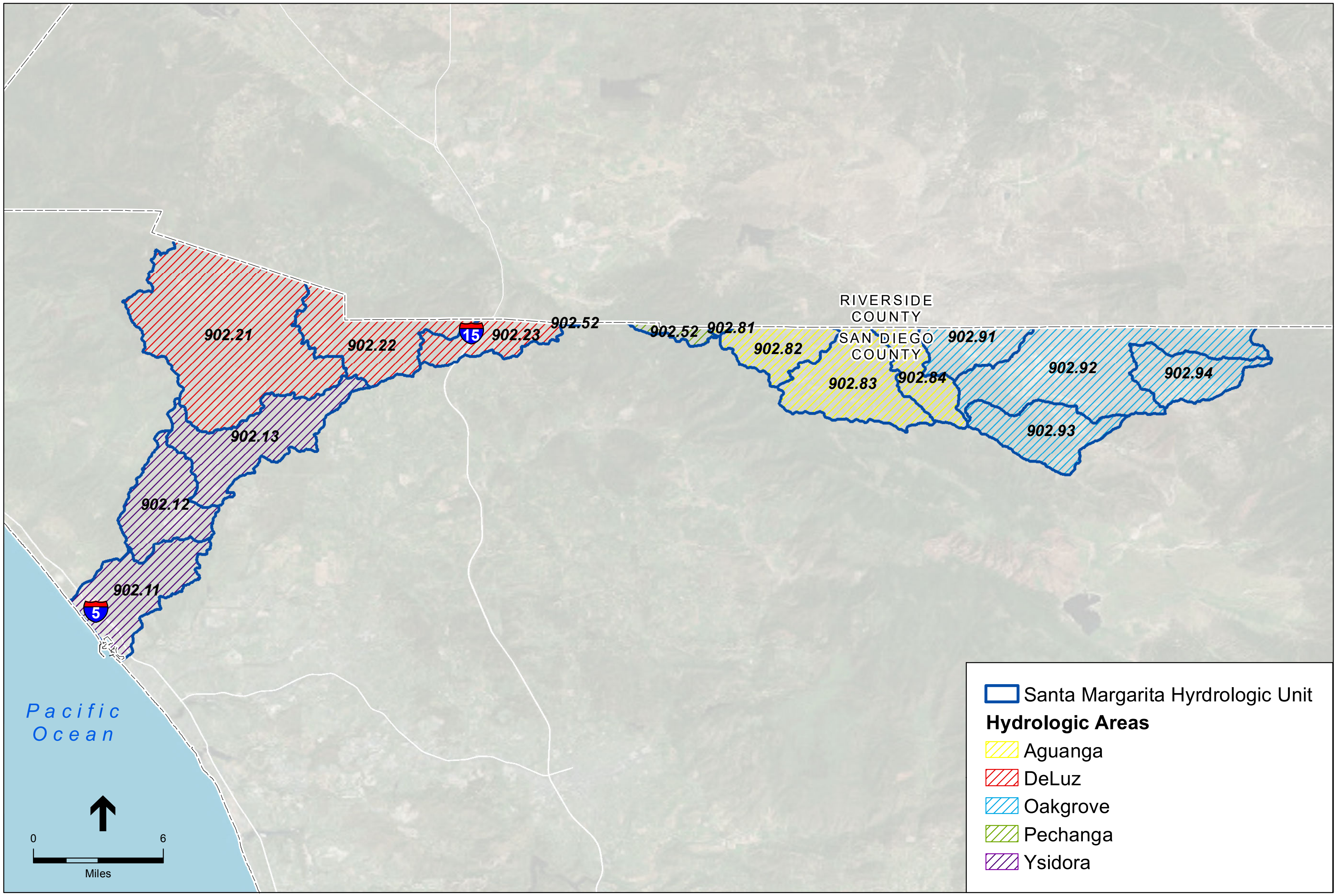


SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

Figure 3-2

City Boundaries within the Santa Margarita Water Management Area

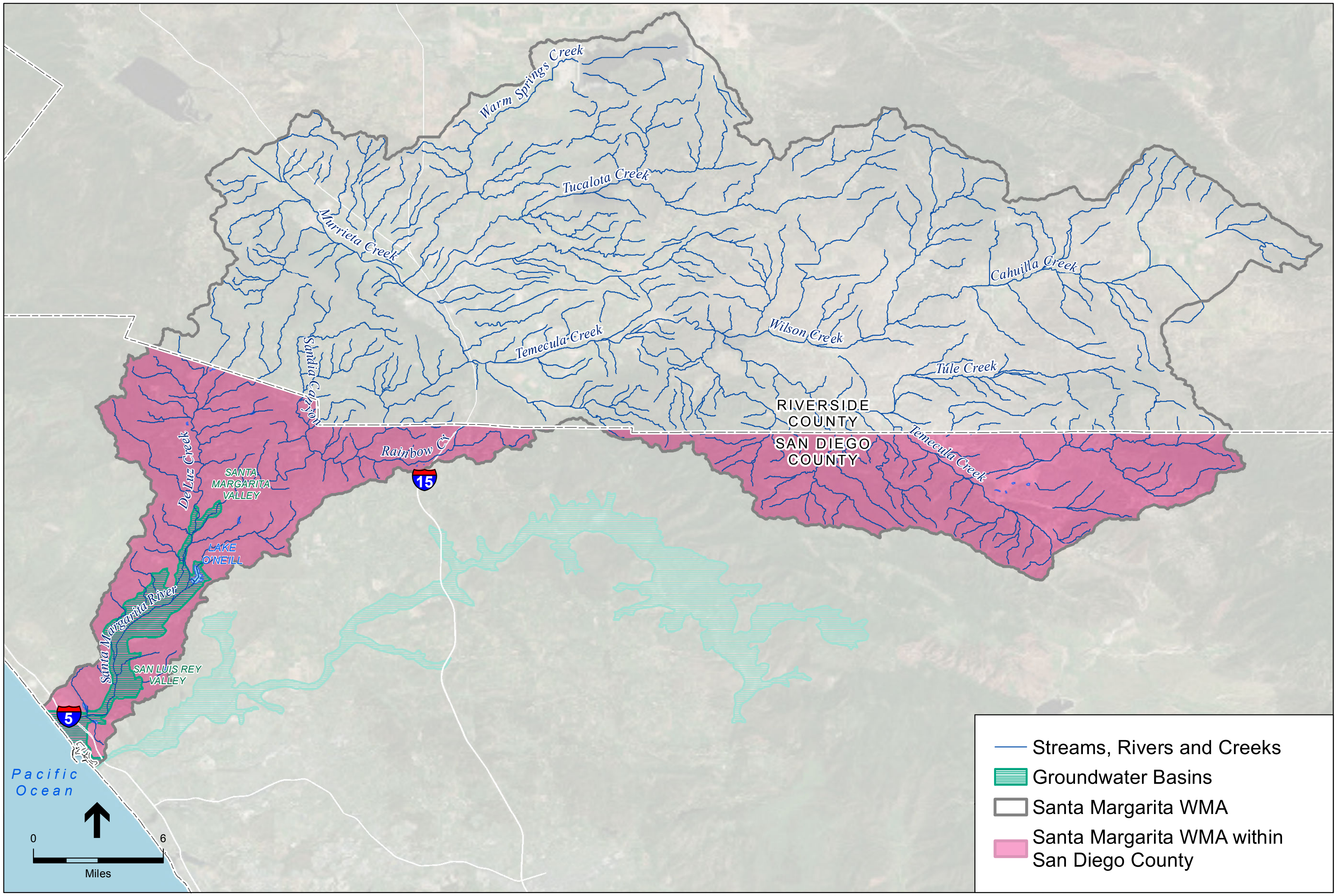


SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

Figure 3-3

Hydrologic Units and Areas within the Santa Margarita Water Management Area

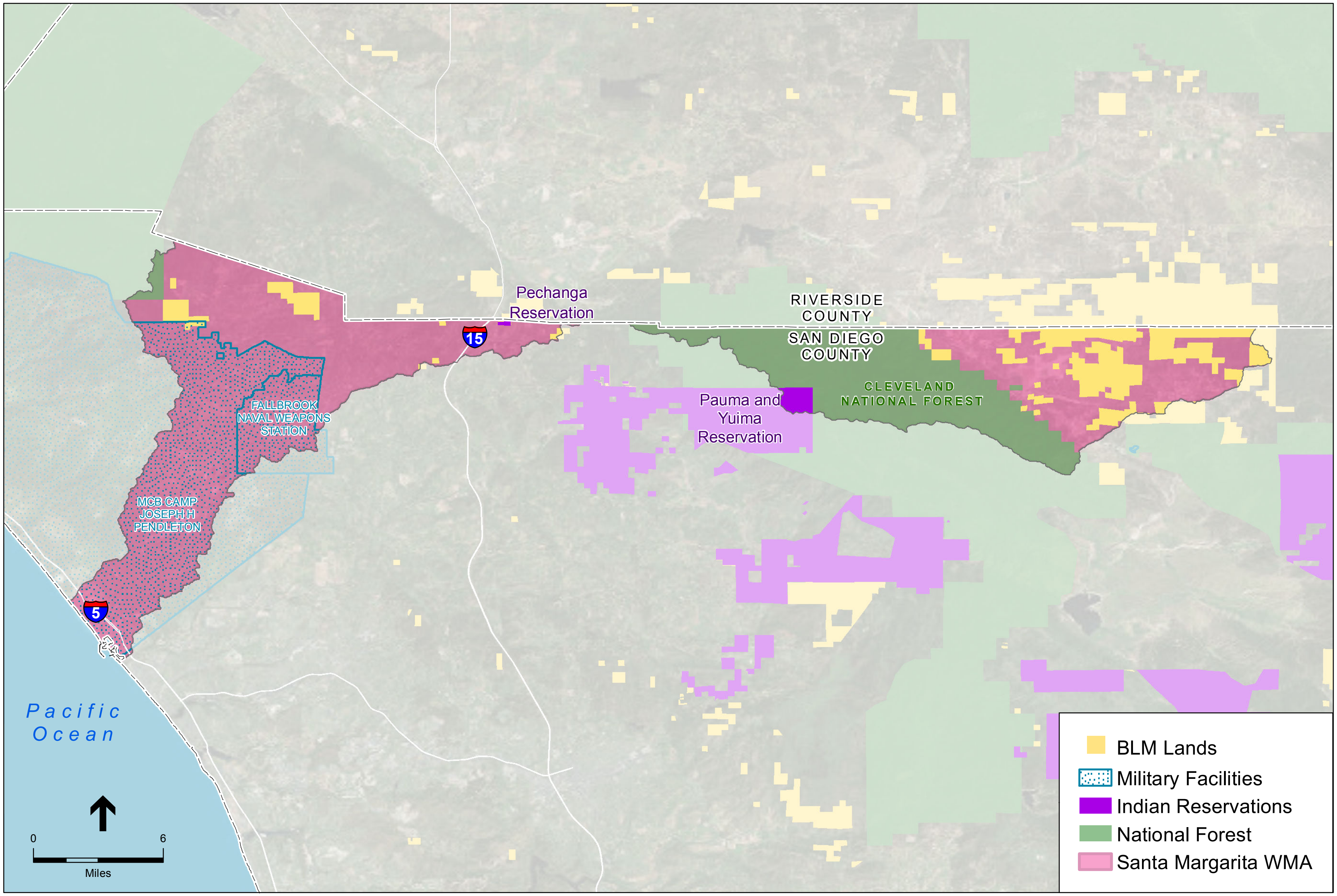


SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

Figure 3-4

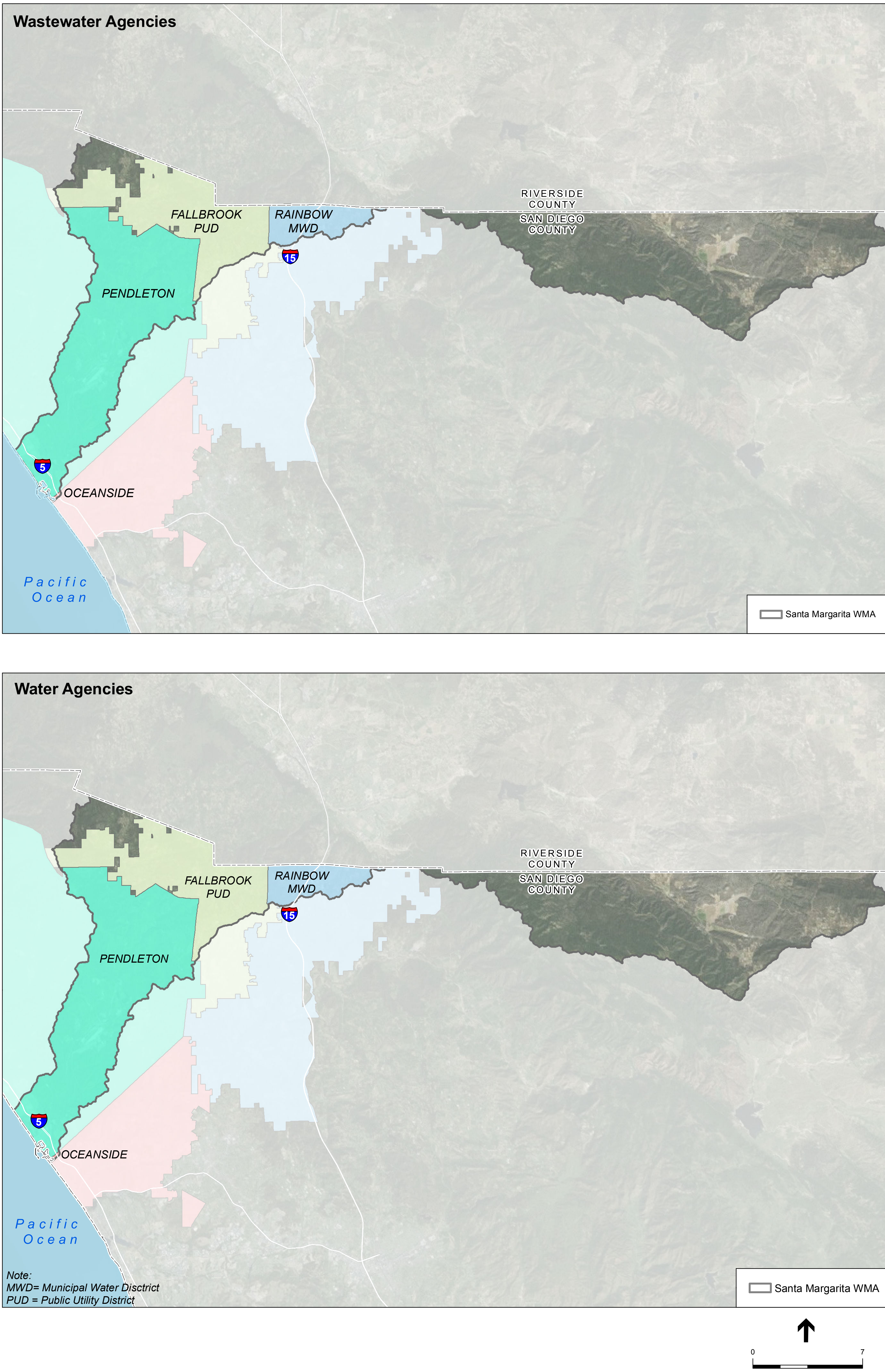
Water Features within the Santa Margarita Water Management Area



SOURCE: ESRI, 2016; SanGIS, 2016; Bureau of Land Management

SWRP . 160618

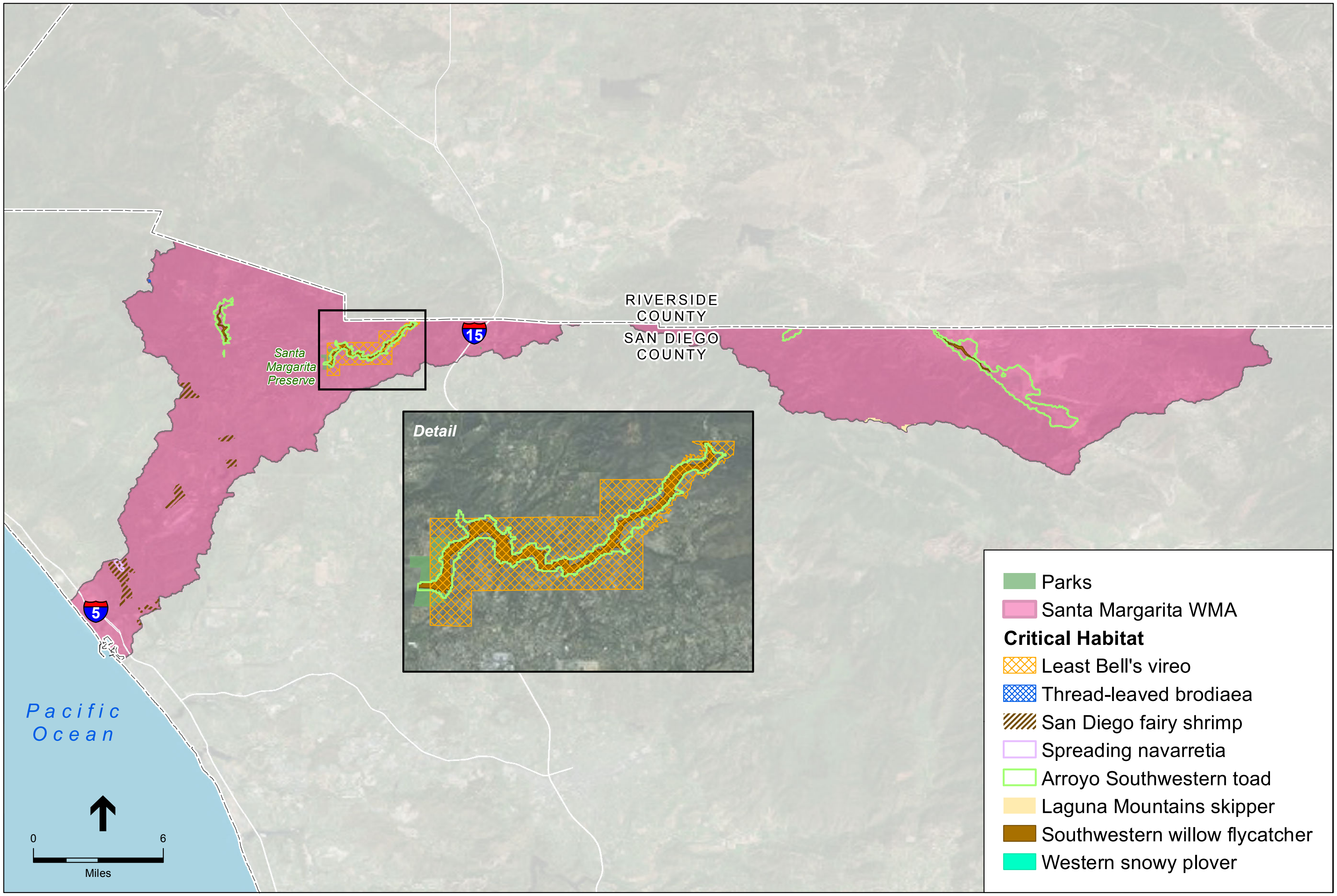
Figure 3-5
Land Use Agencies within the Santa Margarita Water Management Area



SOURCE: ESRI, 2016; SanGIS, 2016; IRWM, 2016

SWRP . 160618

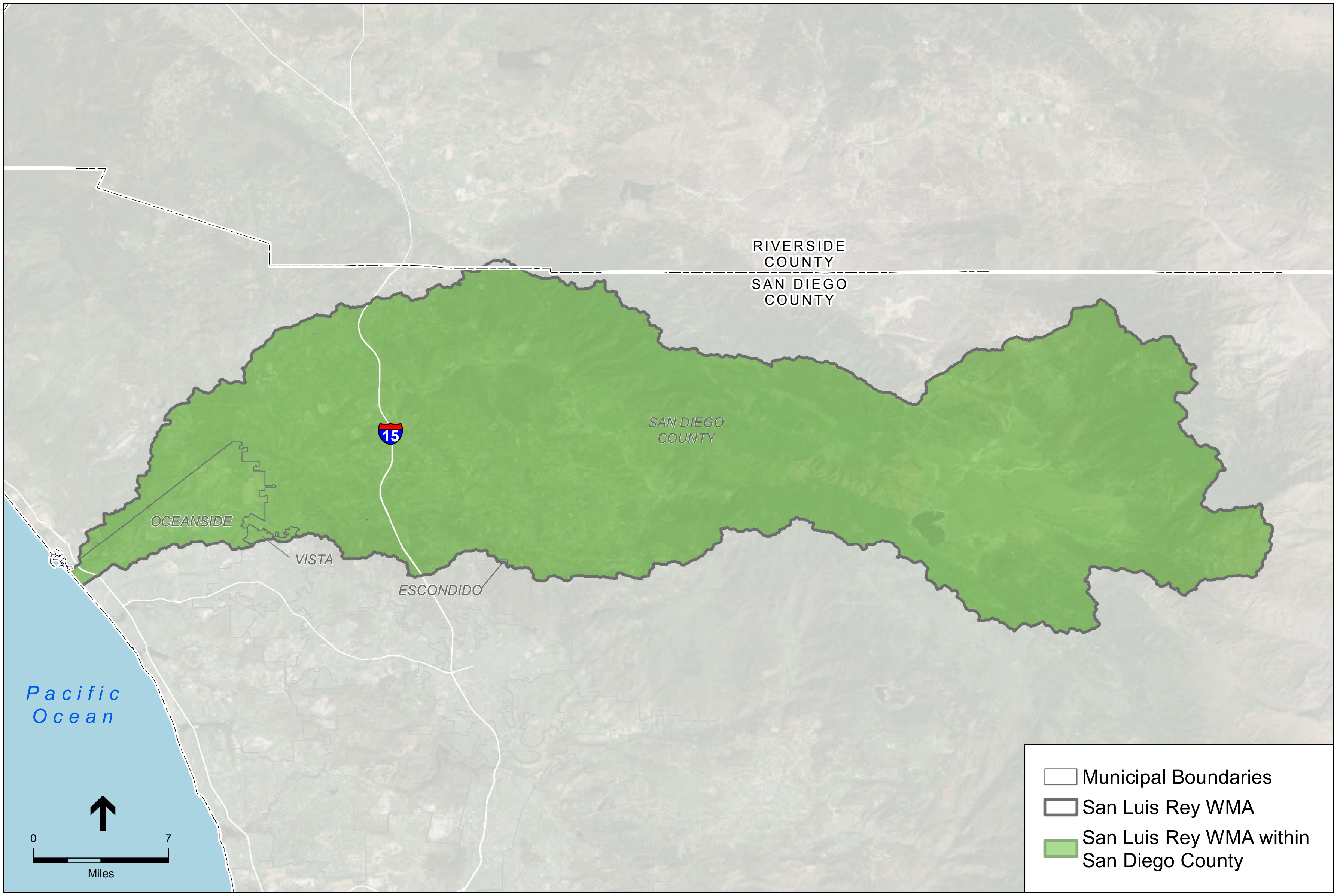
Figure 3-6
Water Agencies and Wastewater Agencies
within the Santa Margarita Water Management Area



SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

Figure 3-7
Critical Habitat within the Santa Margarita Water Management Area

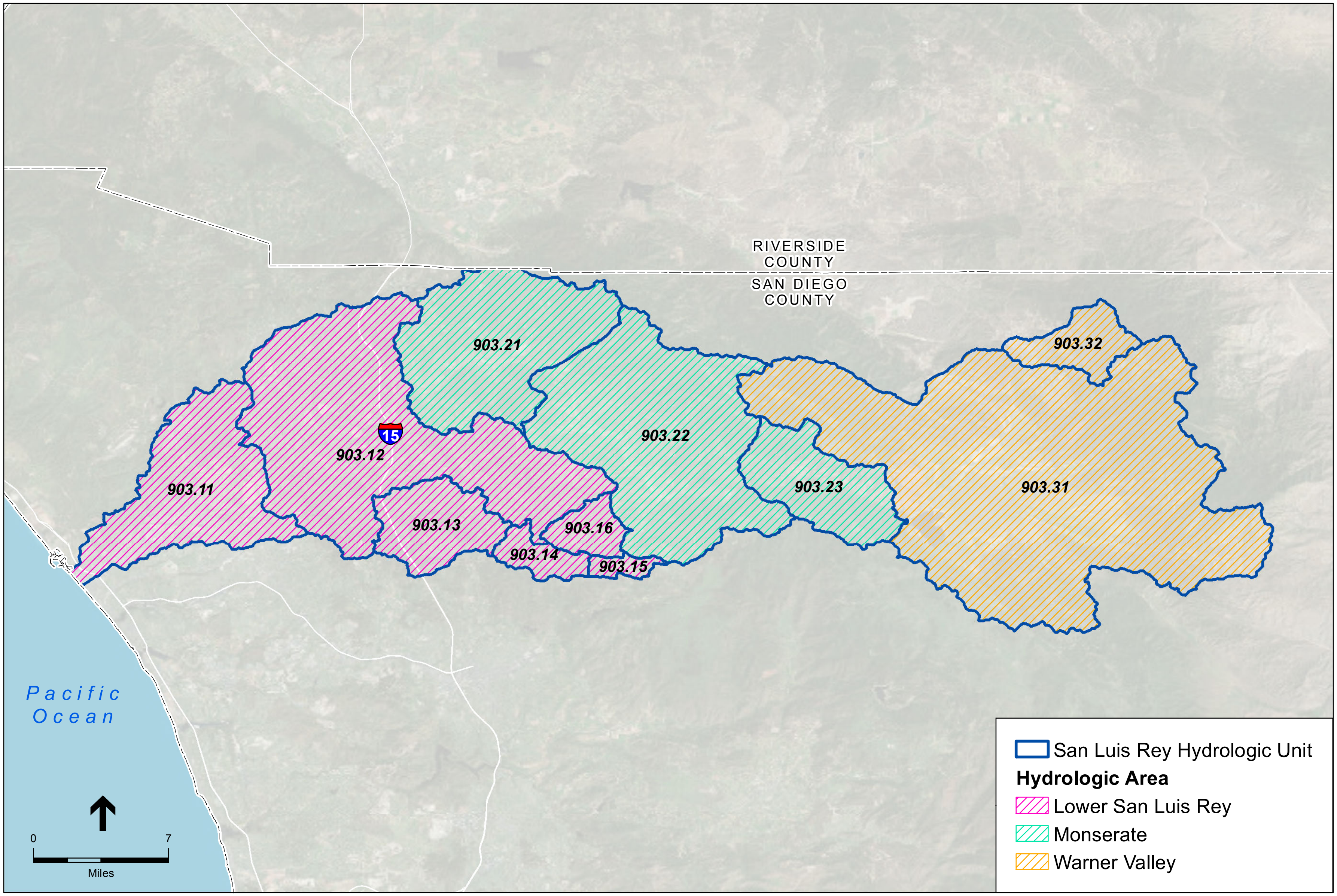


SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

Figure 3-8

City Boundaries within the San Luis Rey Water Management Area

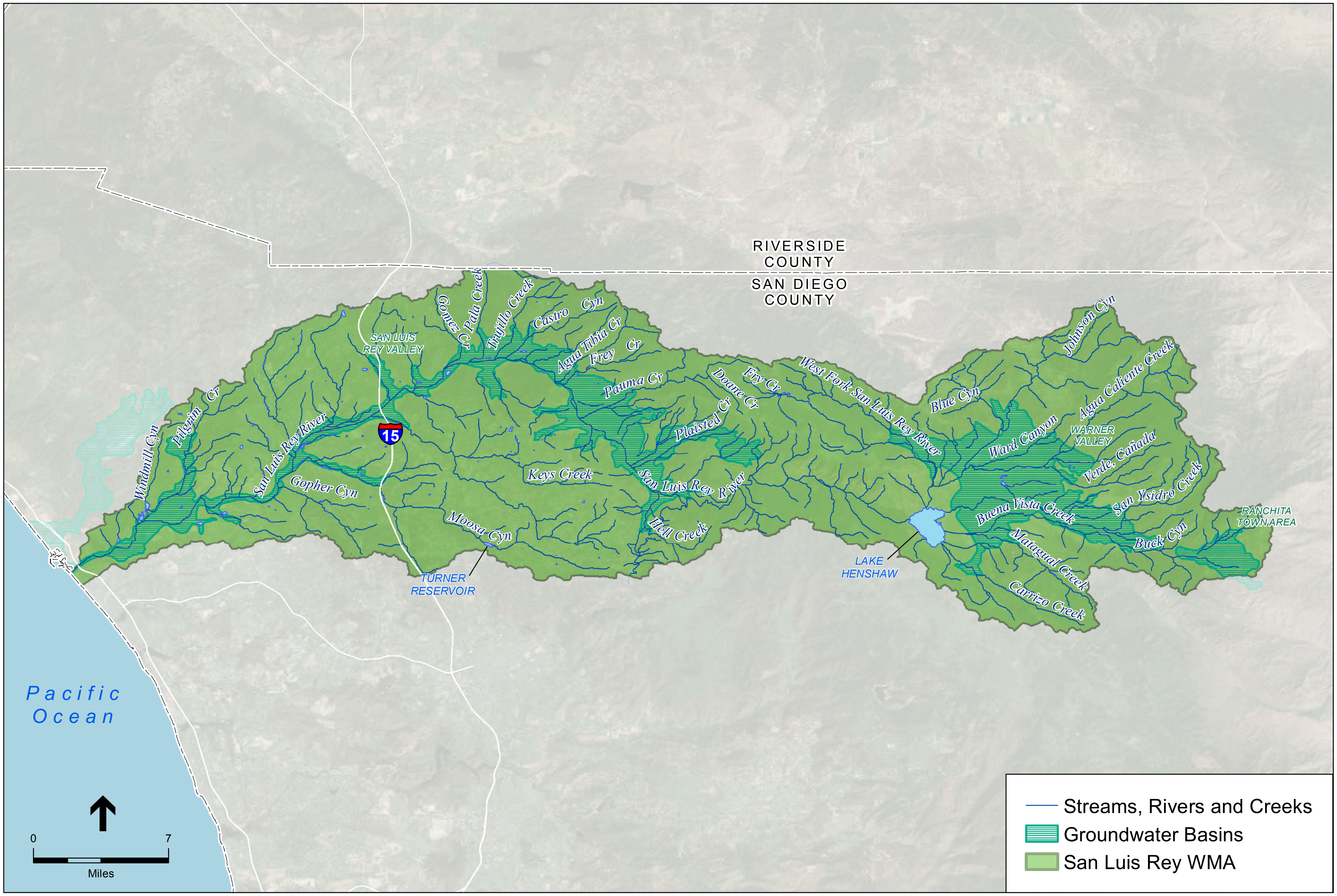


SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

Figure 3-9

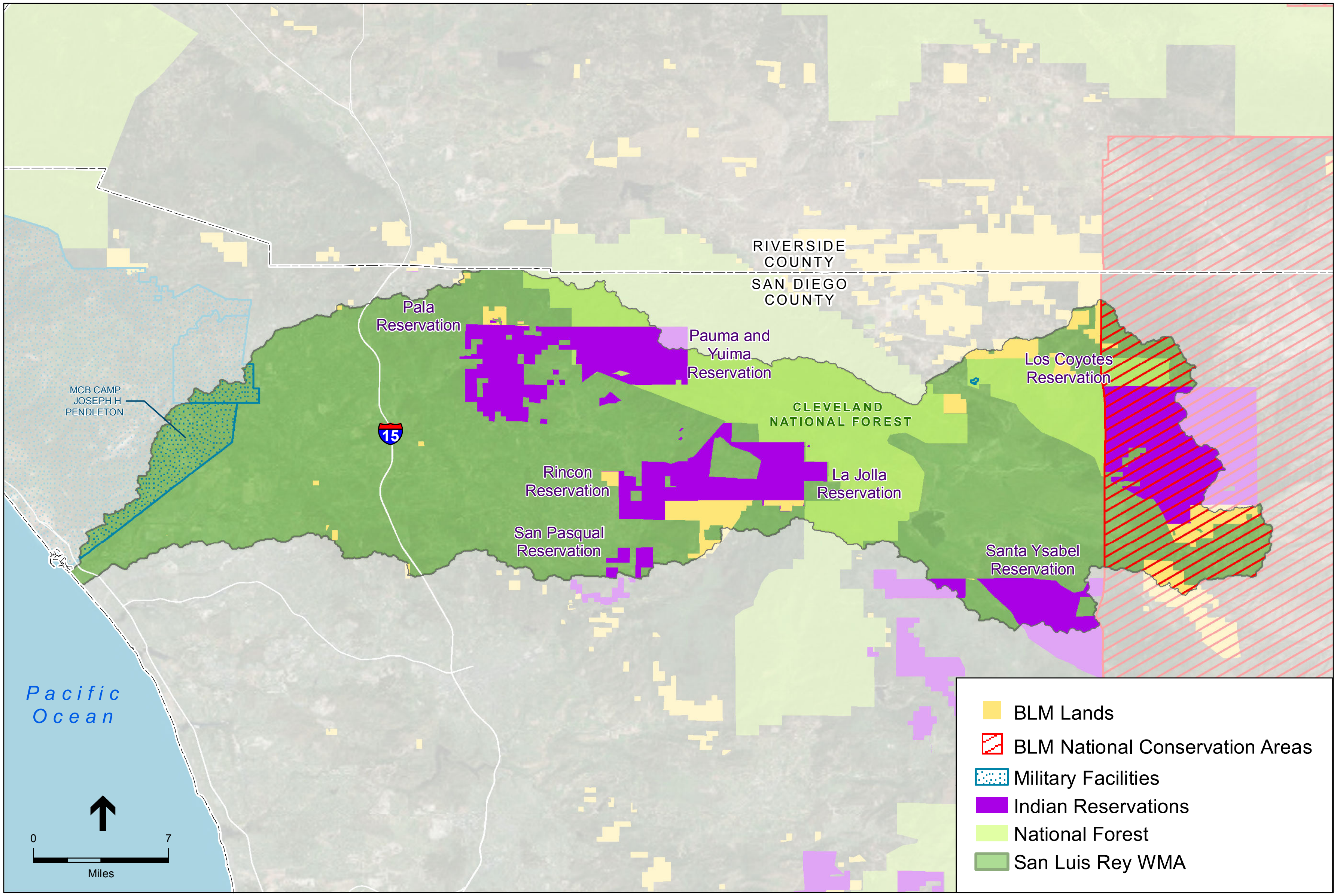
Hydrologic Units and Areas within the San Luis Rey Water Management Area



SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

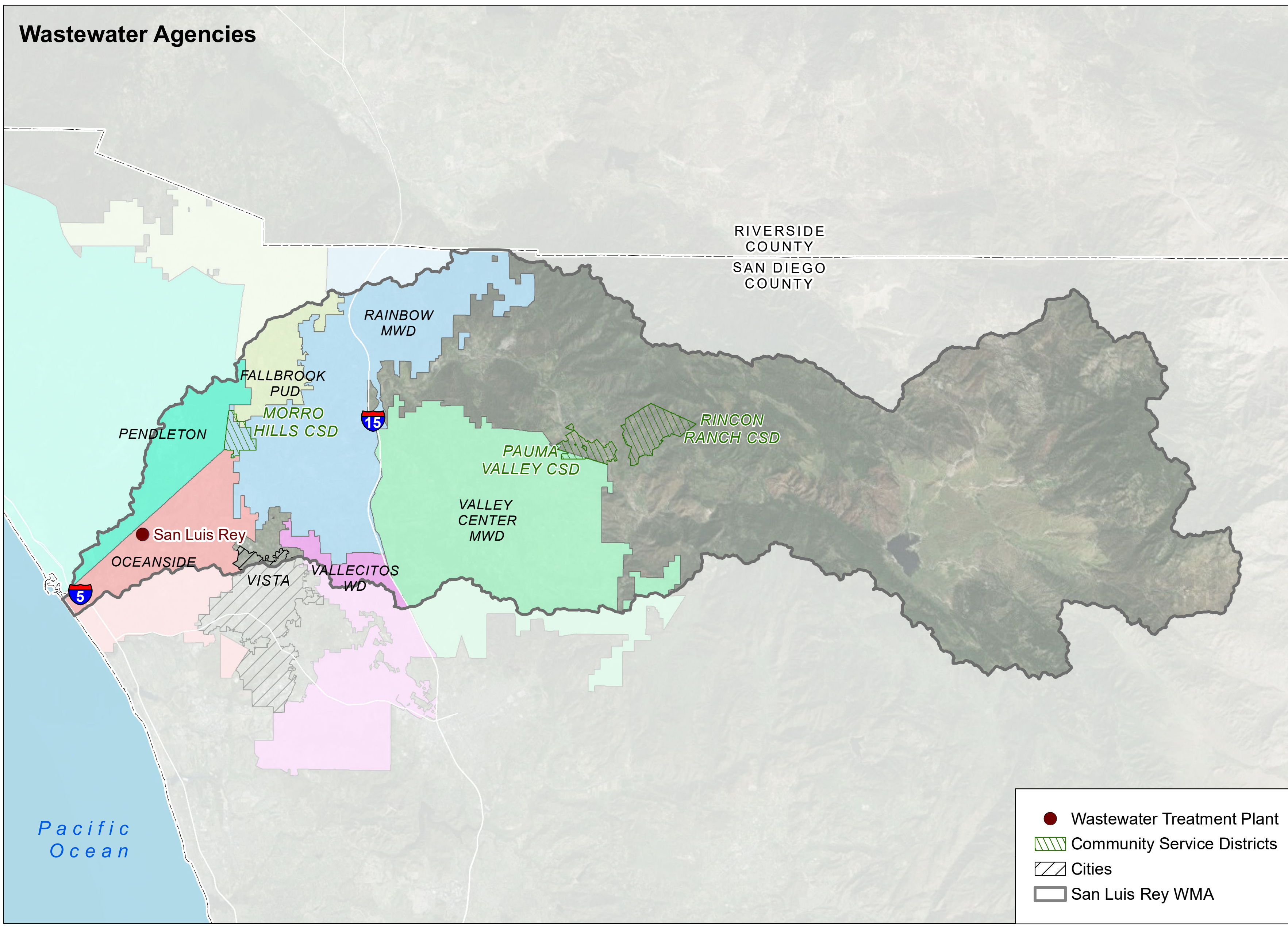
Figure 3-10
Water Features within the San Luis Rey Water Management Area

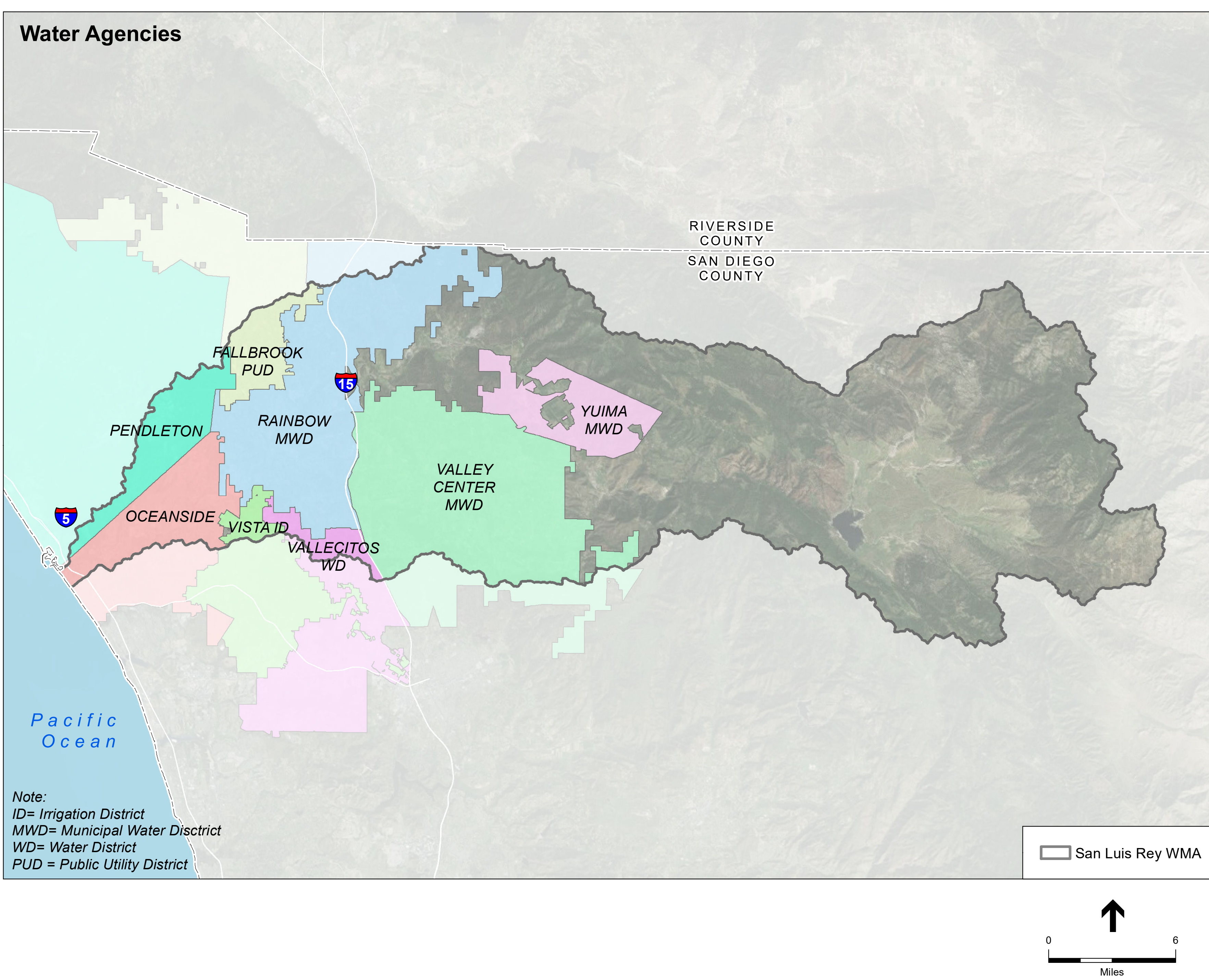


SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

Figure 3-11
Land Use Agencies within the San Luis Rey Water Management Area

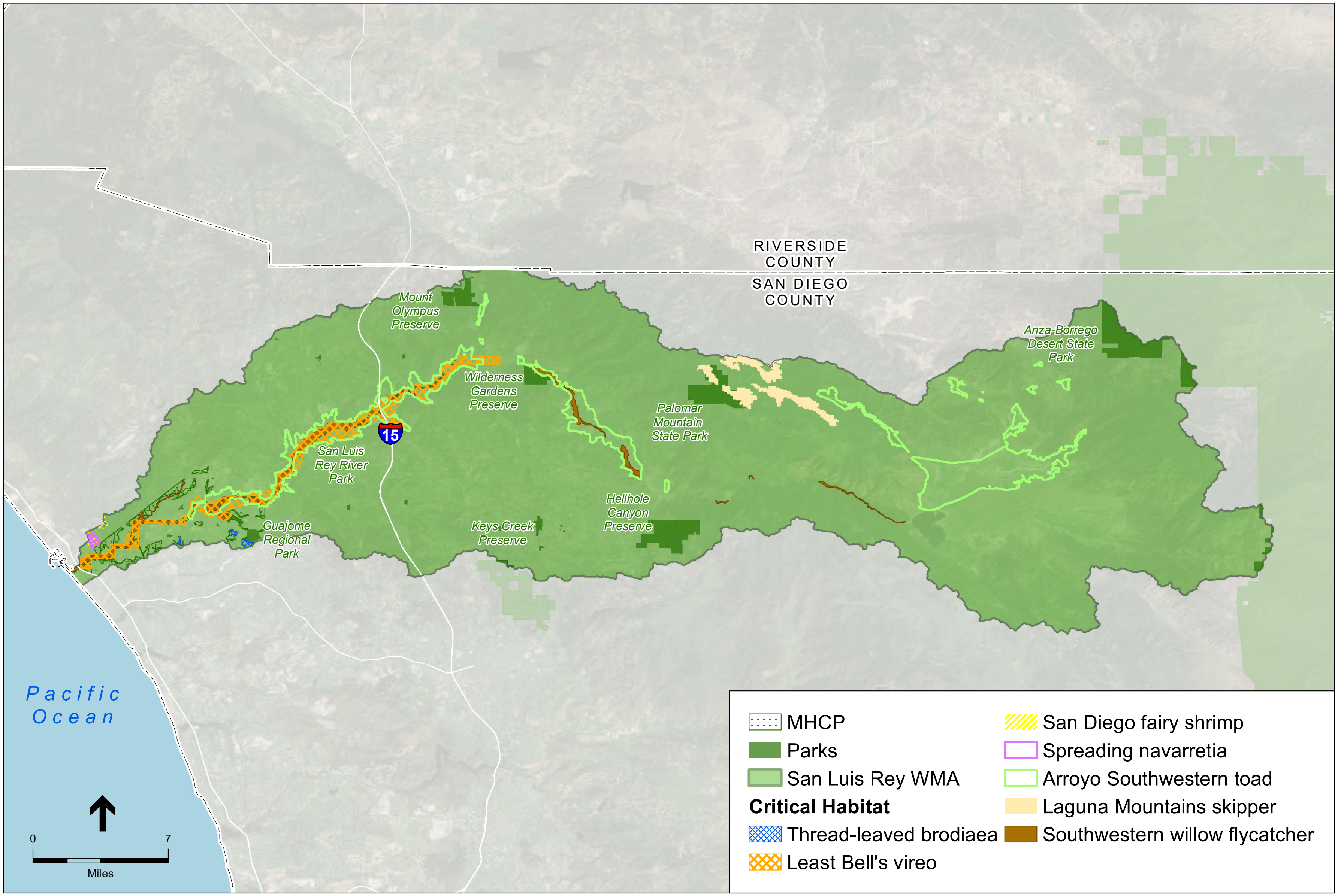




SOURCE: ESRI, 2016; SanGIS, 2016; IRWM, 2016

SWRP . 160618

Figure 3-12
Water Agencies and Wastewater Agencies within the San Luis Rey Water Management Area

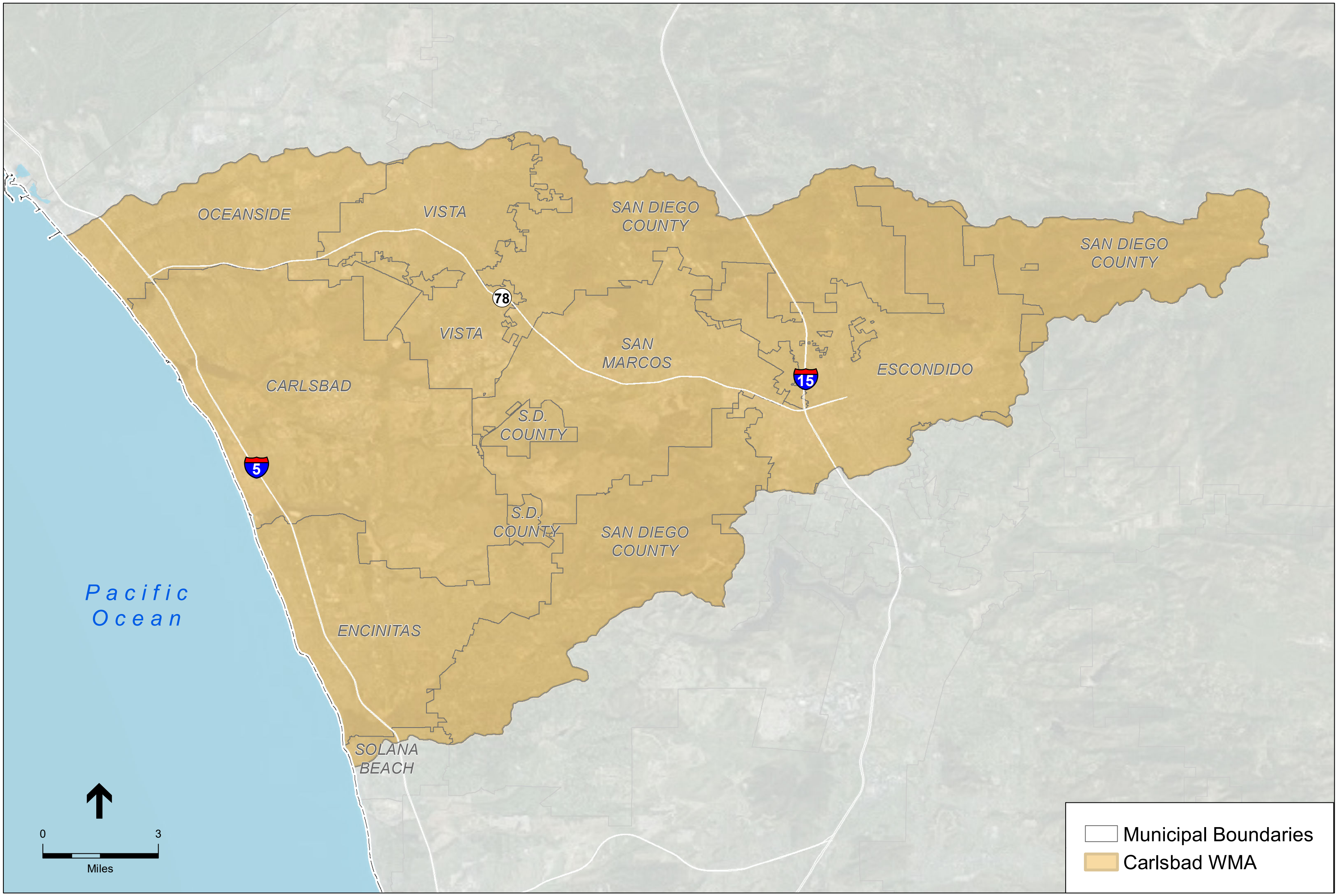


SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

Figure 3-13

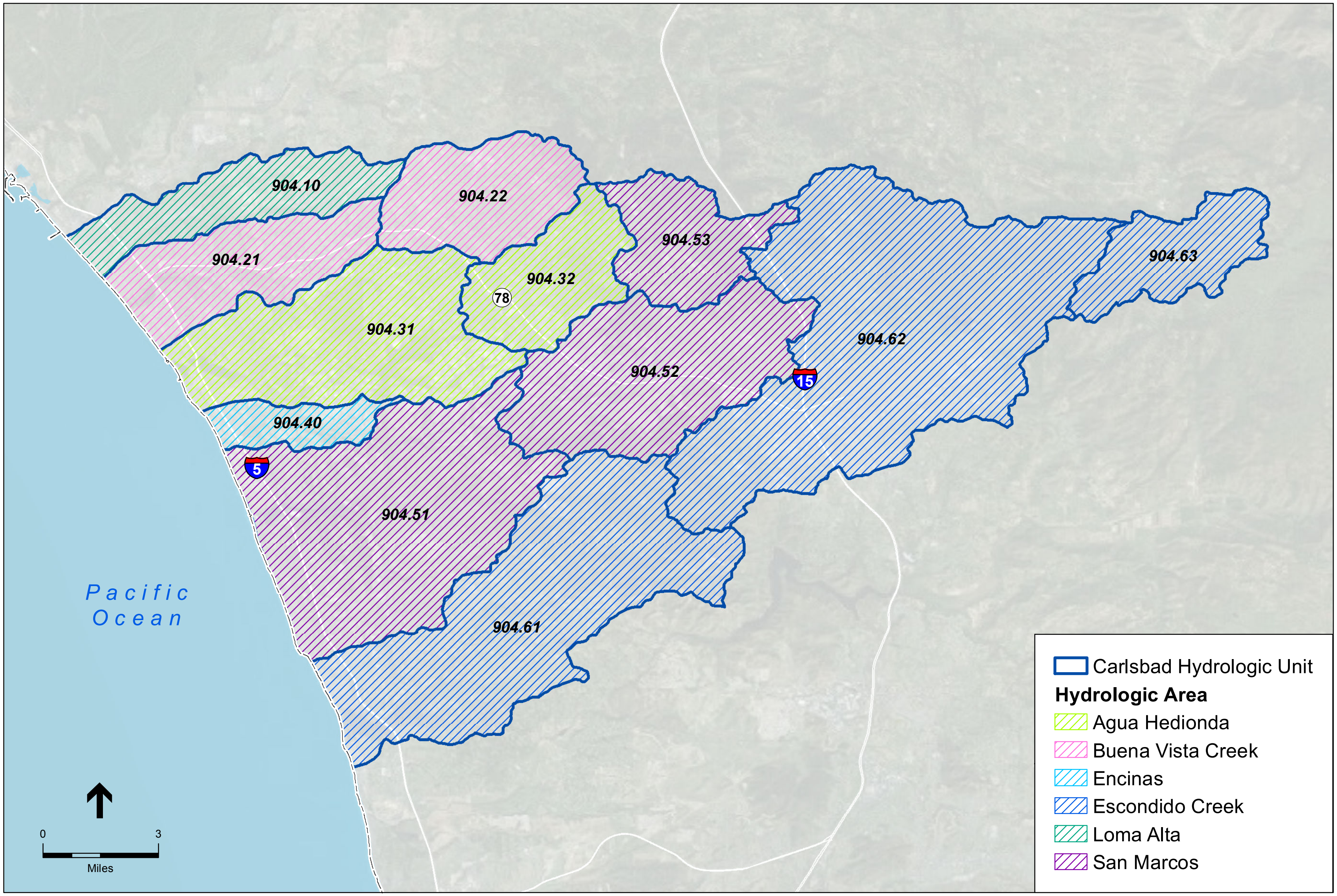
Critical Habitat within the San Luis Rey Water Management Area



SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

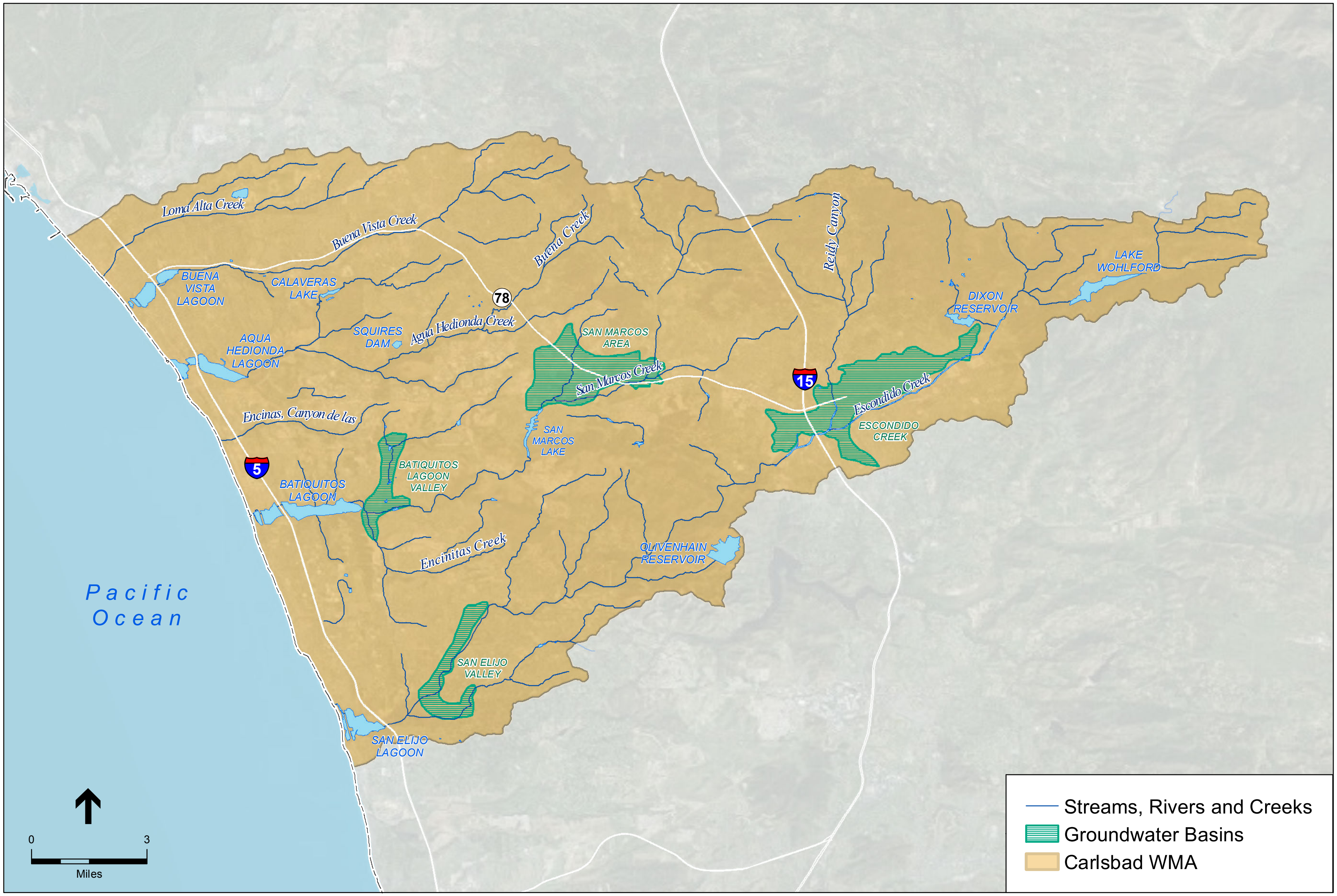
Figure 3-14
City Boundaries within the Carlsbad Water Management Area



SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

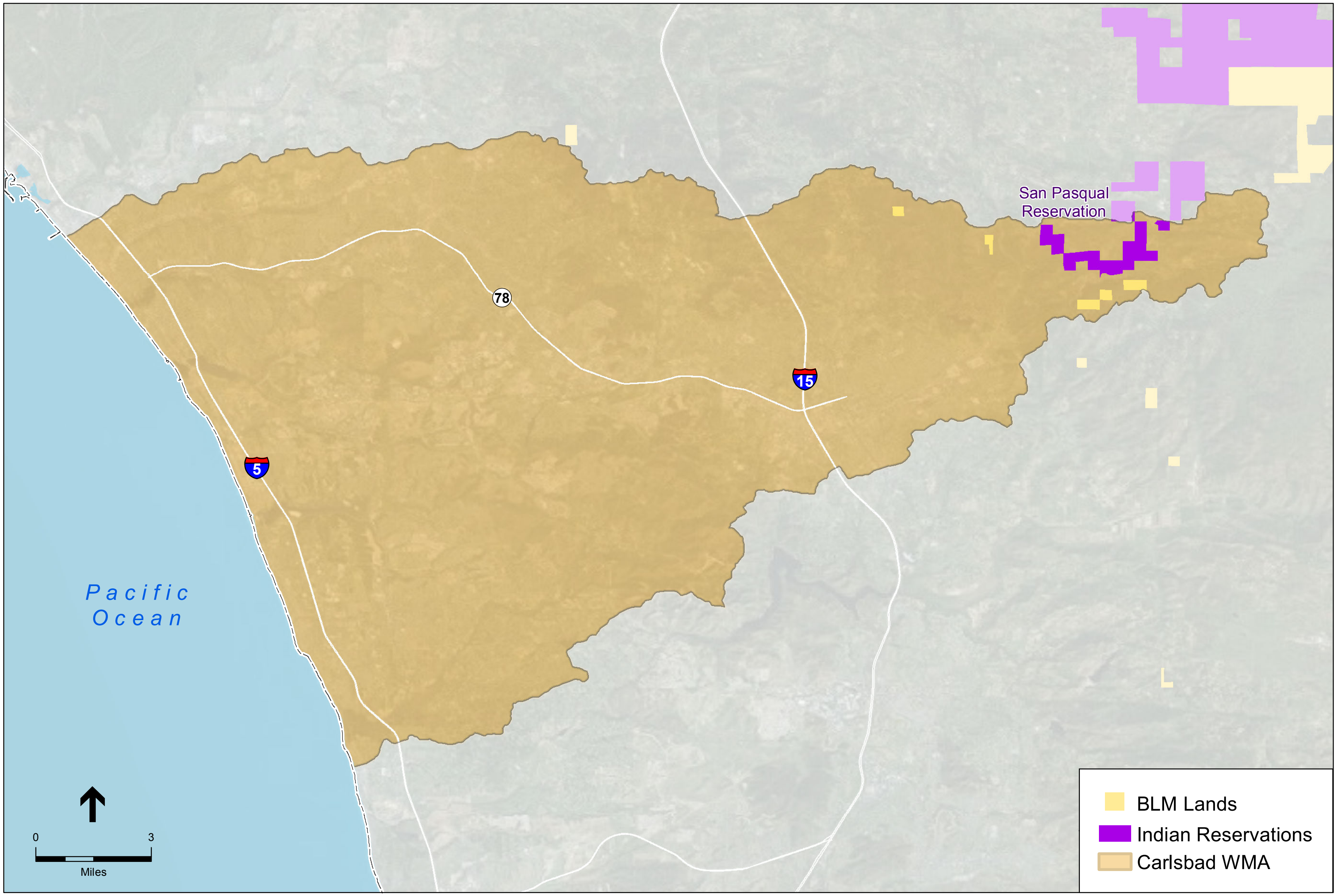
Figure 3-15
Hydrologic Units and Area within the Carlsbad Water Management Area



SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

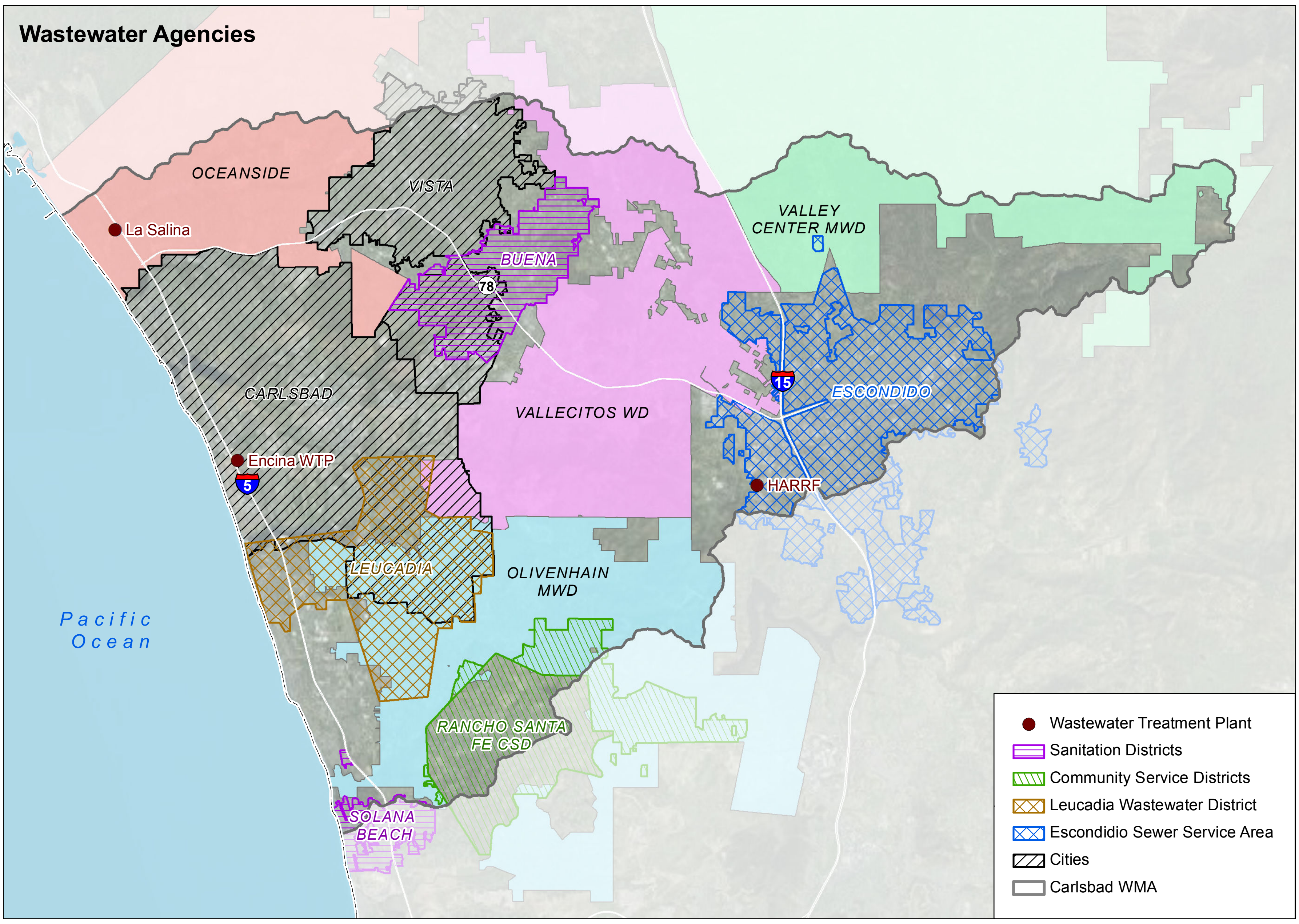
Figure 3-16
Water Features within the Carlsbad Water Management Area

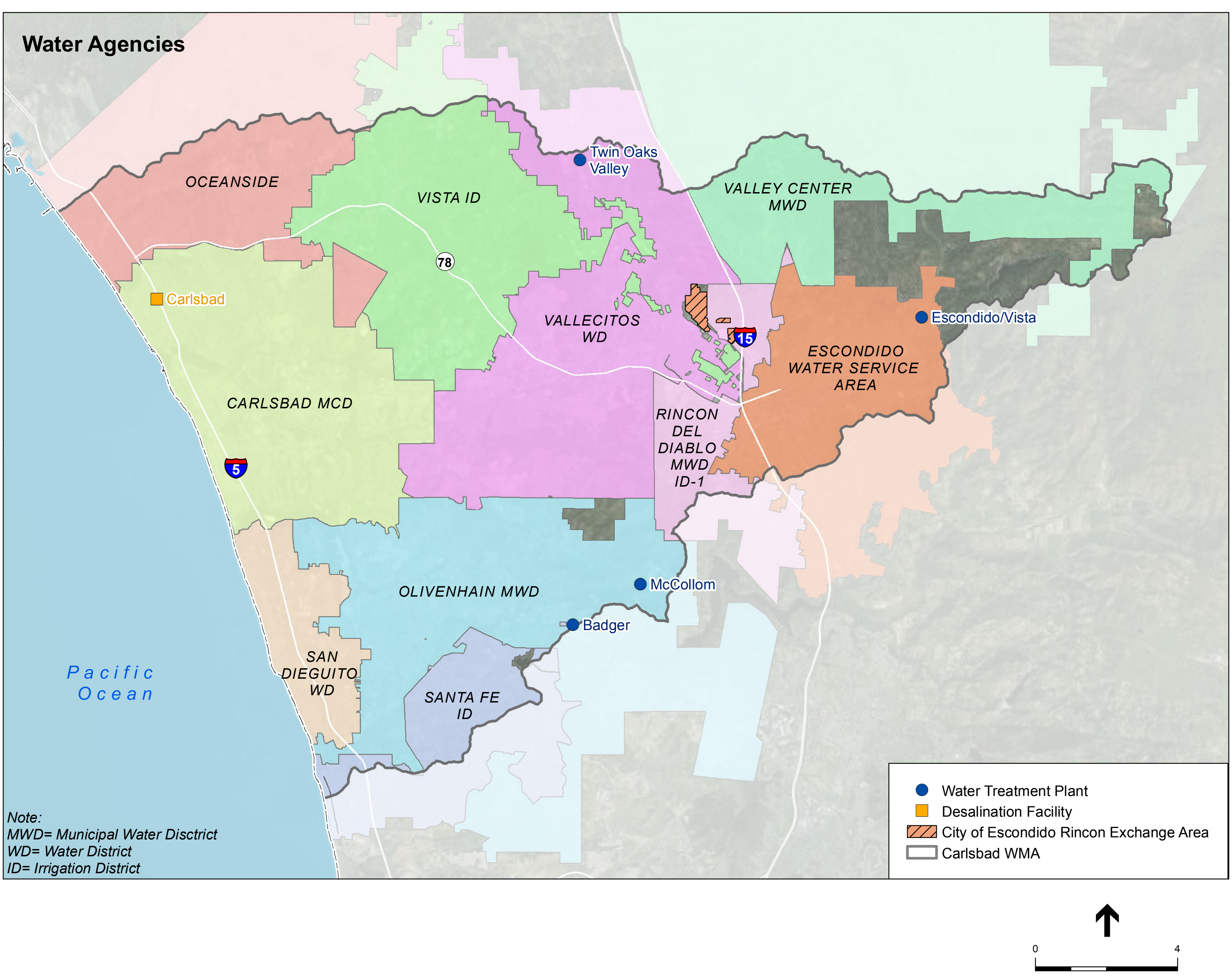


SOURCE: ESRI, 2016; SanGIS, 2016; Bureau of Land Management

SWRP . 160618

Figure 3-17
Land Use Agencies within the
Carlsbad Water Management Area

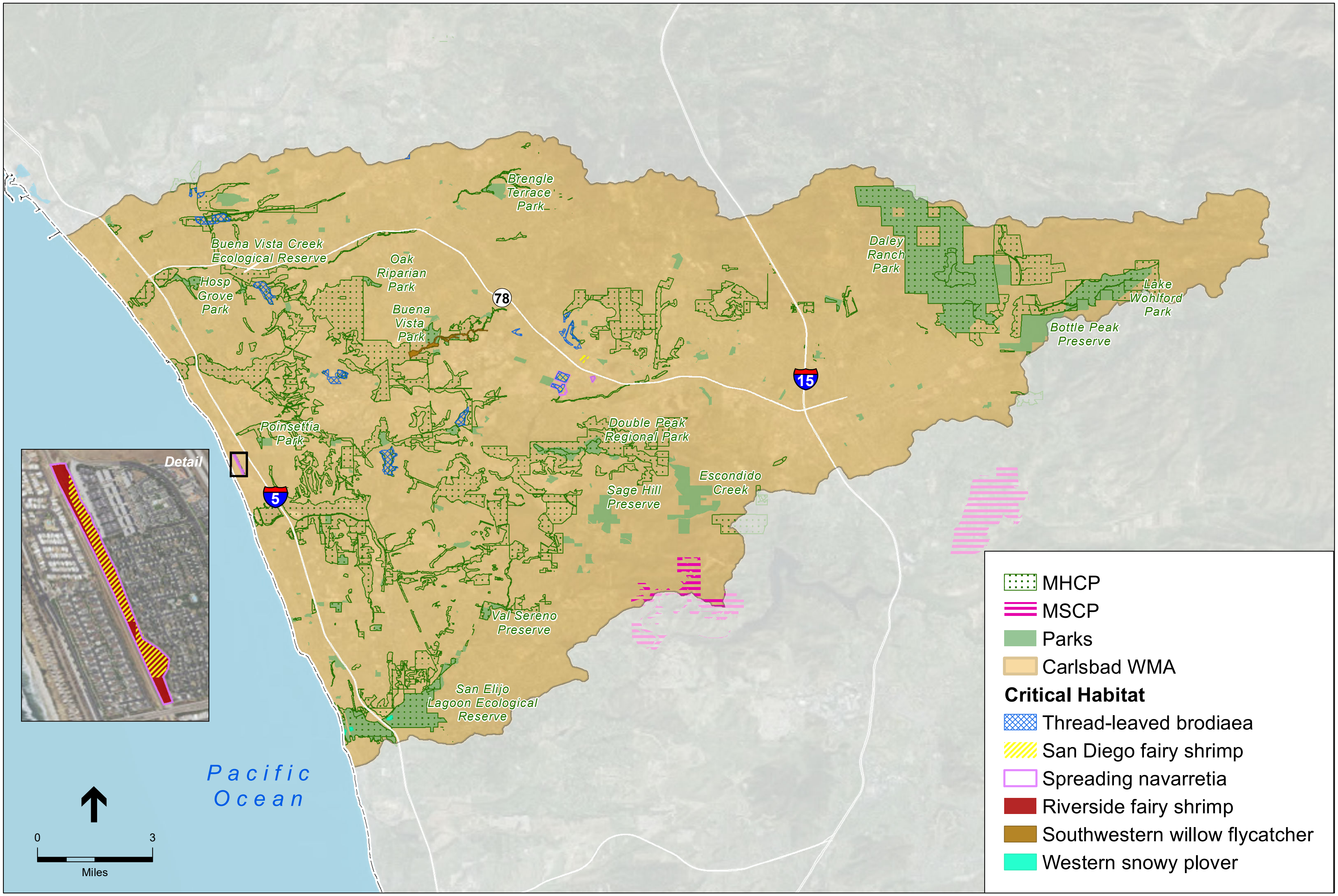




SOURCE: ESRI, 2016; SanGIS, 2016; IRWM, 2016

SWRP . 160618

Figure 3-18
Water Agencies and Wastewater Agencies within the Carlsbad Water Management Area

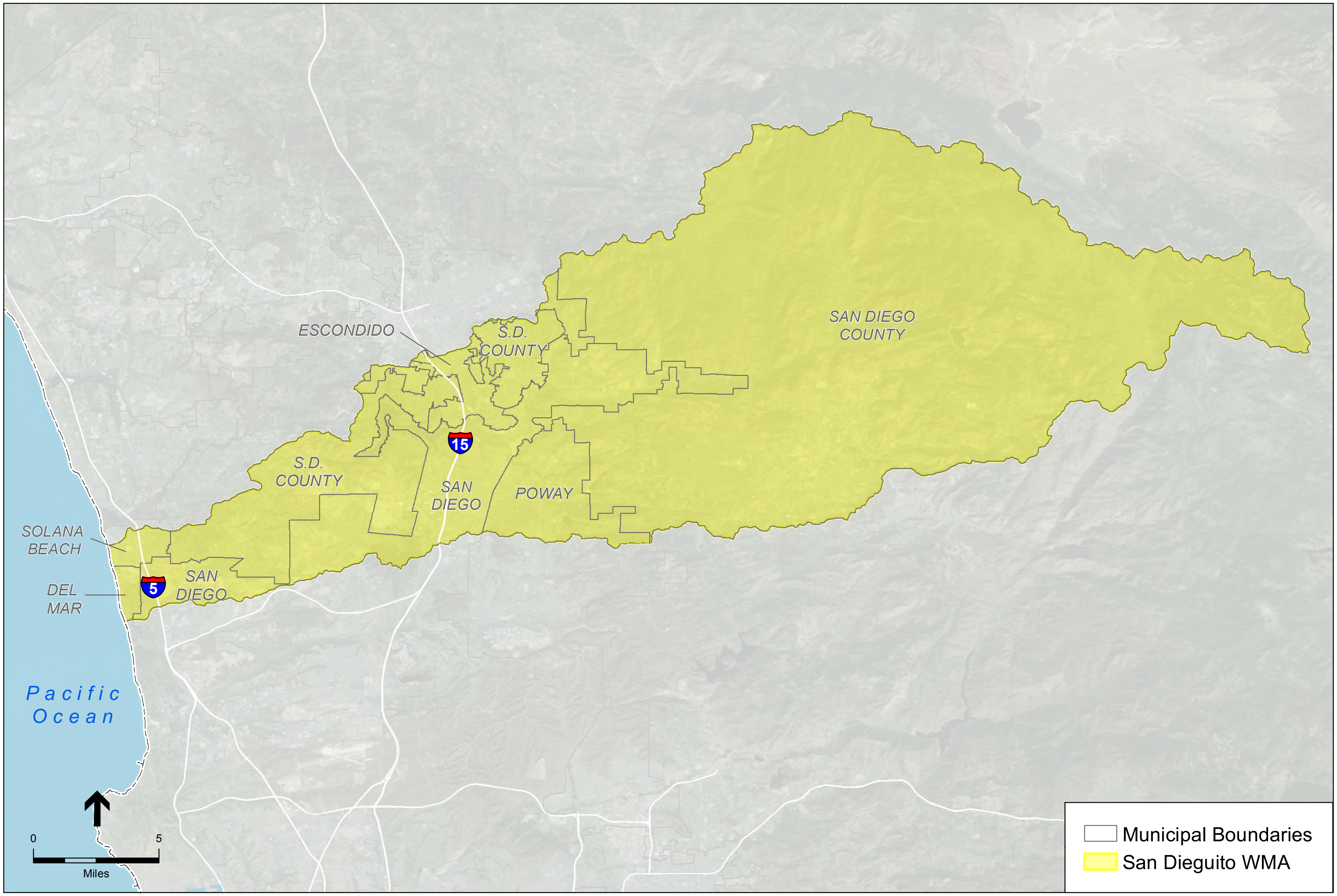


SOURCE: ESRI, 2016; SanGIS, 2016; USFWS

SWRP . 160618

Figure 3-19

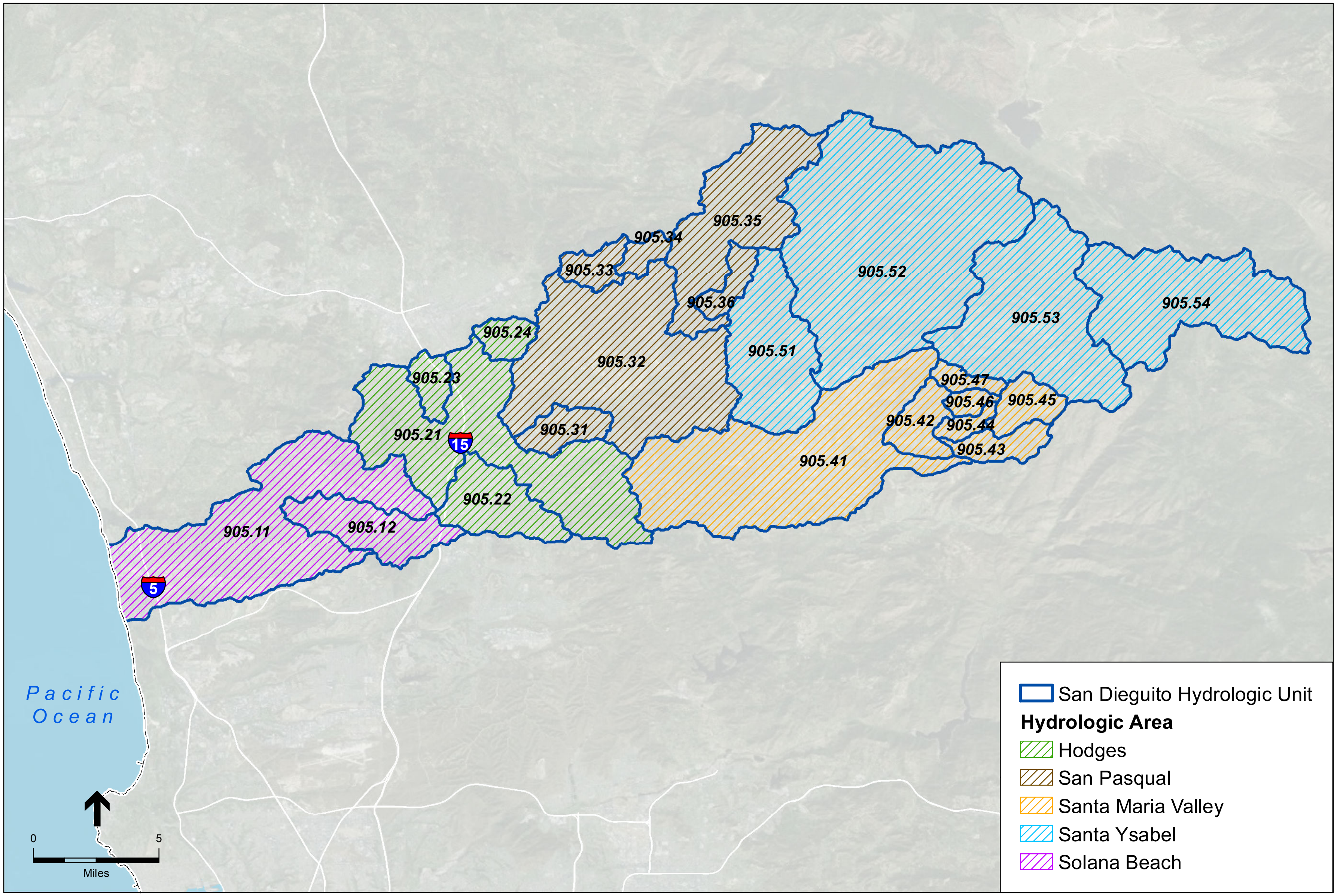
Critical Habitat within the Carlsbad Water Management Area



SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

Figure 3-20
City Boundaries within the San Dieguito Water Management Area

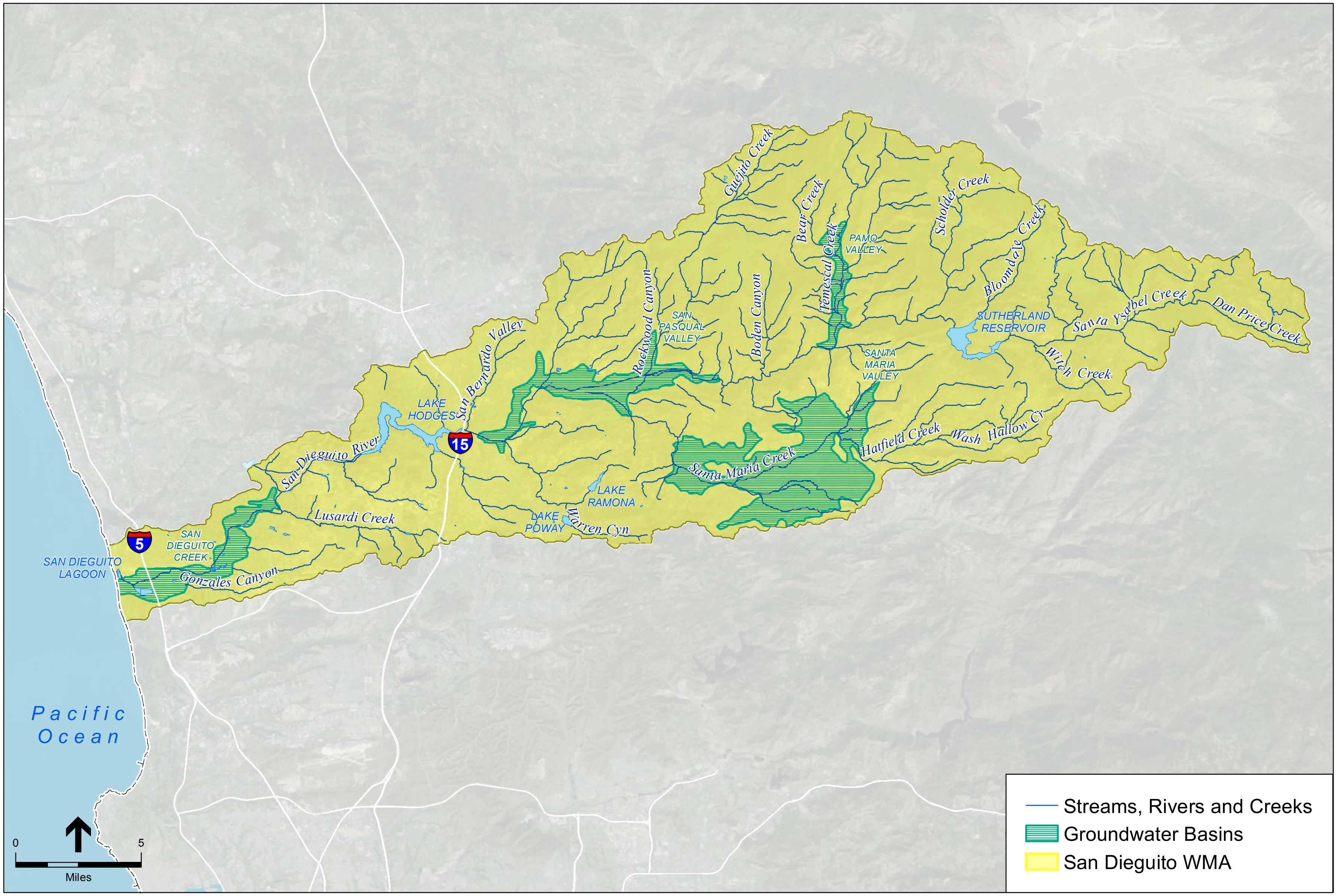


SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

Figure 3-21

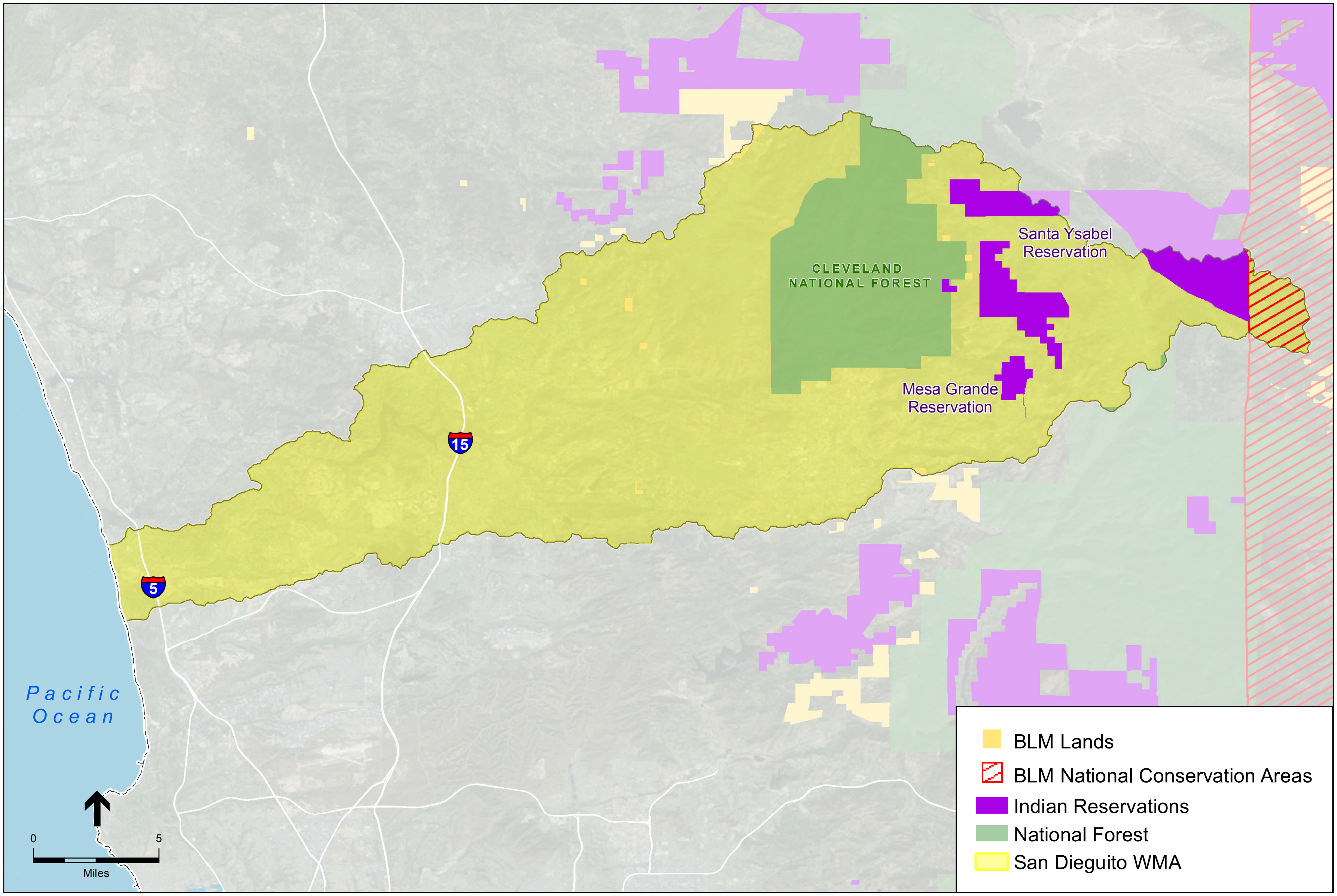
Hydrologic Units and Areas within the San Dieguito Water Management Area



SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

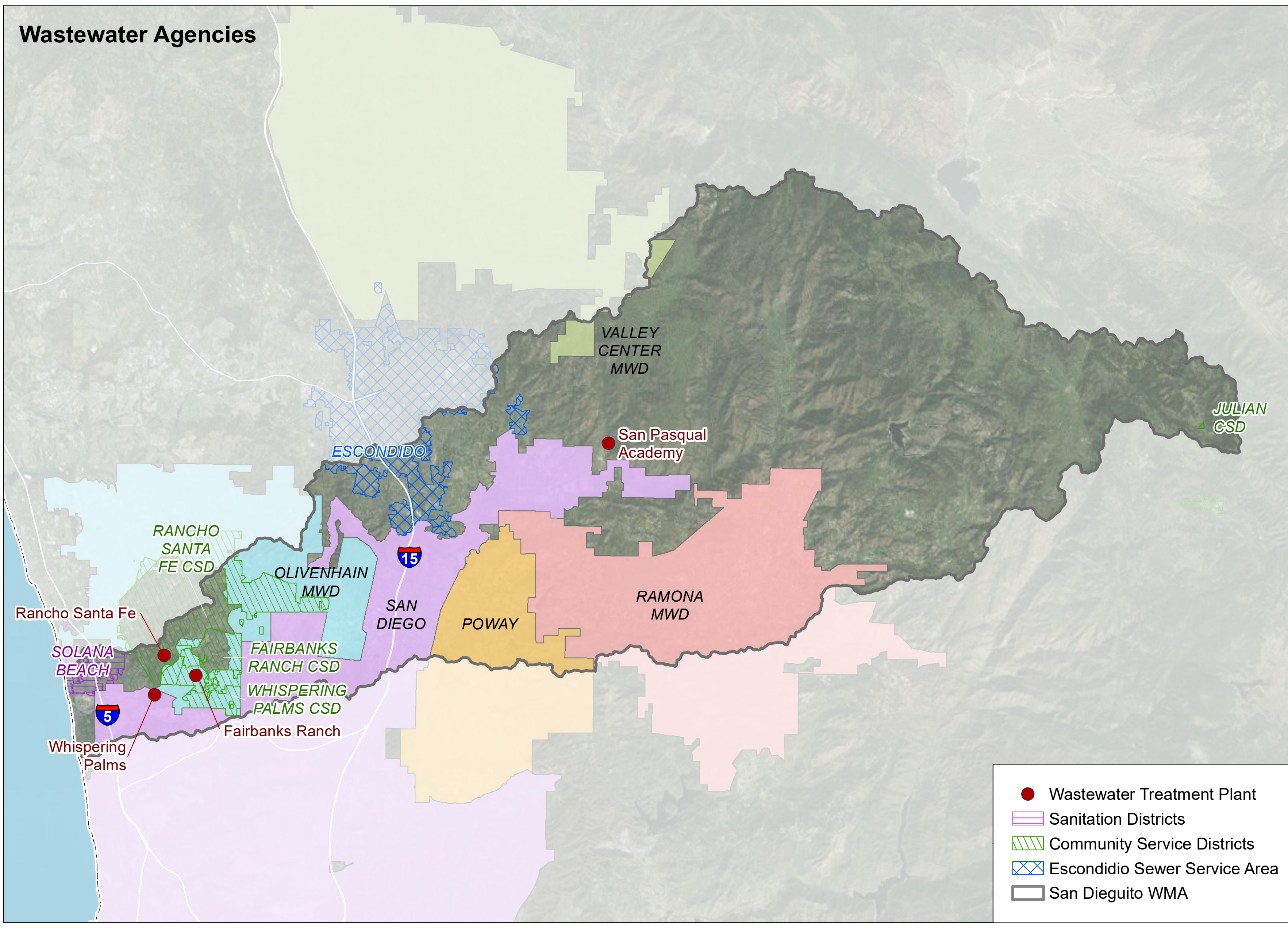
Figure 3-22
Water Features within the San Dieguito Water Management Area

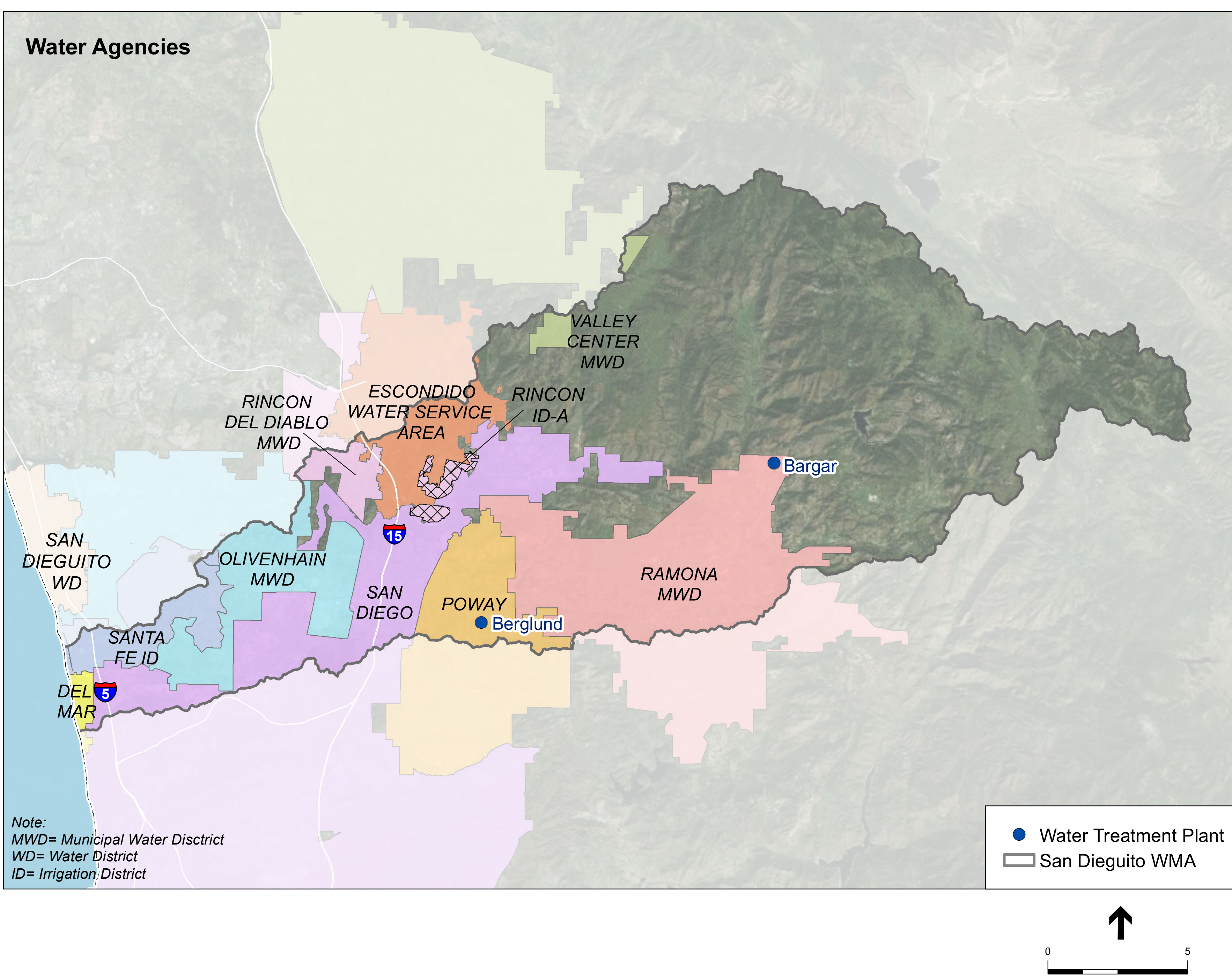


SOURCE: ESRI, 2016; SanGIS, 2016; Bureau of Land Management

SWRP . 160618

Figure 3-23
Land Use Agencies within the San Dieguito Water Management Area

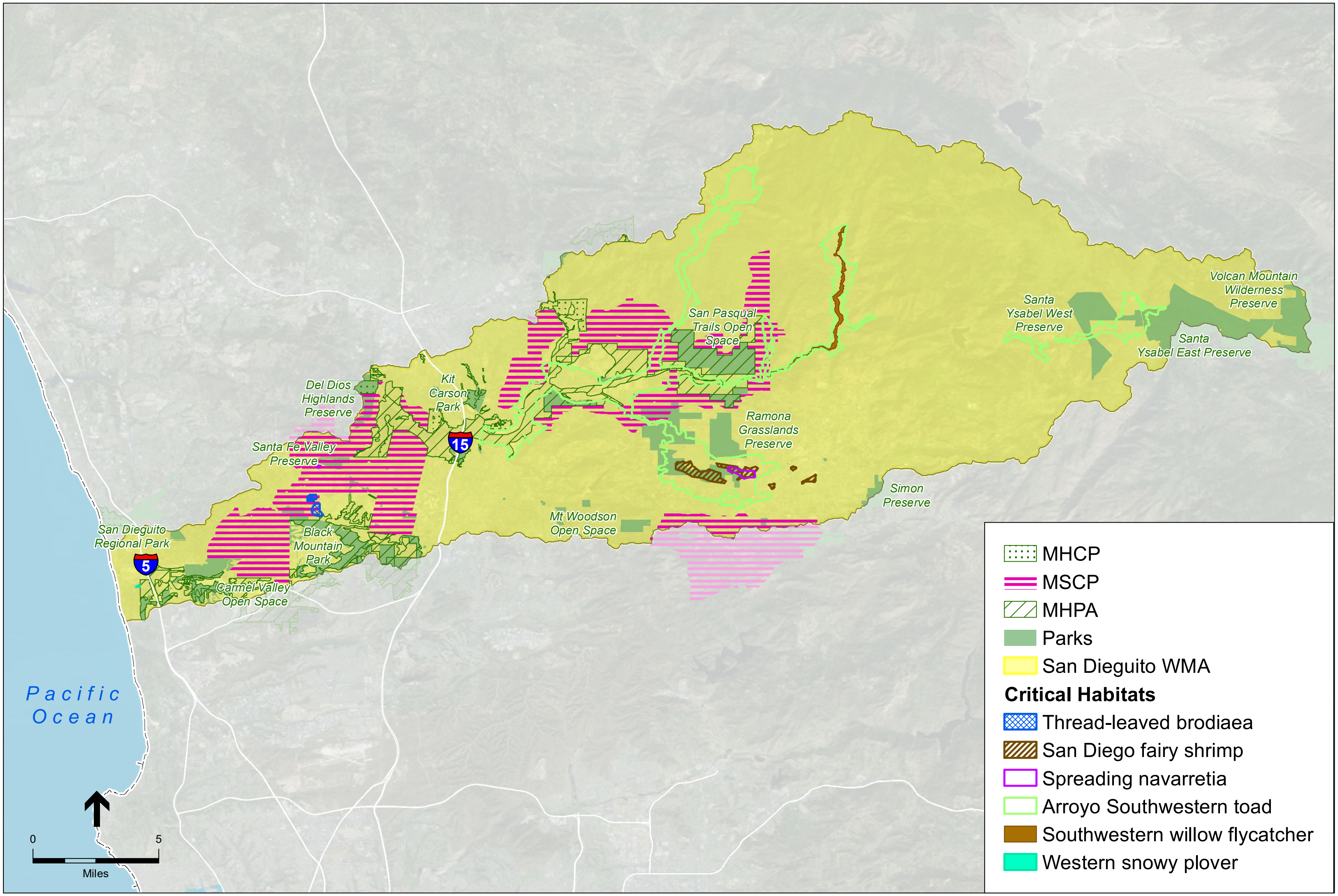




SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

Figure 3-24
Water Agencies and Wastewater Agencies within the San Dieguito Water Management Area

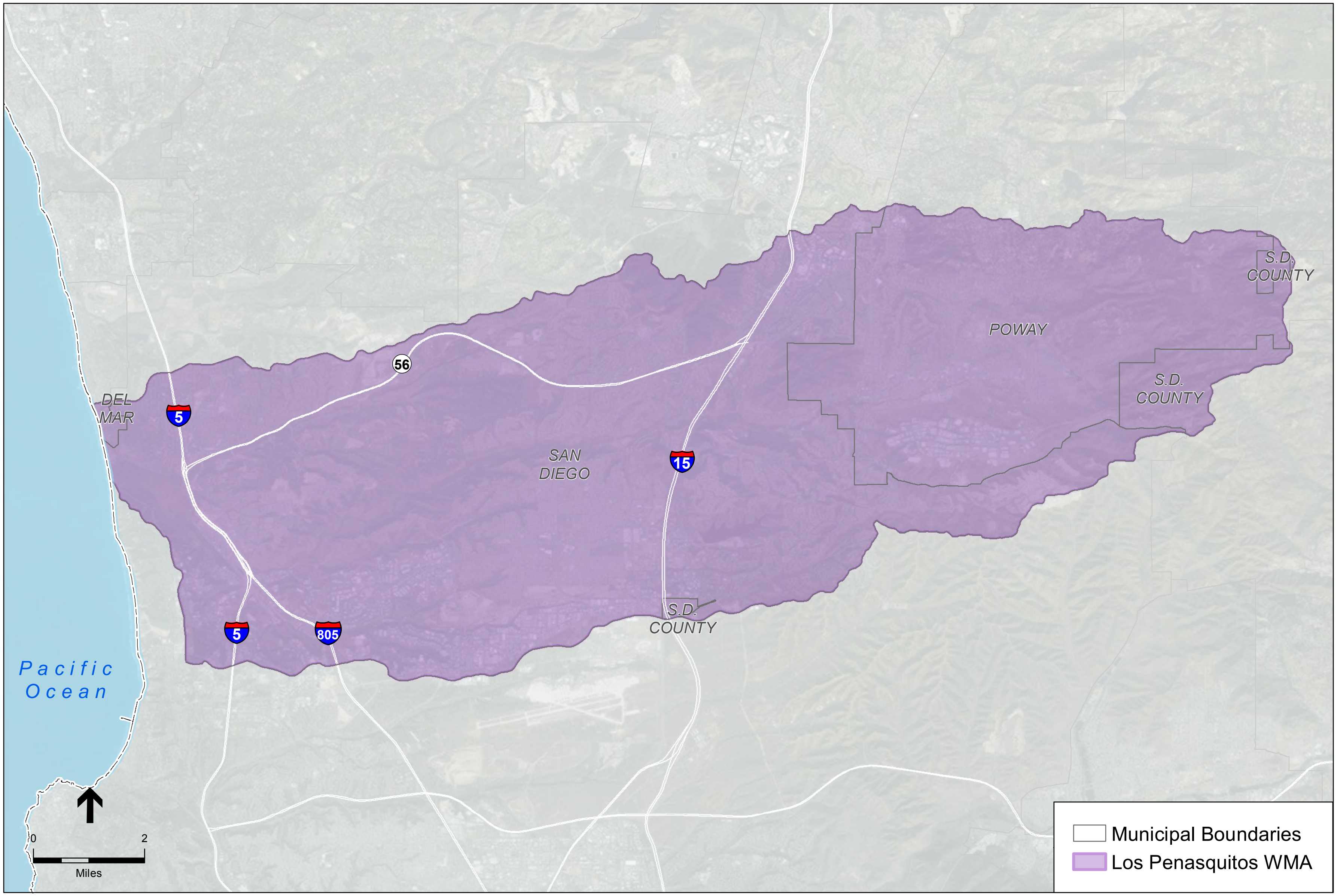


SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

Figure 3-25

Critical Habitat within the San Dieguito Water Management Area

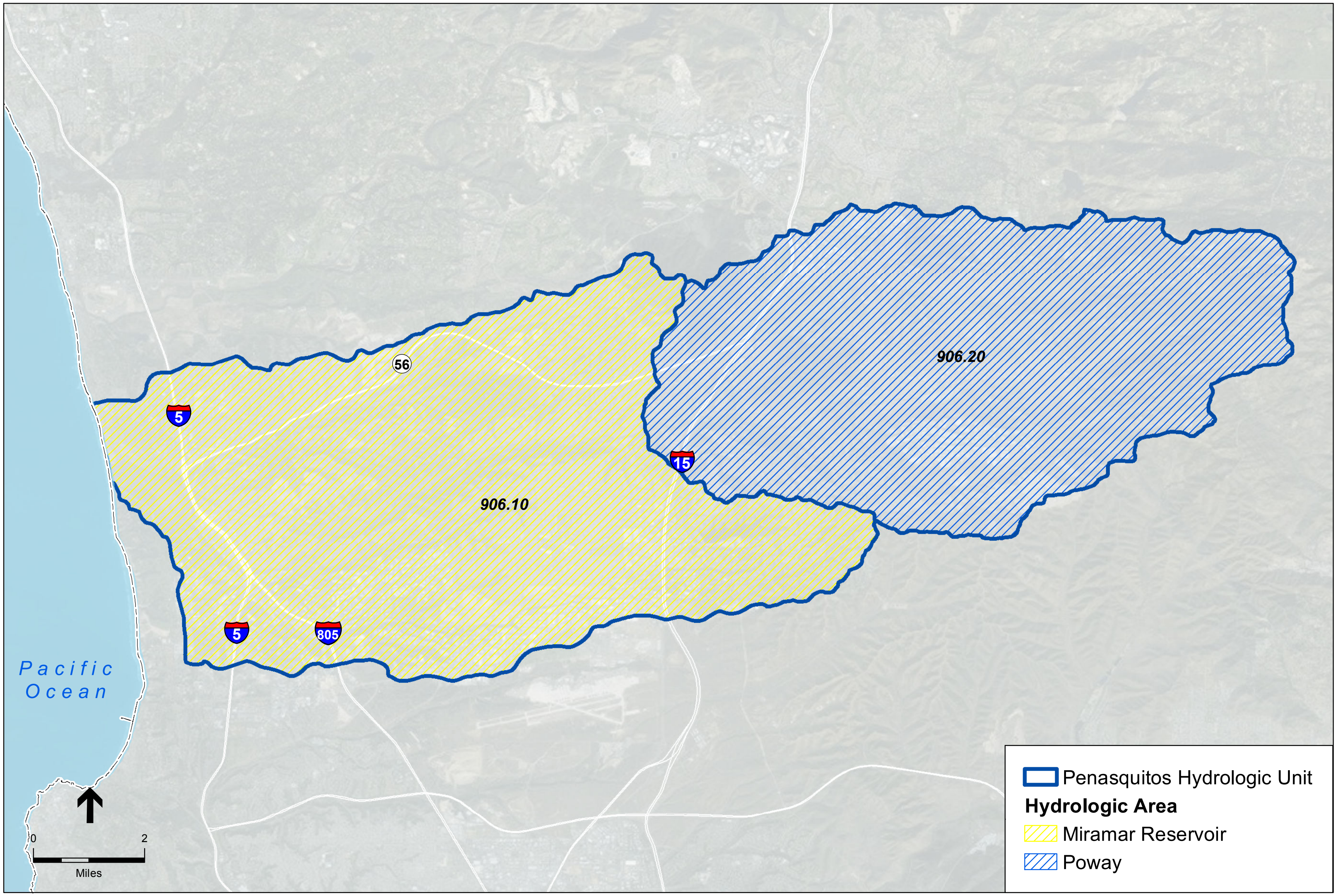


SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

Figure 3-26

City Boundaries within the Los Penasquitos Water Management Area

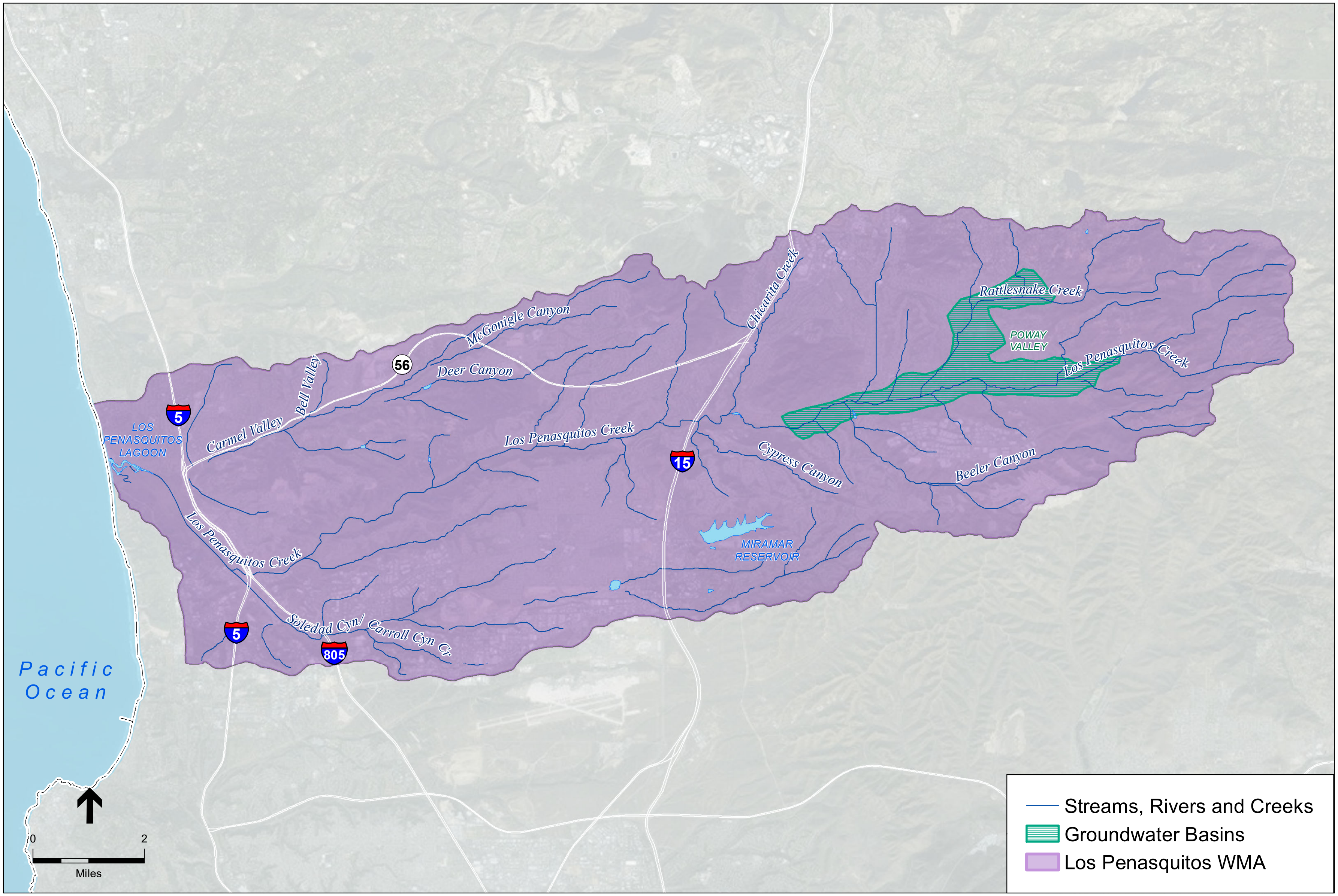


SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

Figure 3-27

Hydrologic Units and Areas within the Los Penasquitos Water Management Area

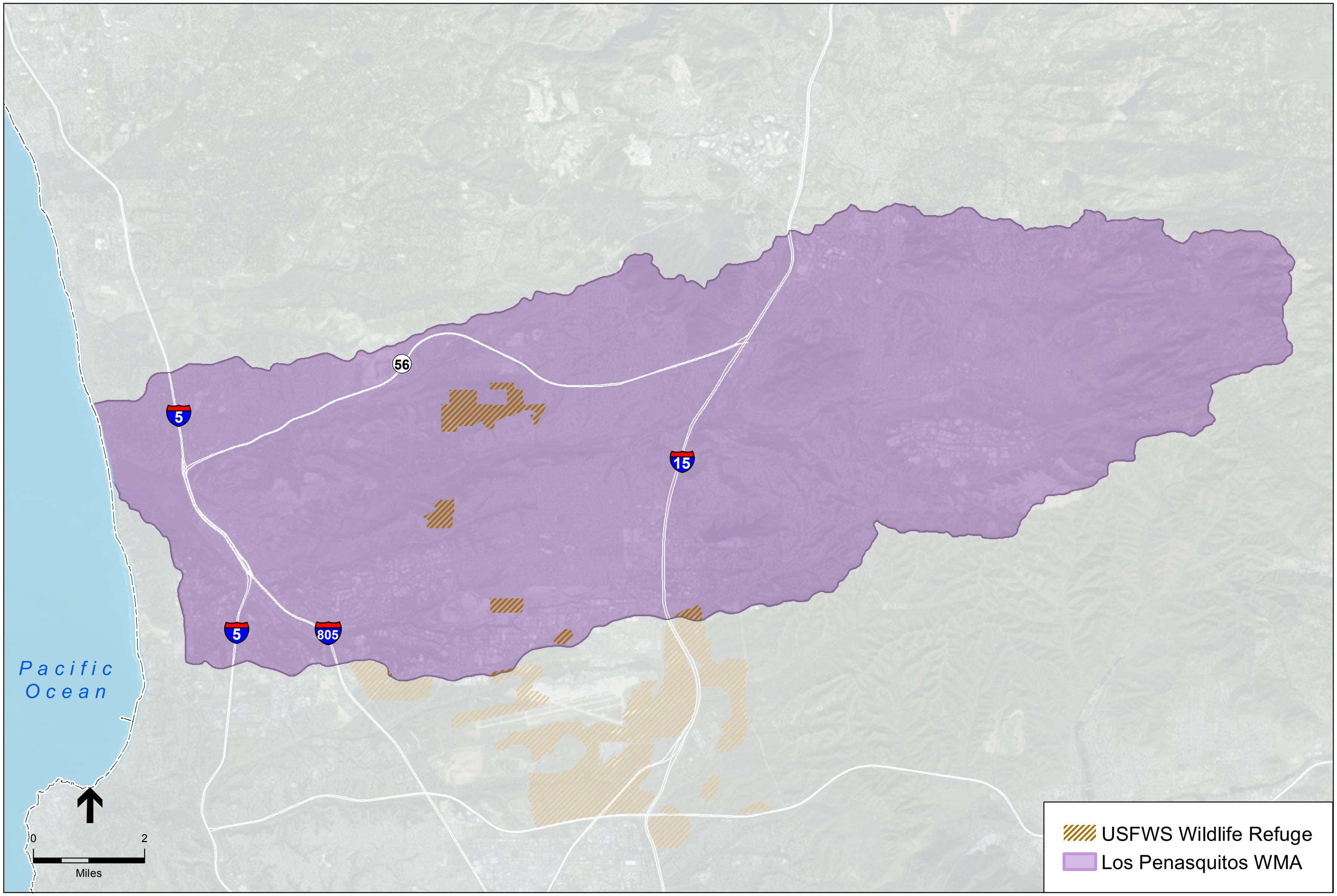


SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

Figure 3-28

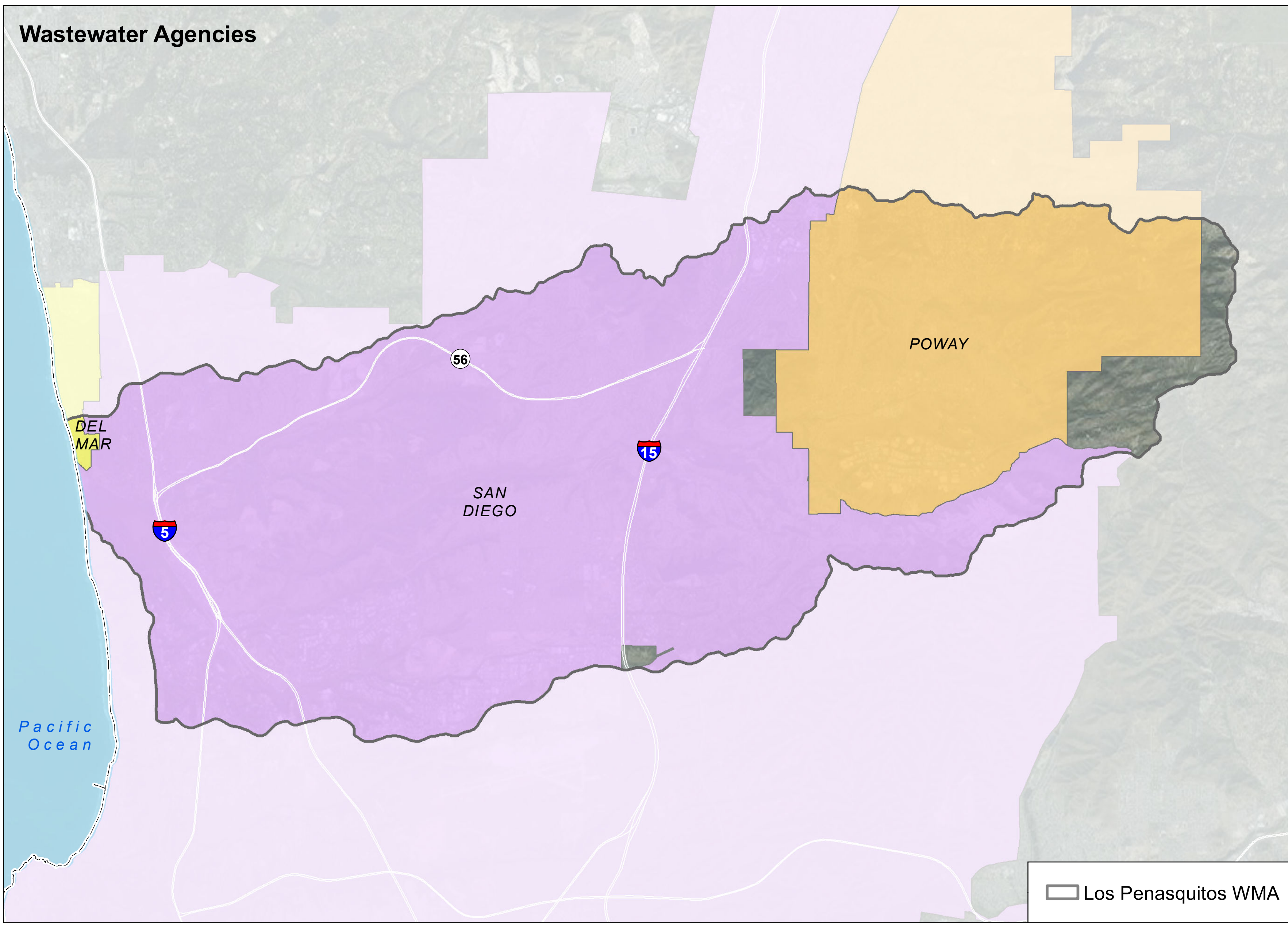
Water Features within the Los Penasquitos Water Management Area

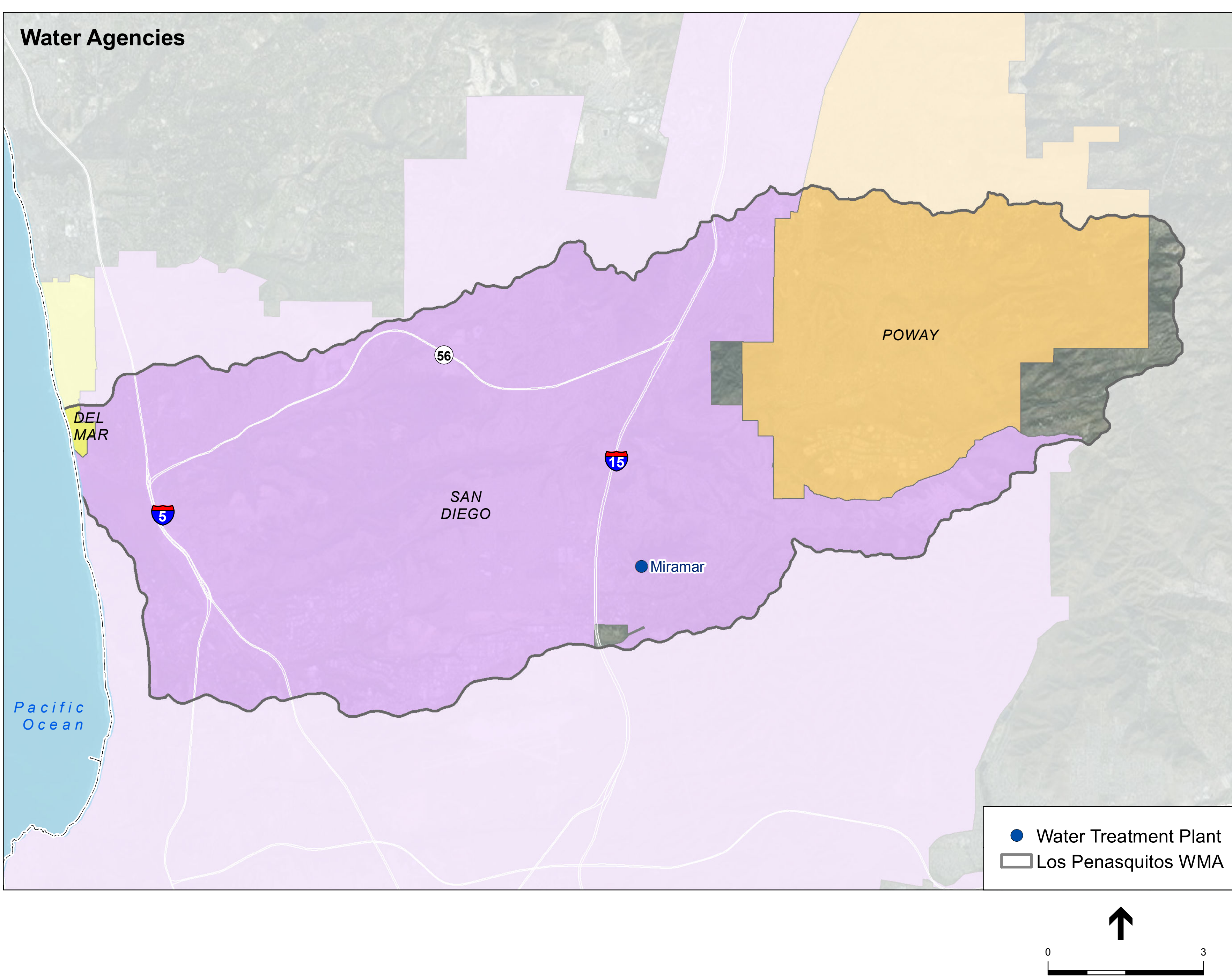


SOURCE: ESRI, 2016; SanGIS, 2016; USFWS, 2016

SWRP . 160618

Figure 3-29
Land Use Agencies within the Los Penasquitos Water Management Area

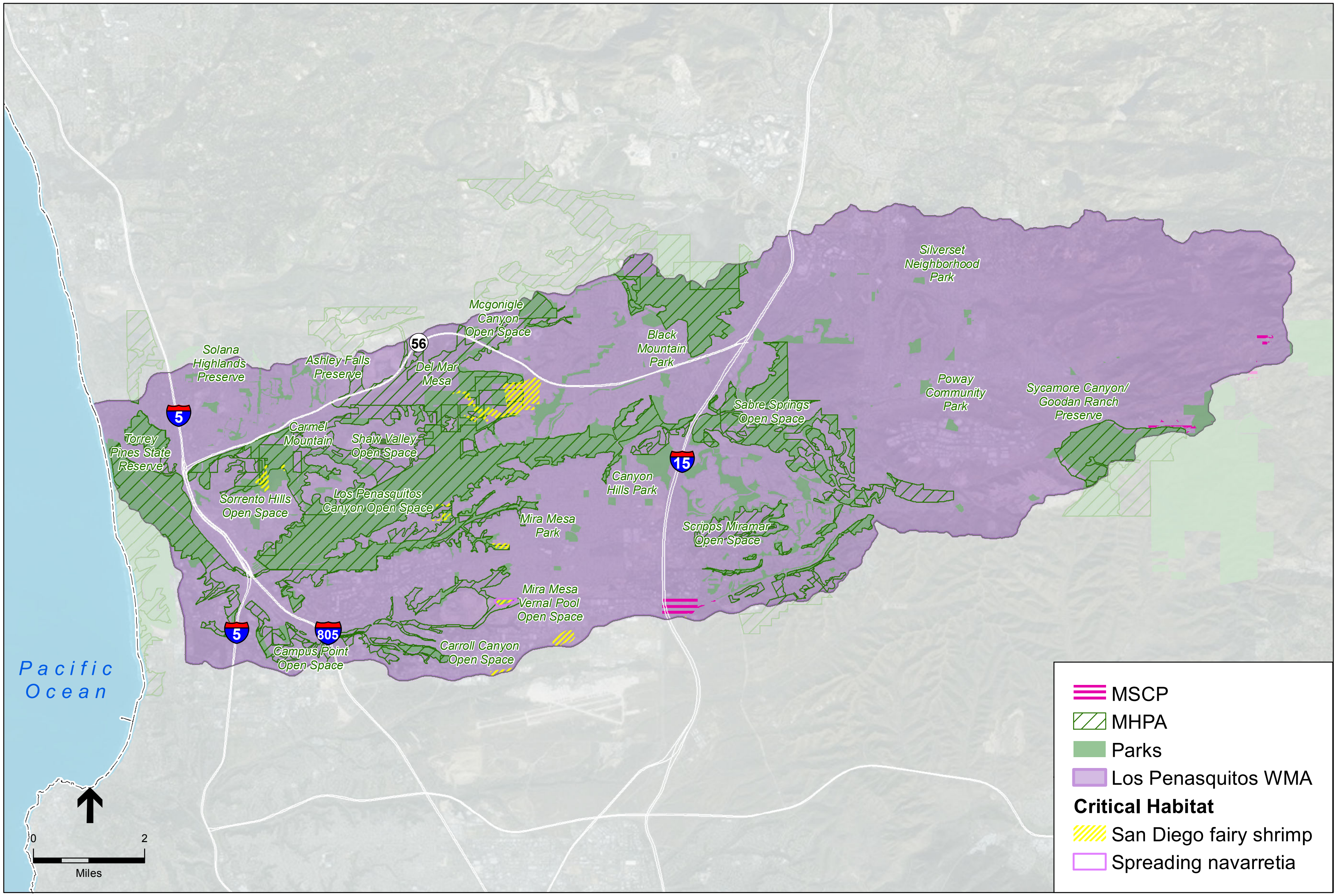




SOURCE: ESRI, 2016; SanGIS, 2016; IRWM, 2016

SWRP . 160618

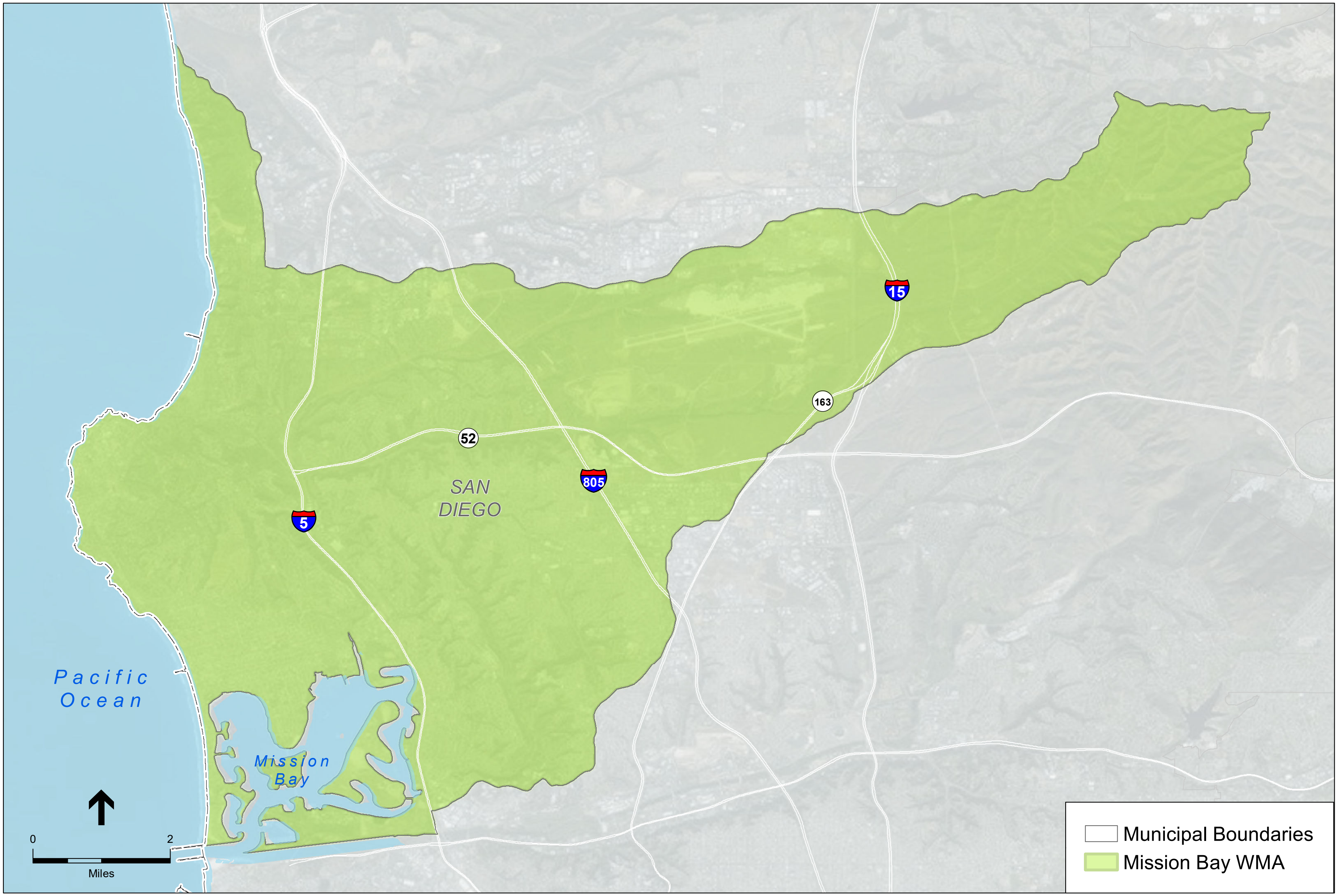
Figure 3-30
Water Agencies and Wastewater Agencies within the Los Penasquitos Water Management Area



SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

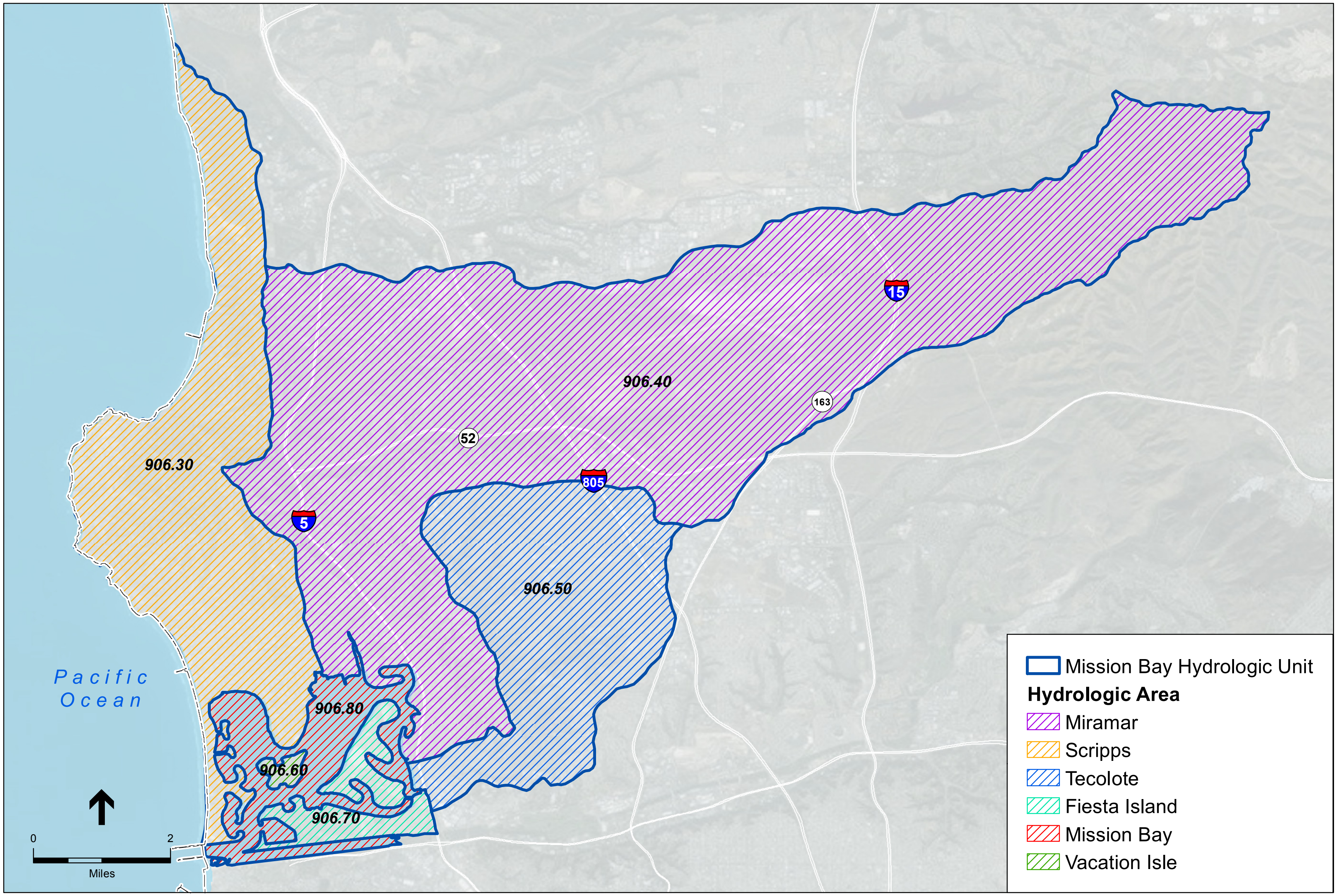
Figure 3-31
Critical Habitat within the Los Penasquitos Water Management Area



SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

Figure 3-32
City Boundaries within the Mission Bay
Water Management Area

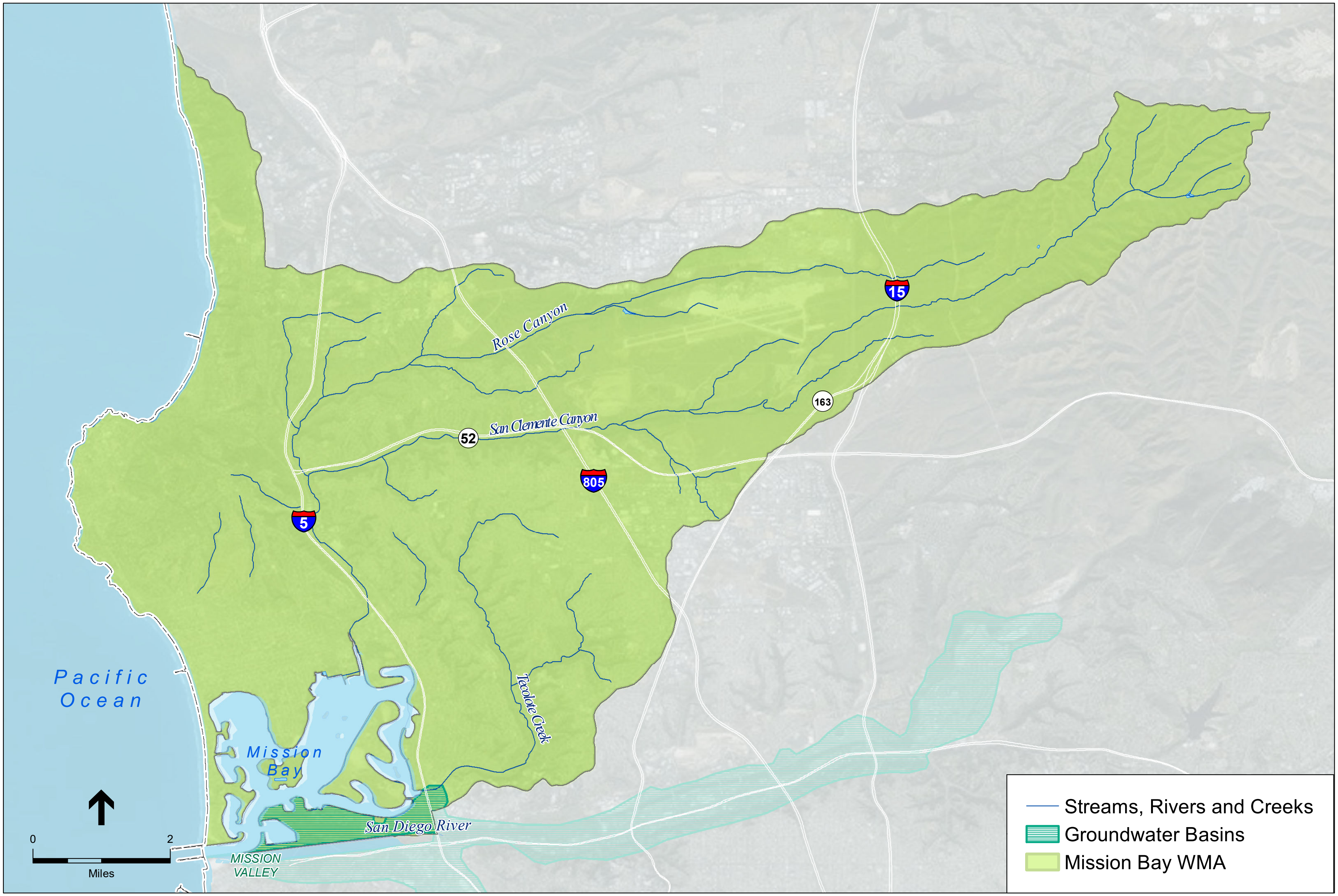


SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

Figure 3-33

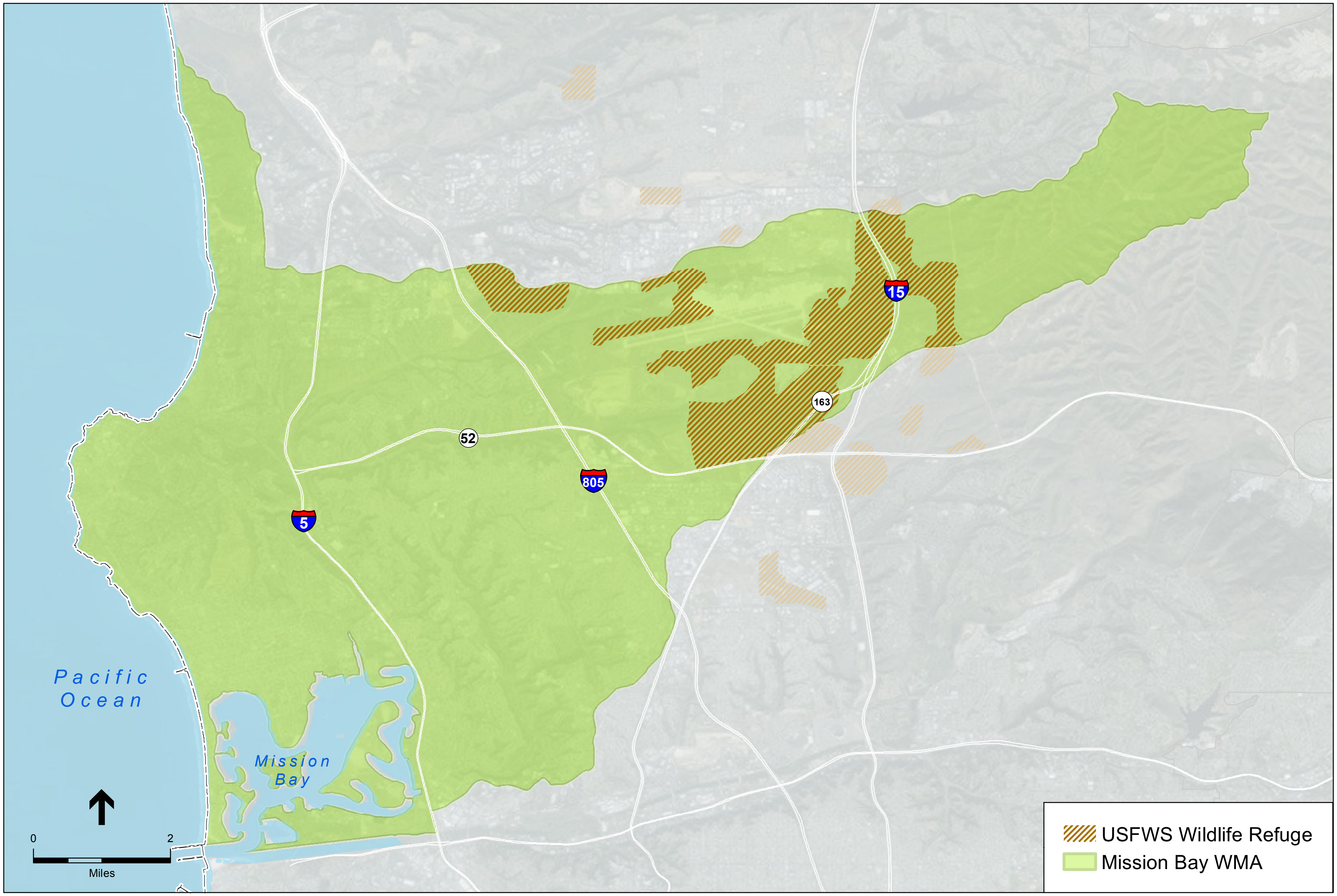
Hydrologic Units and Areas within the Mission Bay Water Management Area



SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

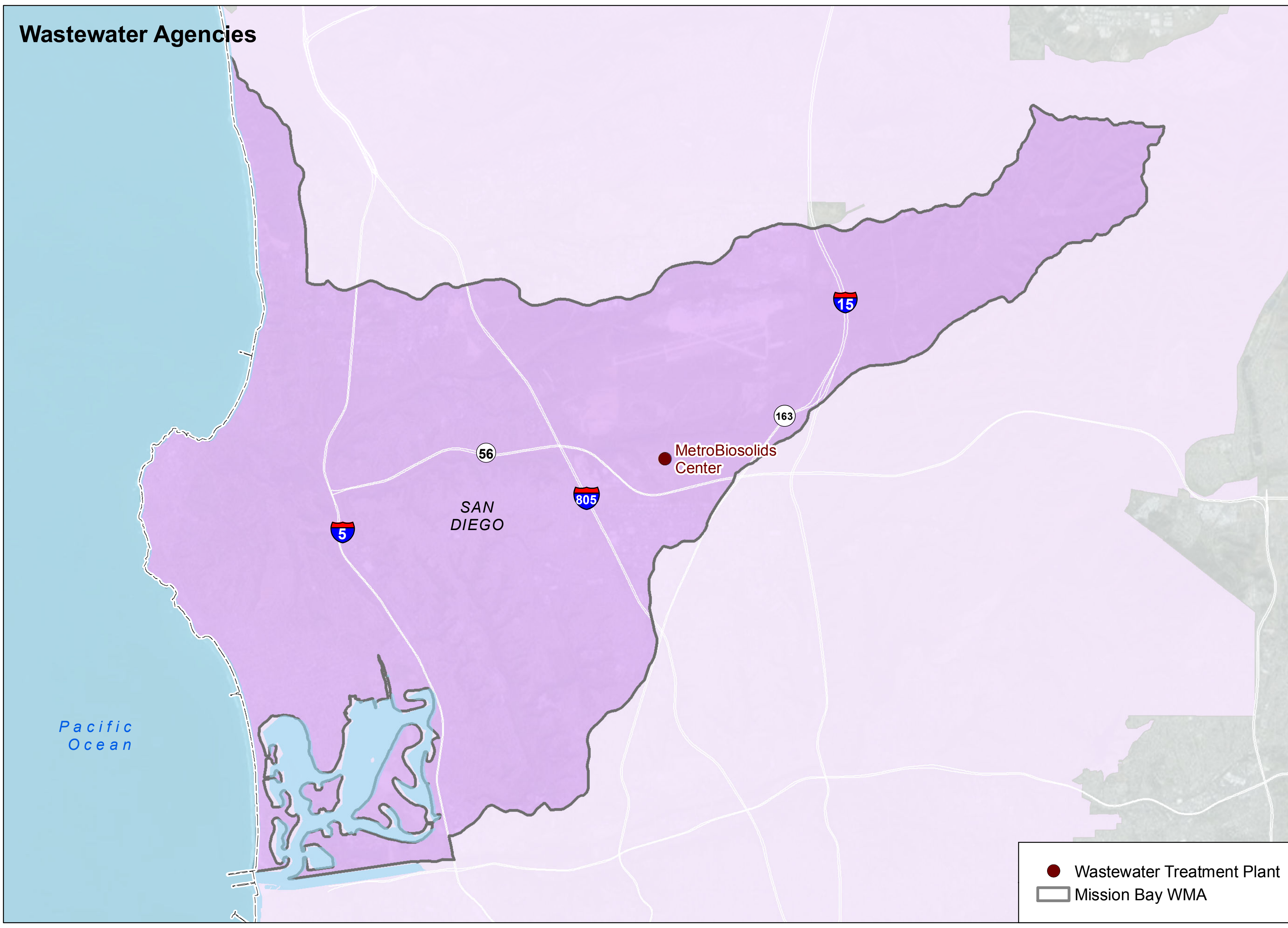
Figure 3-34
Water Features within the Mission Bay Water Management Area

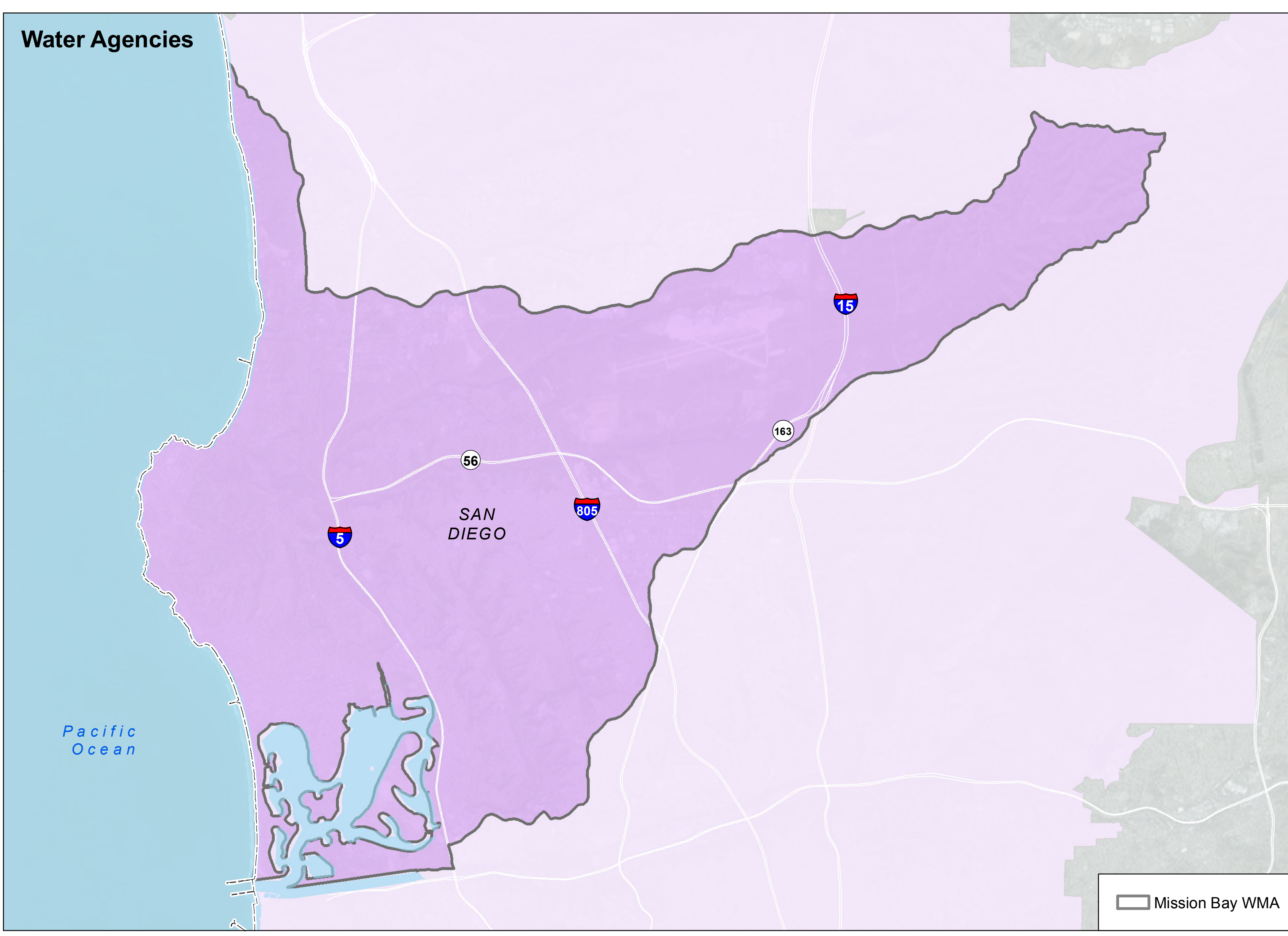


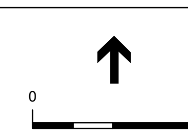
SOURCE: ESRI, 2016; SanGIS, 2016; USFWS, 2016

SWRP . 160618

Figure 3-35
Land Use Agencies within the Mission Bay Water Management Area



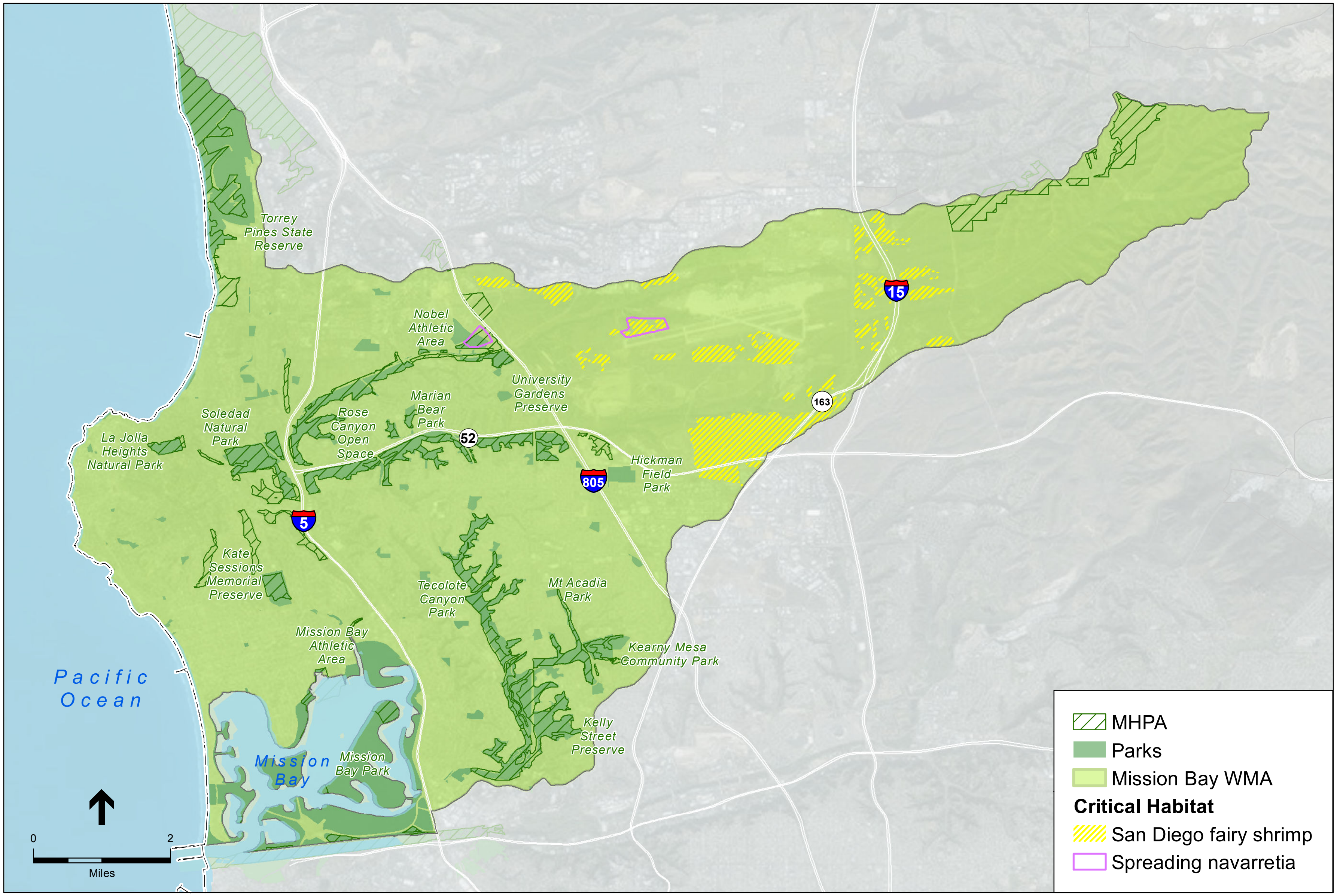




SOURCE: ESRI, 2016; SanGIS, 2016; IRWM, 2016

SWRP . 160618

Figure 3-36
Water Agencies and Wastewater Agencies
within the Mission Bay Water Management Area

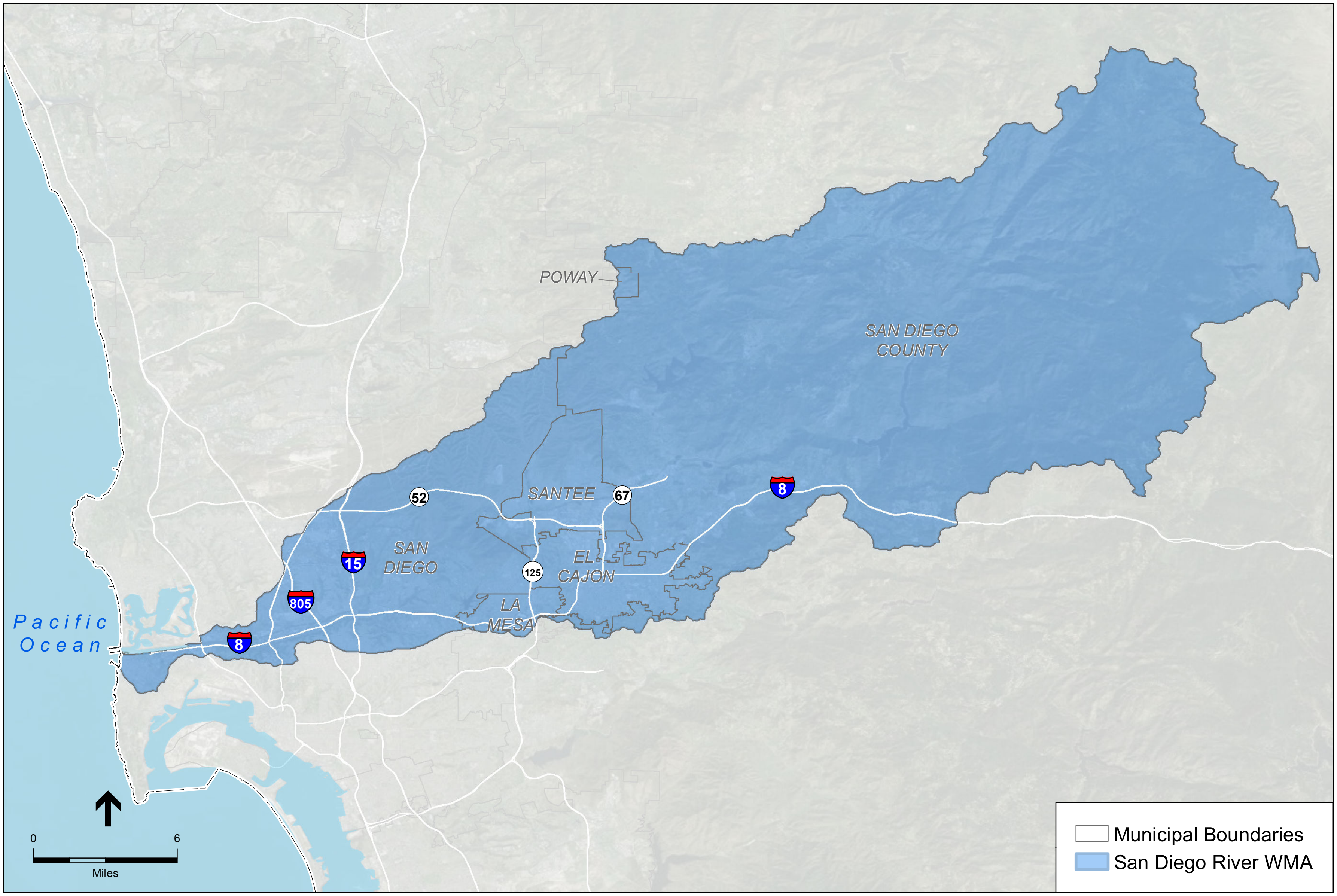


SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

Figure 3-37

Critical Habitat within the Mission Bay Water Management Area

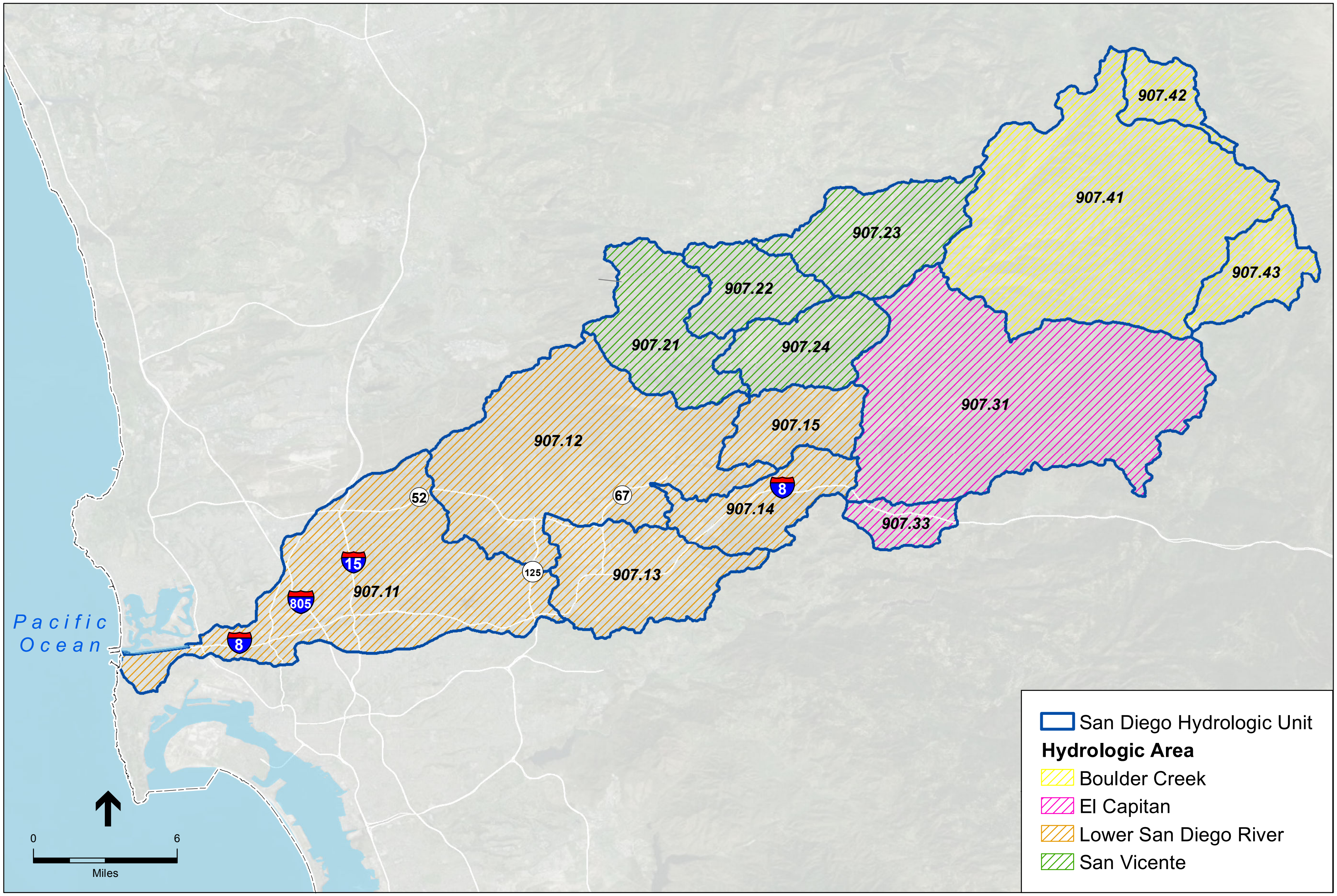


SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

Figure 3-38

City Boundaries within the San Diego River Water Management Area

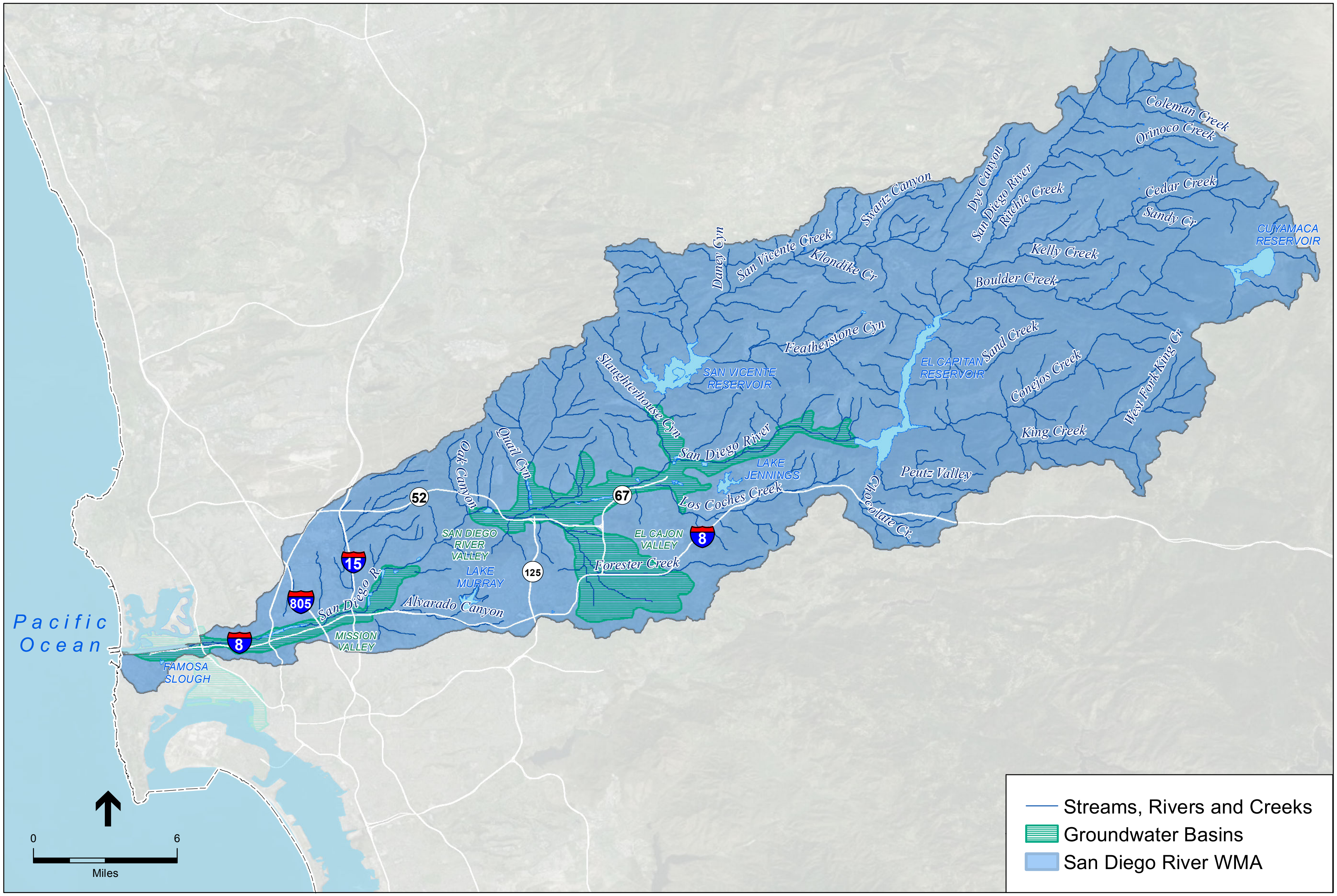


SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

Figure 3-39

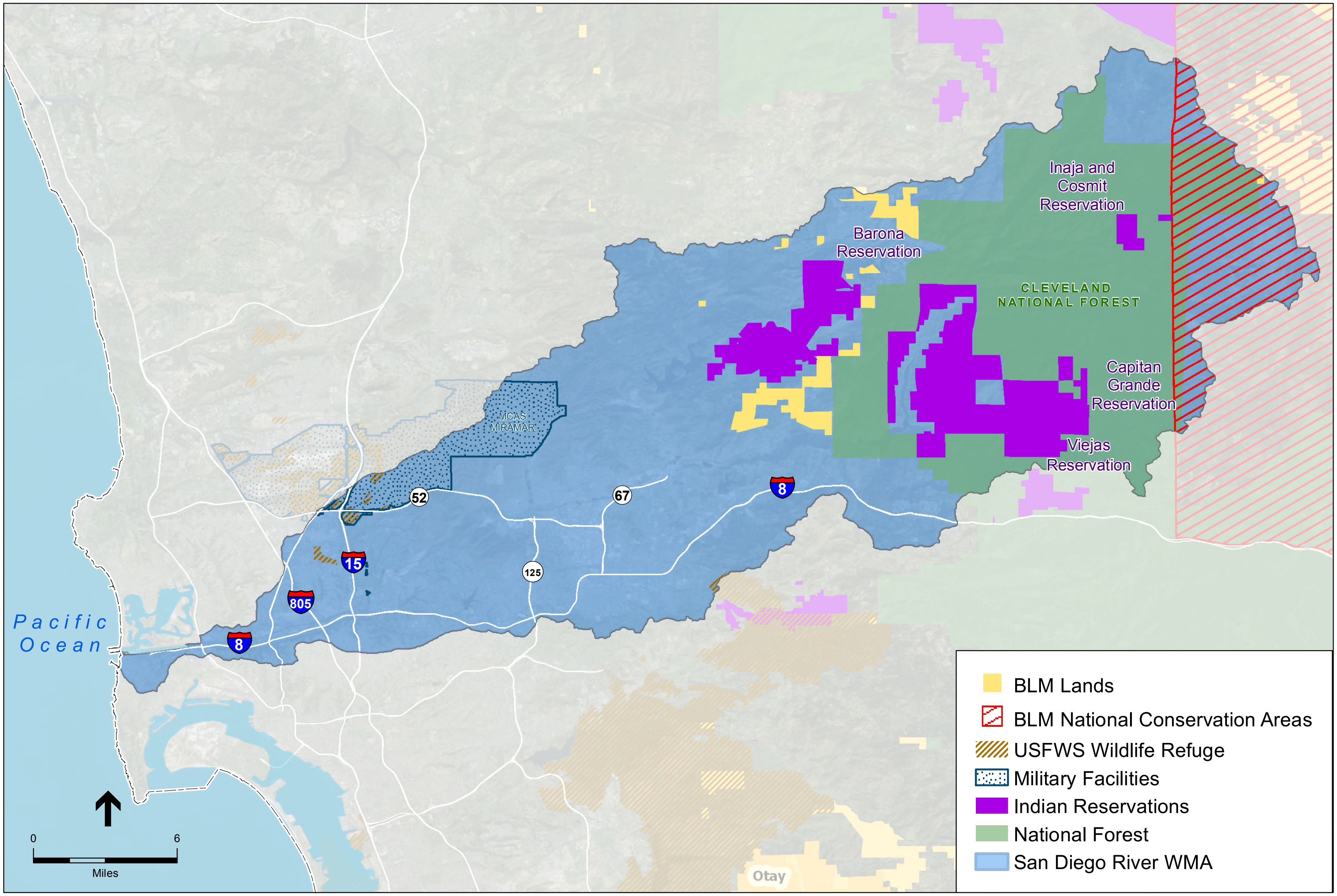
Hydrologic Units and Areas within the San Diego River Water Management Area



SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

Figure 3-40
Water Features within the San Diego River Water Management Area

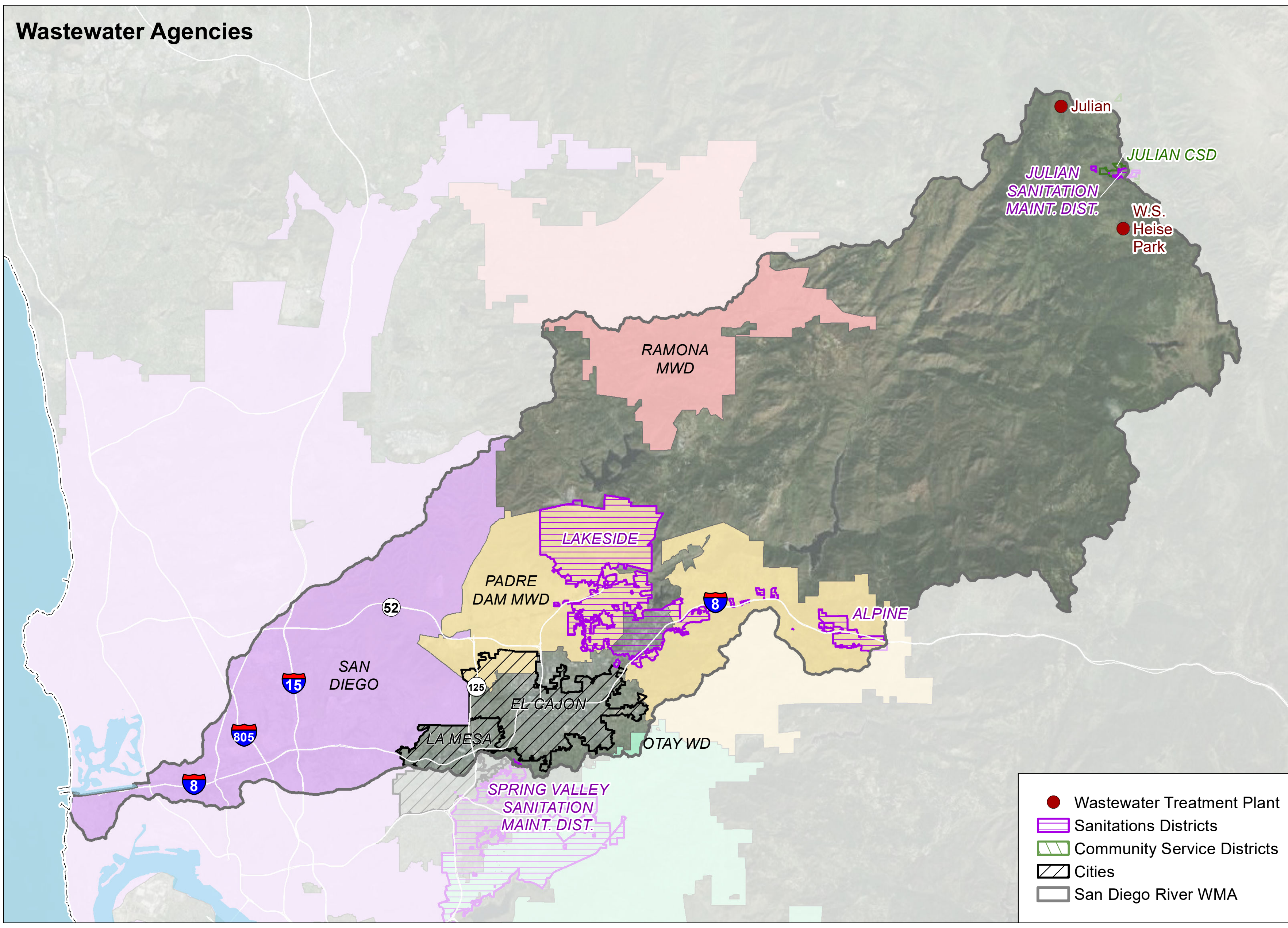


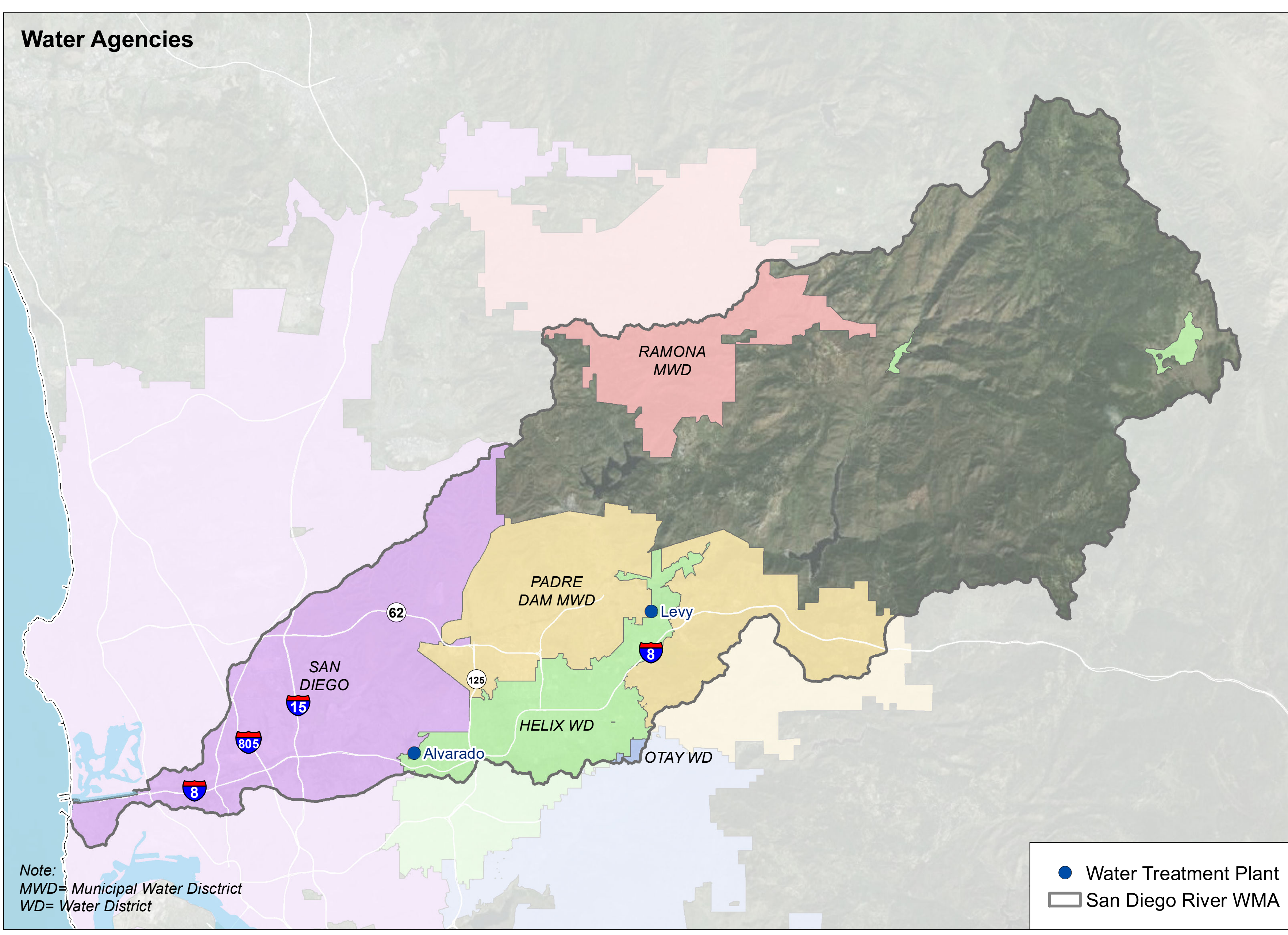
SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

Figure 3-41

Land Use Agencies within the San Diego River Water Management Area

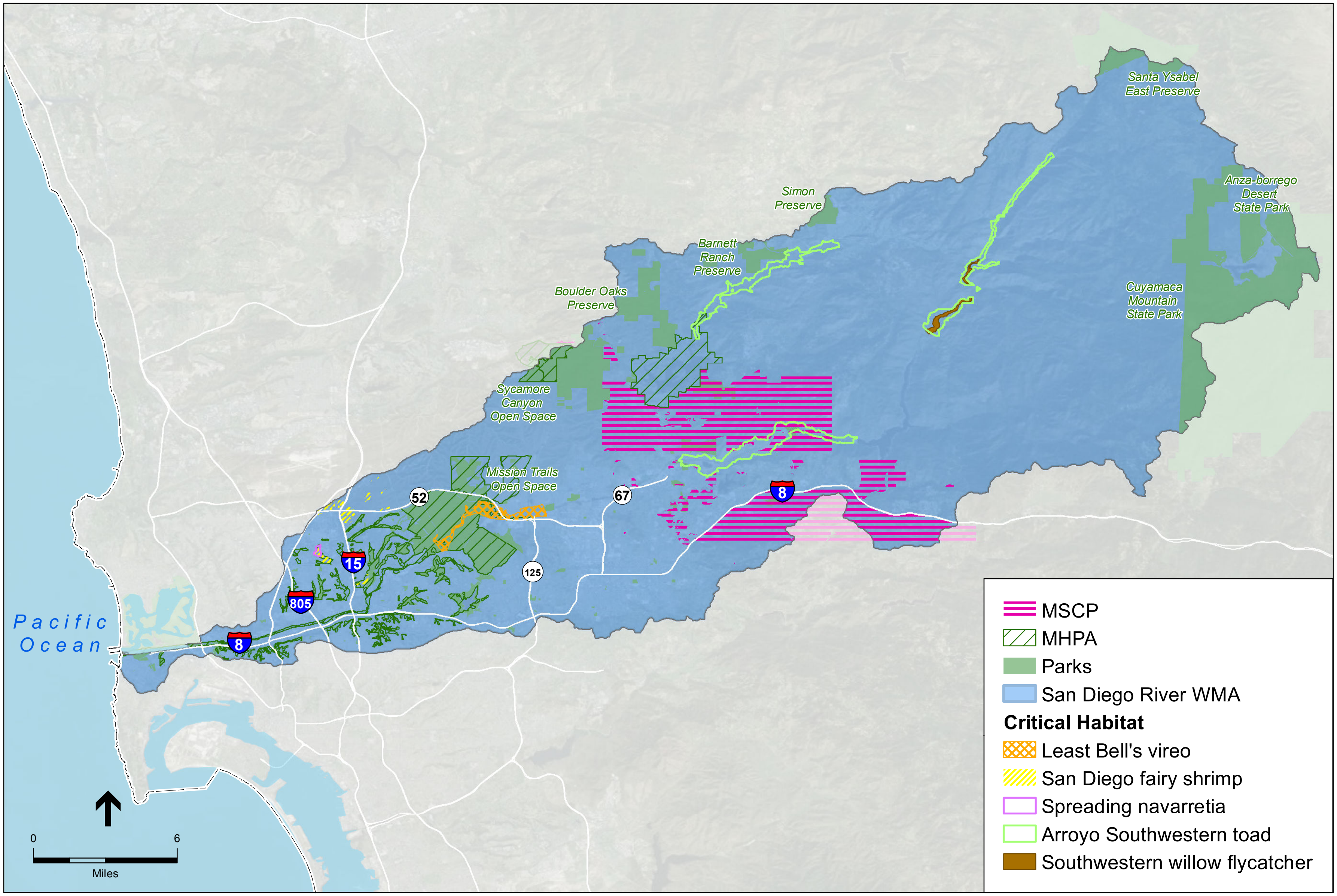




SOURCE: ESRI, 2016; SanGIS, 2016; IRWM, 2016

SWRP . 160618

Figure 3-42
Water Agencies and Wastewater Agencies within the San Diego River Water Management Area



SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

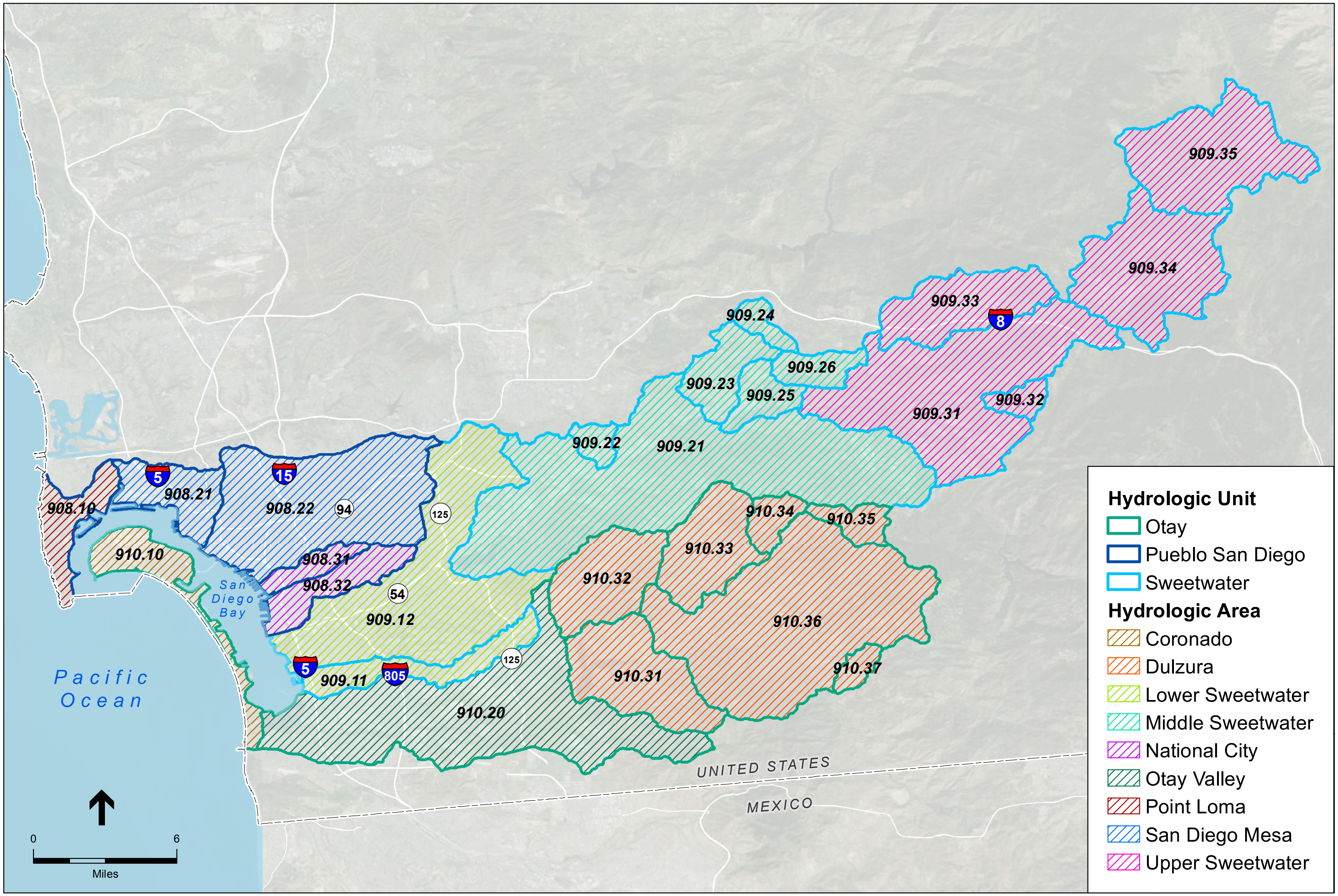
Figure 3-43
Critical Habitat within the San Diego River Water Management Area

SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

Figure 3-44

City Boundaries within the San Diego Bay Water Management Area

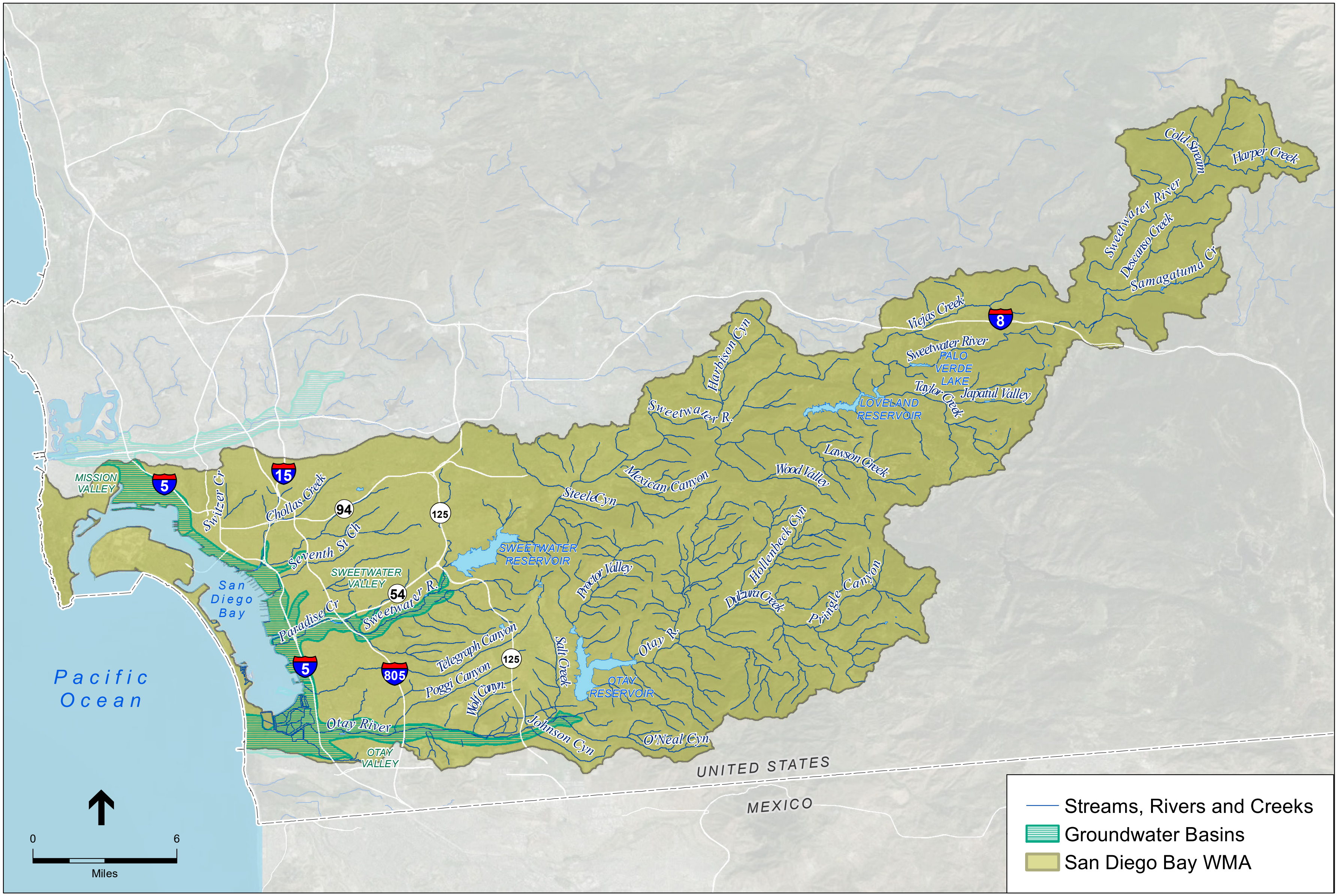


SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

Figure 3-45

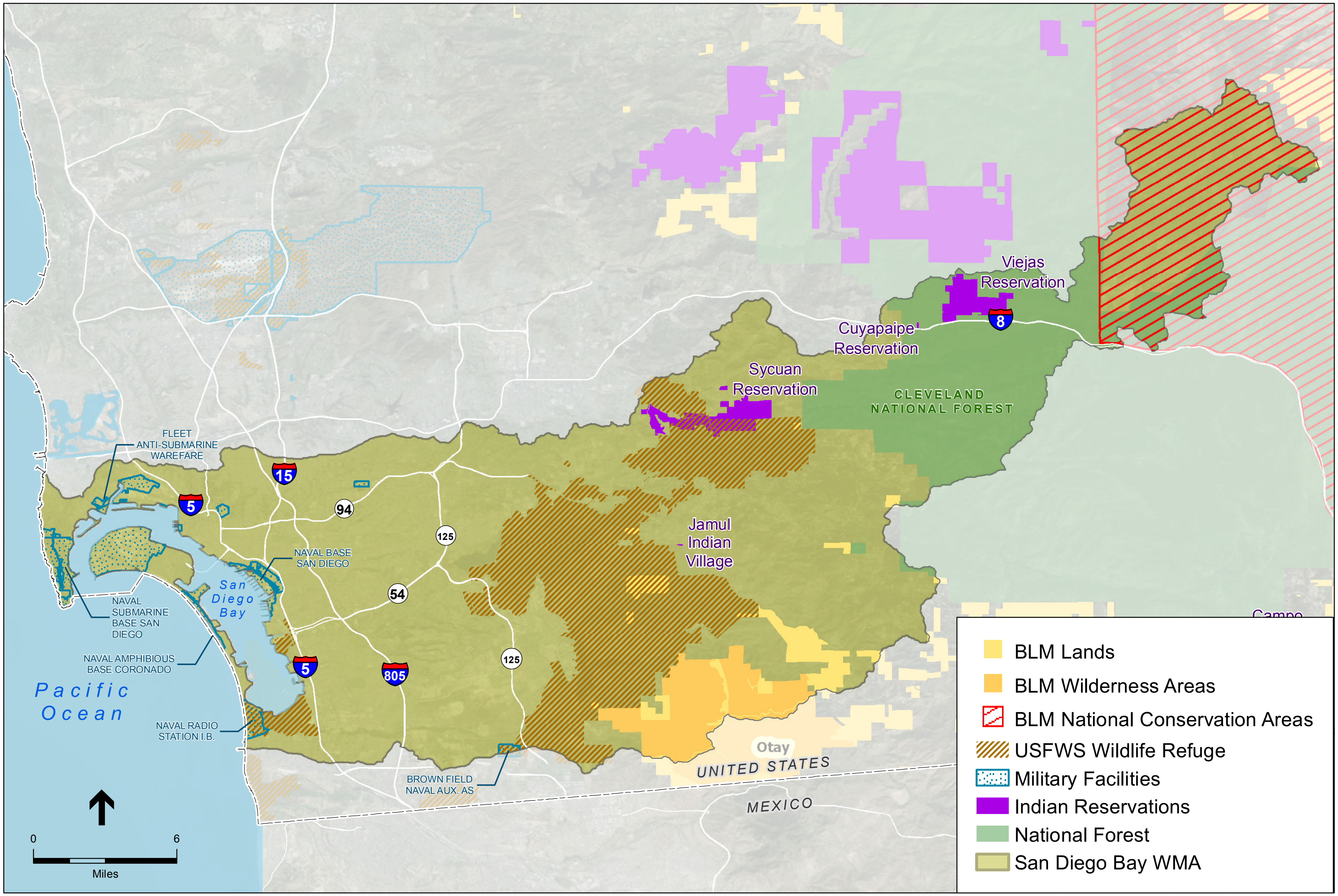
Hydrologic Units and Areas within the San Diego Bay Water Management Area



SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

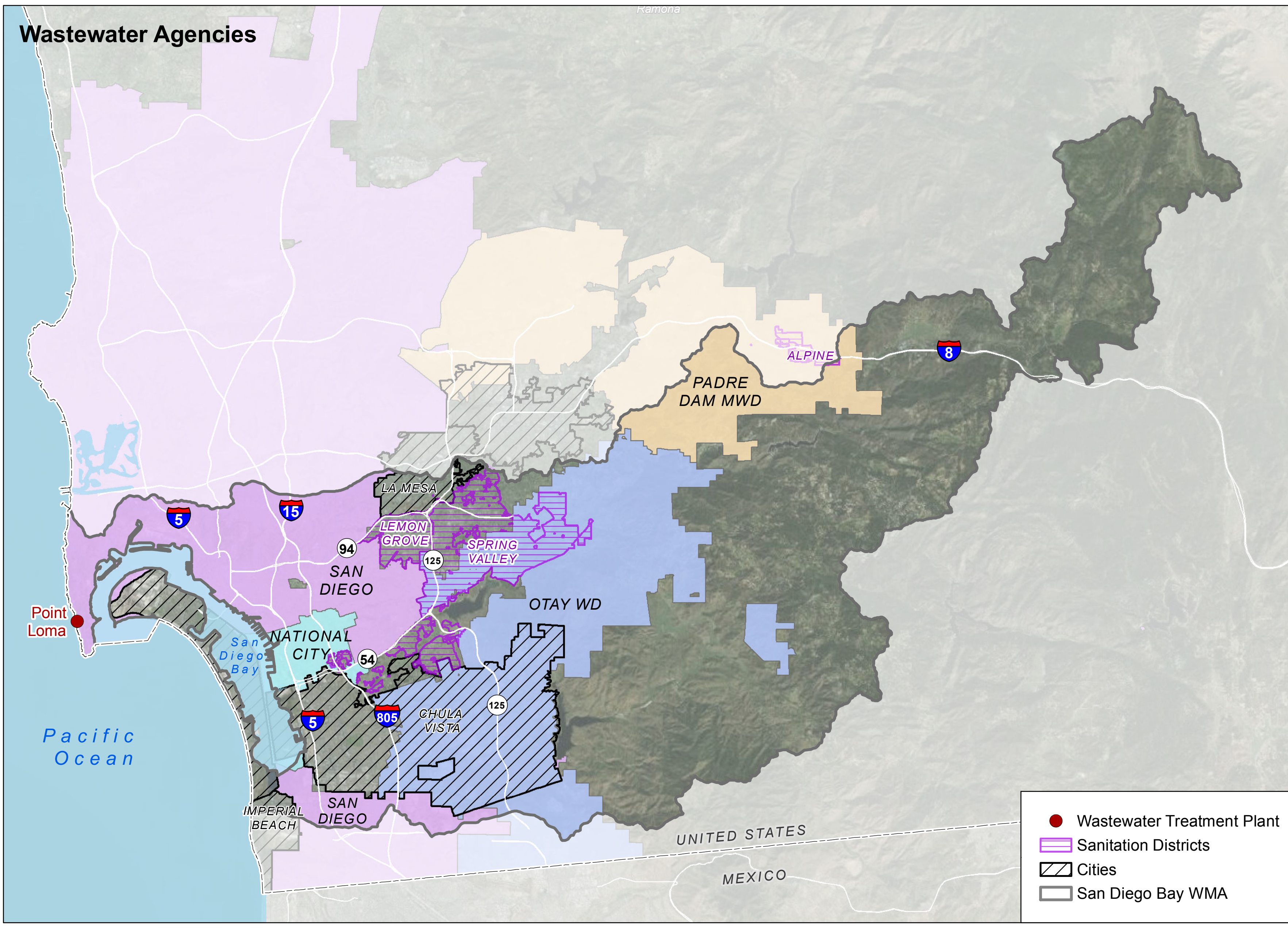
Figure 3-46
Water Features within the San Diego Bay Water Management Area

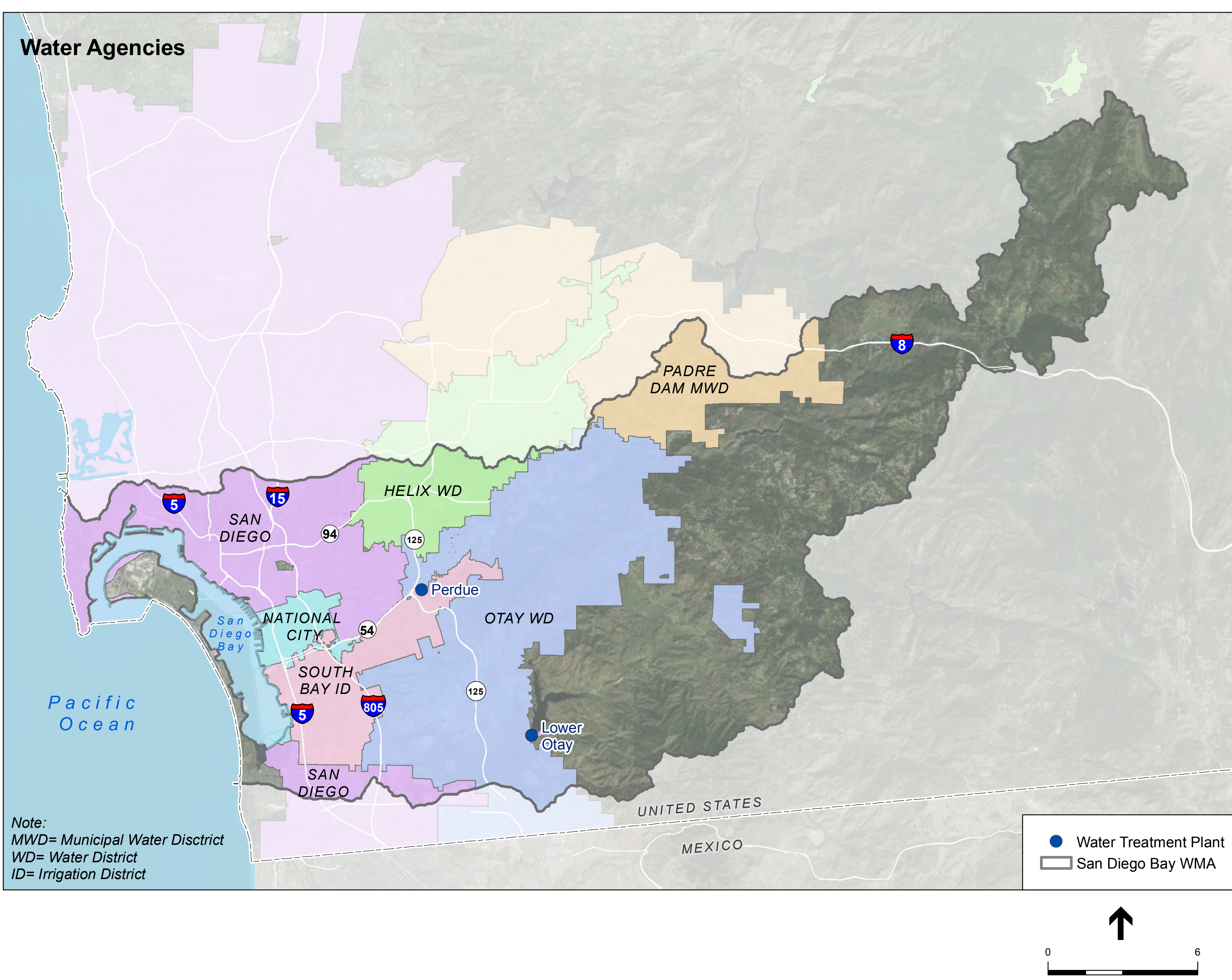


SOURCE: ESRI, 2016; SanGIS, 2016; Bureau of Land Management

SWRP . 160618

Figure 3-47
Land Use Agencies within the San Diego Bay Water Management Area

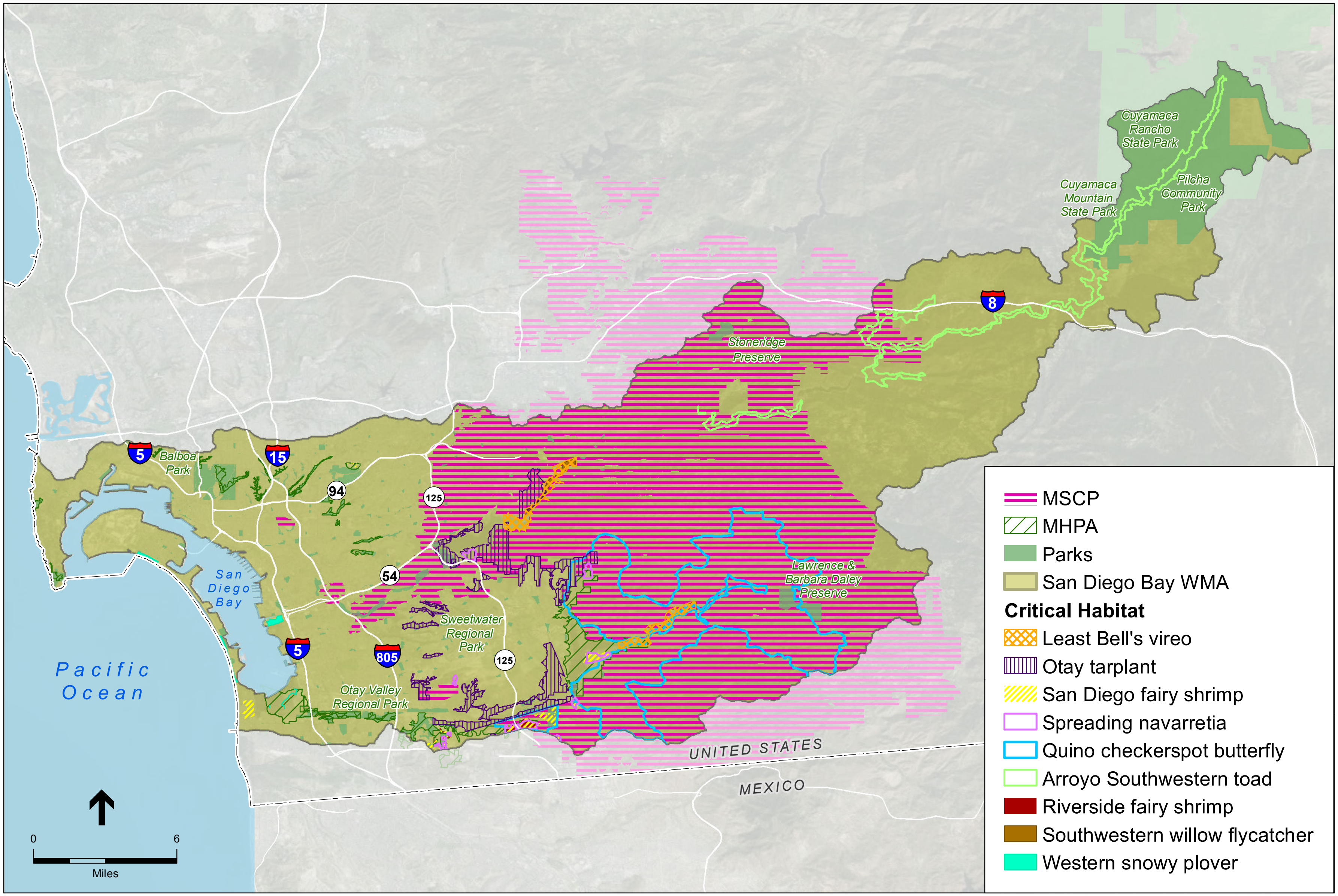




SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

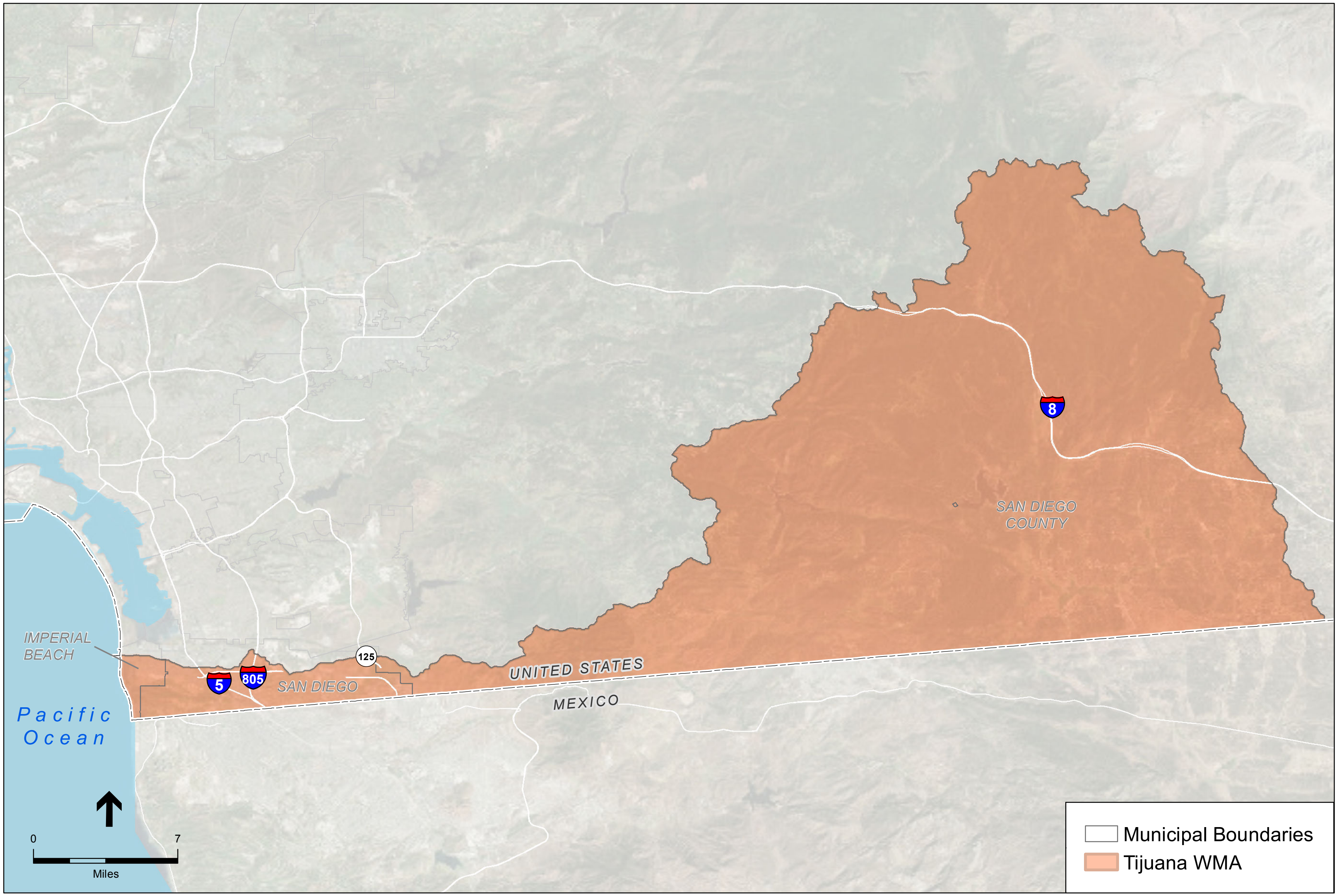
Figure 3-48
Water Agencies and Wastewater Agencies
within the San Diego Bay Water Management Area



SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

Figure 3-49
Critical Habitat within the San Diego Bay Water Management Area

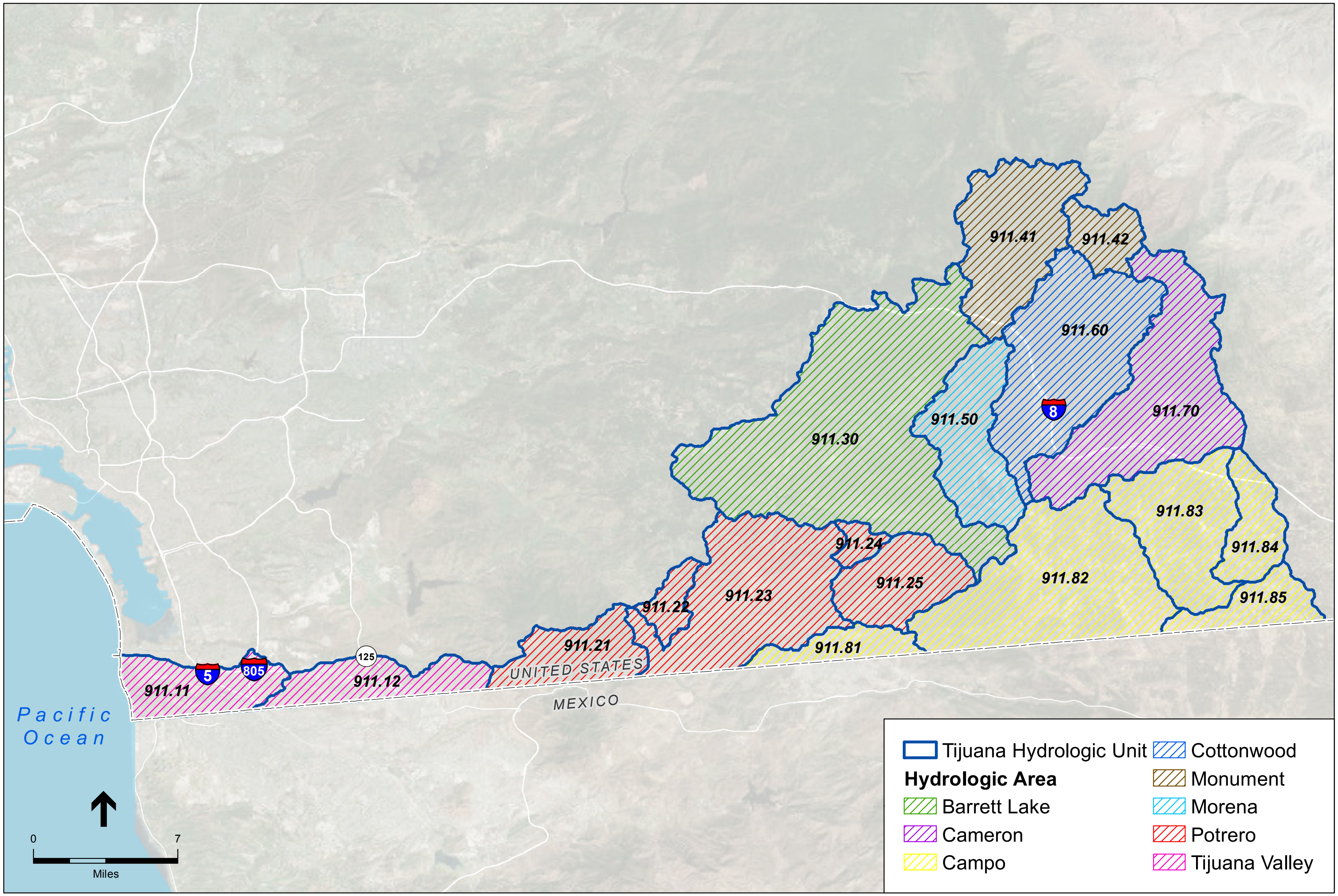


SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

Figure 3-50

City Boundaries within the Tijuana Water Management Area

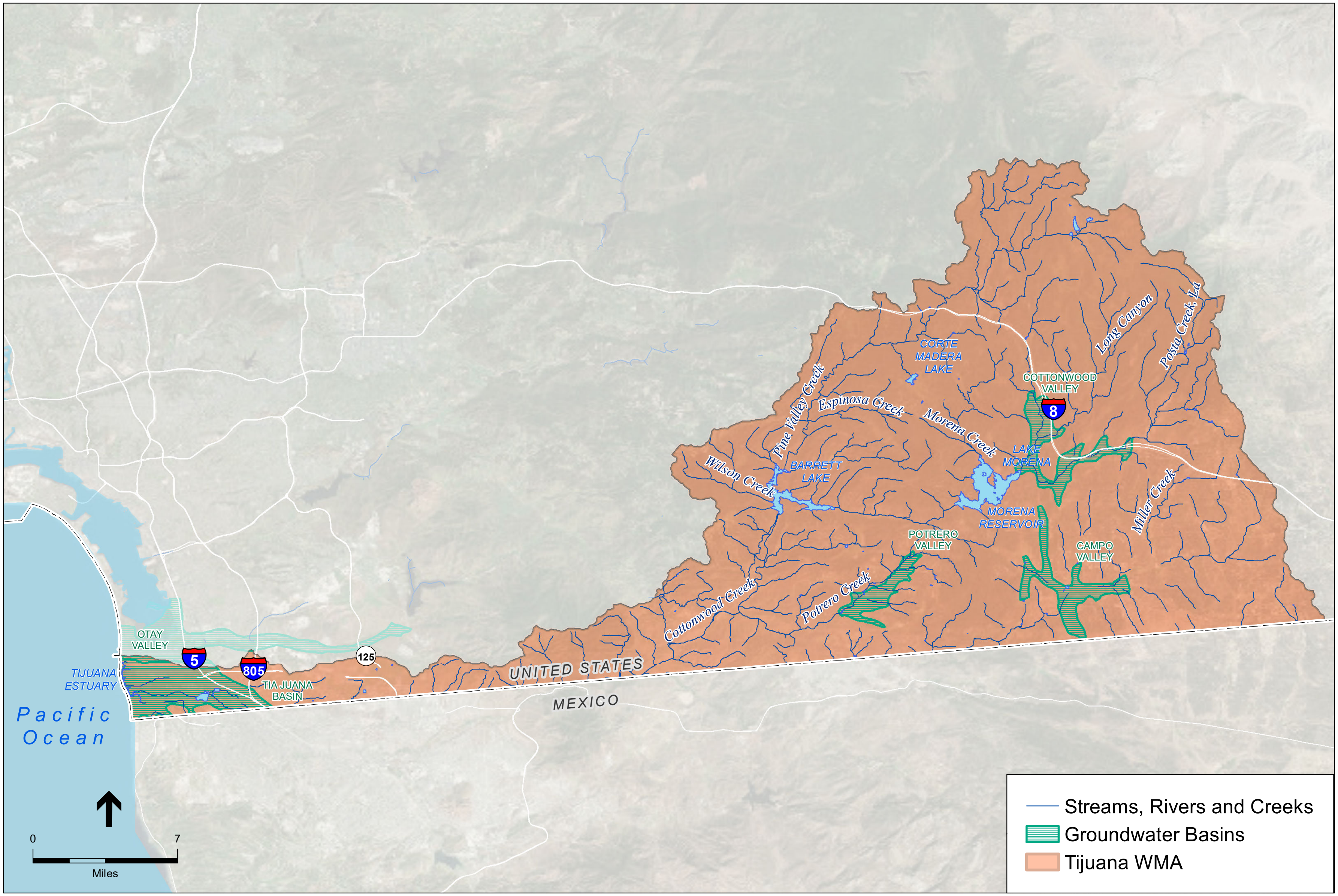


SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

Figure 3-51

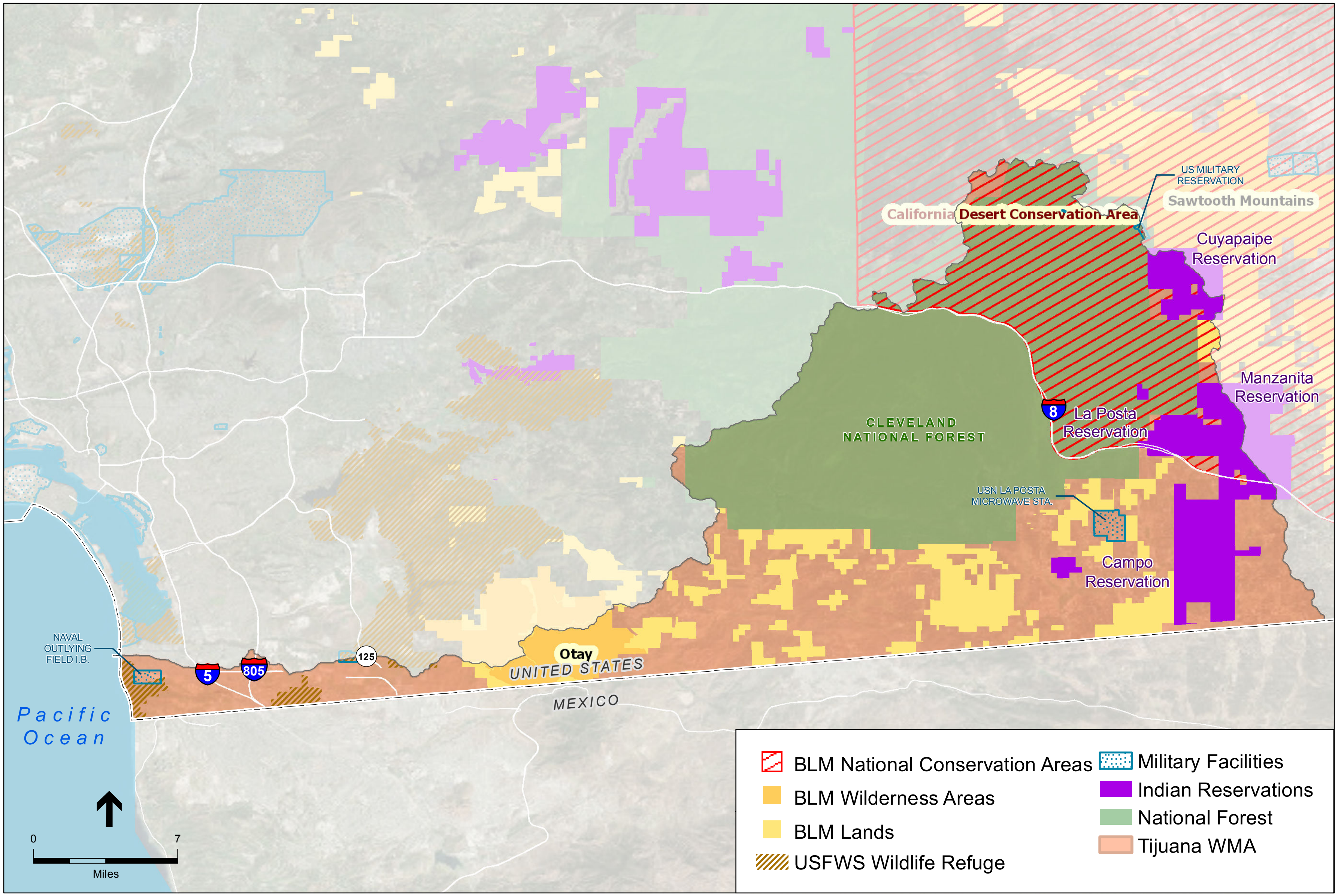
Hydrologic Units and Areas within the Tijuana Water Management Area



SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

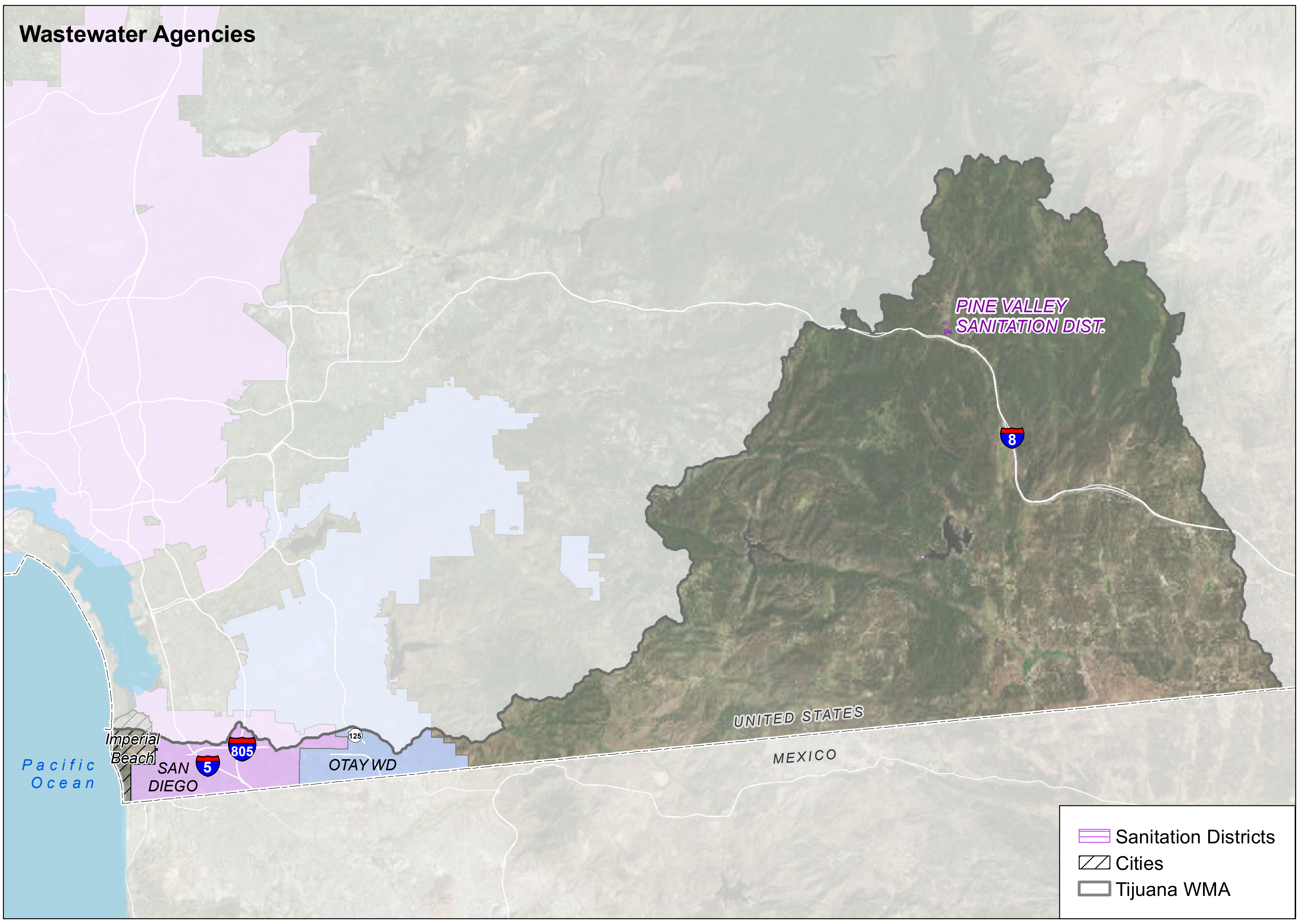
Figure 3-52
Water Features within the Tijuana Water Management Area

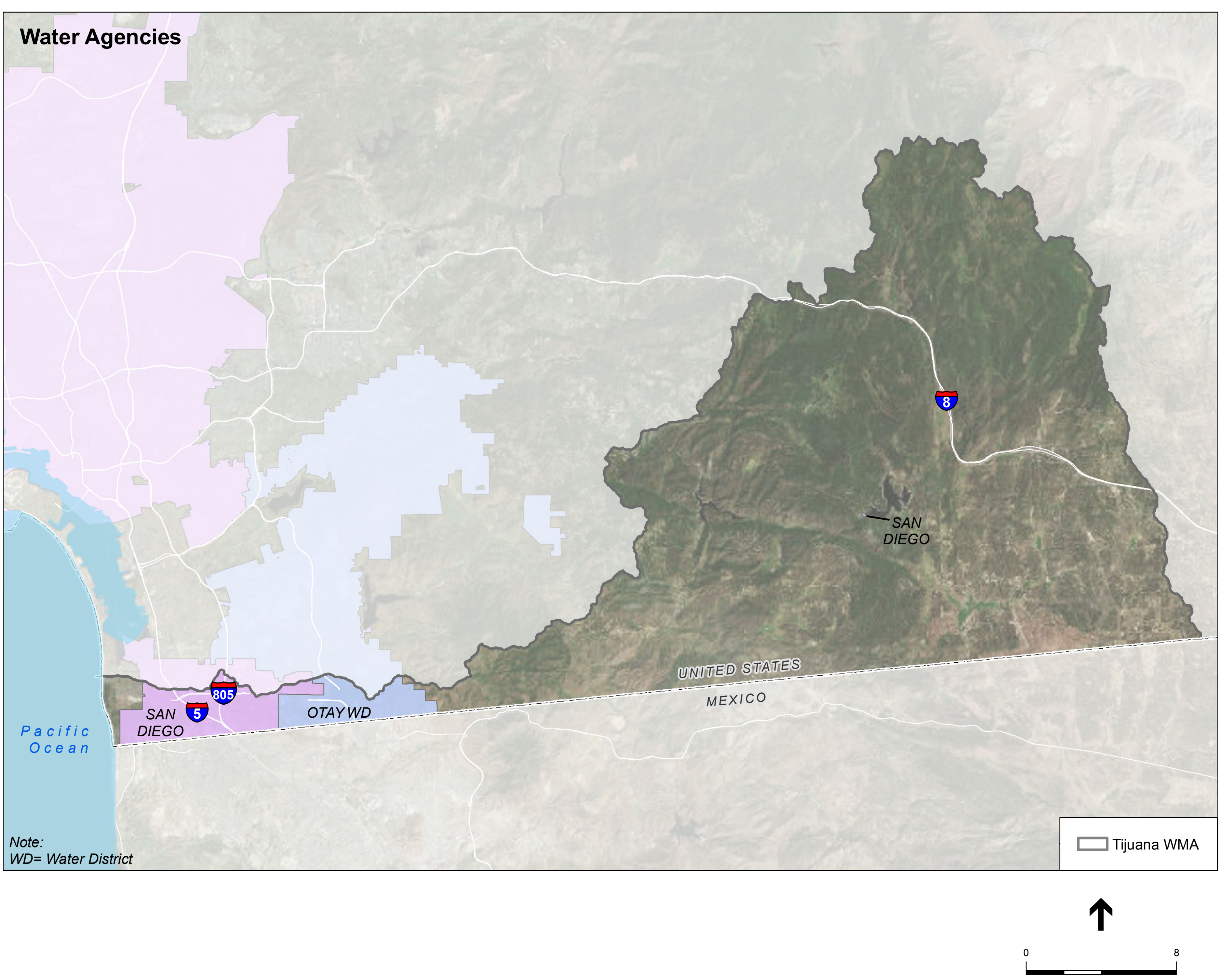


SOURCE: ESRI, 2016; SanGIS, 2016; Bureau of Land Management

SWRP . 160618

Figure 3-53
Land Use Agencies within the Tijuana Water Management Area

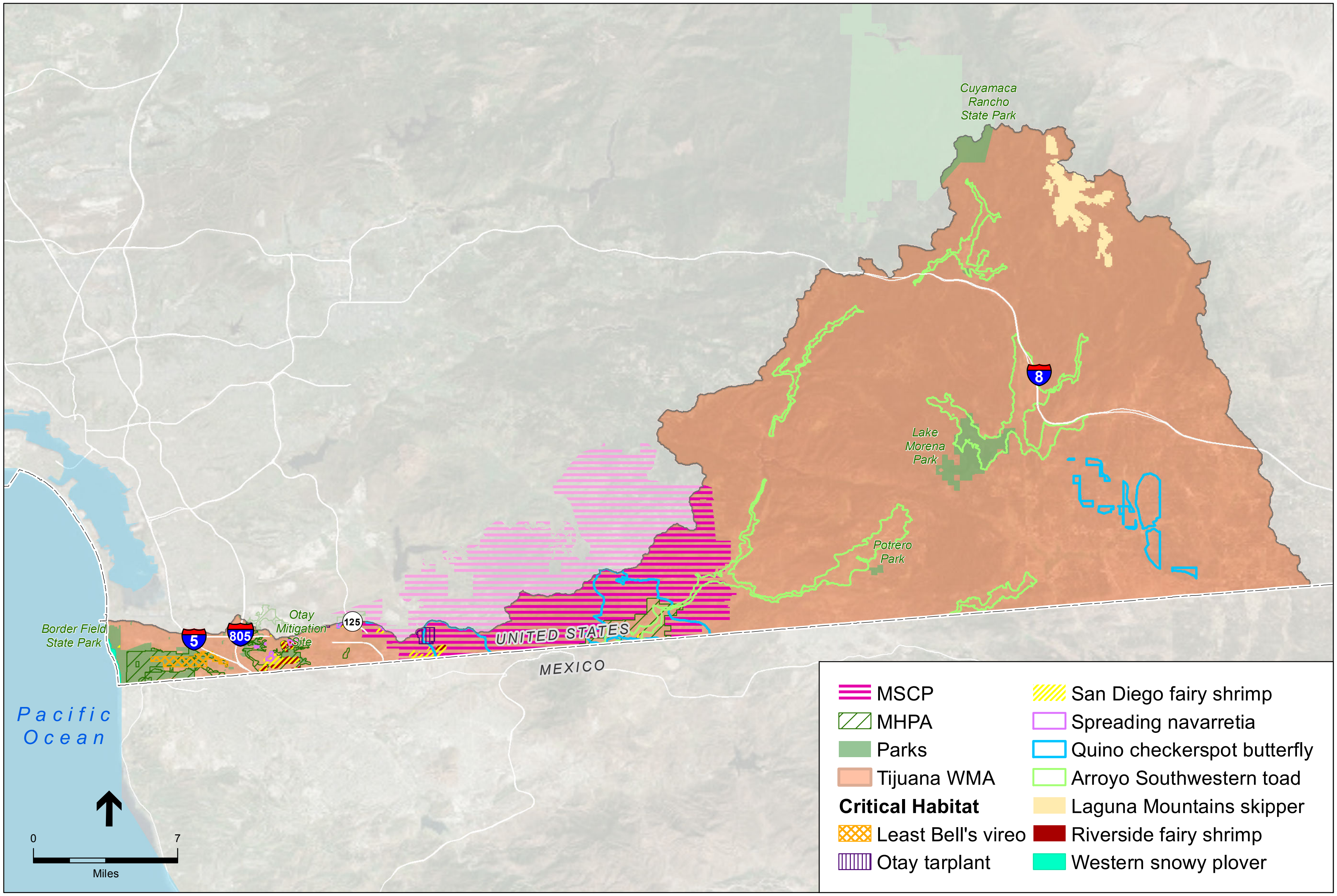




SOURCE: ESRI, 2016; SanGIS, 2016; IRWM, 2016

SWRP . 160618

Figure 3-54
Water Agencies and Wastewater Agencies
within the Tijuana Water Management Area



SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

Figure 3-55

Critical Habitat within the Tijuana Water Management Area

CHAPTER 4
Water Quality Compliance (SWRP Guidelines Section V)

SWRP Checklist Guidelines

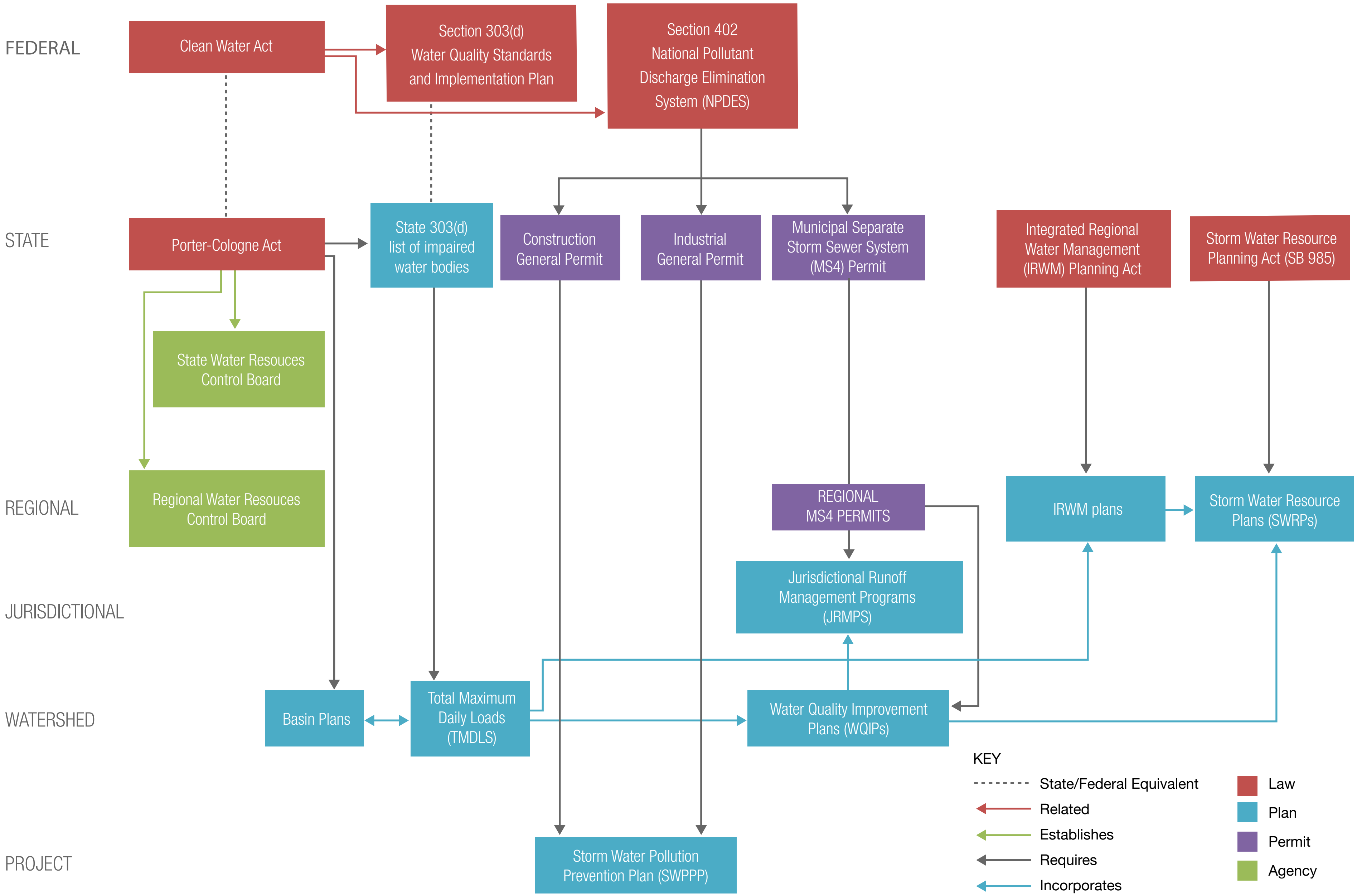
- ☒ Plan identifies activities that generate or contribute to the pollution of storm water or dry weather runoff, or that impair the effective beneficial use of storm water or dry weather runoff.
- ☒ Plan describes how it is consistent with and assists in, compliance with total maximum daily load implementation plans and applicable national pollutant discharge elimination system permits.
- ☒ Plan identifies applicable permits and describes how it meets all applicable waste discharge permit requirements.

This chapter discusses the compliance of the SWRP with other water quality regulations for the County of San Diego. Regulatory authorities exist on the federal, state, and regional levels for the protection of water quality in California. With regard to water quality management responsibilities, the USEPA is the federal agency pursuant to the Clean Water Act, and the SWRCB is the state agency pursuant to the Porter-Cologne Act. The San Diego Regional Water Quality Control Board (SDRWQCB), implements water quality regulations throughout the San Diego Region, including the County of San Diego areas.

Figure 4-1 provides a flow chart of California water quality legislation, the associated permits reflecting this legislation, and required plans for compliance with these permits. Background on these permits and plans is described in Section 4.1 of this Chapter. Section 4.2 summarizes the different activities within San Diego County that generate or contribute to the pollution of storm water or dry weather runoff organized by WMA.

4.1 Applicable Permits and Plans

The purpose of the Clean Water Act is to protect and maintain the quality and integrity of the nation's waters by requiring states to develop and implement state water plans and policies. California implemented the Porter-Cologne Water Quality Control Act (Water Code Section 13000 et seq.) in 1969. The Porter-Cologne Act established the SWRCB and divided California into nine regions, each overseen by a RWQCB, such as the SDRWQCB. The Clean Water Act and the Porter-Cologne Act established several permits and plans, including the Water Quality Control Plans (basin plans) and the NPDES, as discussed below.



SOURCE: ESA

SWRP . 160618

Figure 4-1
California Water Quality Legislation

4.1.1 Basin Plans and Impaired Water Bodies

The nine regional water quality control boards within the state are responsible for adoption and implementation of basin plans, issuance of waste discharge requirements, and performing other functions concerning water quality control within their respective regions, subject to SWRCB review or approval (SDRWQCB, 2012). According to State Water Code Section 13050, basin plans establish the beneficial uses to be protected for the waters within a specified area, water quality objectives to protect those uses, and an implementation program for achieving the objectives. This SWRP incorporates the water quality objectives listed in the SDRWQCB Basin Plan.

Under Section 303(d) of the Clean Water Act, states, territories, and authorized tribes are required to develop lists of impaired waters. Impaired waters are waters that do not meet water quality standards identified in the basin plan for that region, even after point sources of pollution have installed the minimum required levels of pollution control technology. The law requires that these jurisdictions establish a priority ranking for listed waters and develop TMDL action plans to improve water quality. TMDLs are described in section 4.1.2 below.

4.1.2 Total Maximum Daily Loads

The Clean Water Act Section 303(d) requires states to identify waters that do not meet certain water quality standards and develop TMDLs for them. Additionally, TMDLs are programs for implementation of existing water quality standards and are established in the Regional Basin Plan subject to the requirements of the state Water Code Section 13242.

A TMDL is a quantitative assessment of water quality problems, contributing sources, and load reductions or control actions needed to restore and protect bodies of water. The TMDL approach provides a framework for evaluating pollution control efforts and for coordination between federal, state, and local efforts to meet water quality standards. TMDLs are adopted as amendments to the region’s basin plan (SDRWQCB, 2016a).

A TMDL project may consist of a single water body and pollutant, or a combination of multiple water bodies and pollutant listings to restore impaired water bodies (SDRWQCB, 2016b). SDRWQCB works collaboratively with stakeholder groups to address its impaired water bodies and define TMDLs. The development steps include assessing the water body, defining total loads, developing allocations, and implementation plans to address the water quality impairment(s) (SDRWCB, 2016c).

Table 4-1 below lists the TMDLs that have been adopted within the San Diego Region, along with their adoption date.

TABLE 4-1
TMDLS ADOPTED BY SDRWQCB FOR THE SAN DIEGO REGION

Adopted TMDLs	Adoption Date
Chollas Creek Diazinon TMDL	August 14, 2002
Rainbow Creek Nitrogen and Phosphorus TMDLs	February 9, 2005
Shelter Island Yacht Basin Dissolved Copper TMDL	February 9, 2005
Chollas Creek Copper, Lead and Zinc TMDLs	June 13, 2007
Indicator Bacteria: Revised Project I – Twenty Beaches and Creeks in San Diego Region (including Tecolote Creek)	February 10, 2010
Indicator Bacteria: Project II – Baby Beach in Dana Point Harbor and Shelter Island Shoreline Park in San Diego Bay	June 11, 2008
Los Peñasquitos Lagoon Sediment TMDL	June 13, 2012
Adopted Alternative Approach TMDL	**Adoption Date**
Loma Alta Slough TMDL Phosphorus	June 26, 2014

SOURCE: SDRWQCB, 2016b

There are many TMDL projects that are currently under development. Table 4-2 below lists the TMDLs that are in the process of being developed for the San Diego Region.

TABLE 4-2
TMDLS IN PROGRESS FOR THE SAN DIEGO REGION

Proposed TMDLs
San Diego Bay Marine Sediments TMDLs: • Mouth of Chollas Creek • Seventh Street Channel (Paleta Creek) • Switzer Creek • B Street/Broadway Piers • Downtown Anchorage • Naval Station Submarine Base
TMDLs for Impaired Lagoons, Adjacent Beaches, and Agua Hedionda Creek
Tijuana River and Estuary
Famosa Slough
Santa Margarita River Estuary

SOURCE: SDRWQCB, 2016c.

This SWRP incorporates the TMDLs for the San Diego Region.

4.1.3 National Pollutant Discharge Elimination System Permits

In 1972, the Clean Water Act was amended to state that discharge of pollutants to waters of the United States from any point source is unlawful unless the discharge is in compliance with a NPDES permit (SWRCB, 2013). General permits establish essential regulatory requirements for a broad range of activities. NPDES permits that apply to the San Diego Region include the Construction General Permit, the Industrial General Permit, and the MS4 Permit. These permits are described in more detail below.

4.1.3.1 Construction General Permit

Construction projects (or projects that are part of a larger development plan) that disturb one or more acres of ground surface must obtain coverage under the Construction General Permit (2009-0009-DWQ as amended by 2010-0014-DWQ and 2012-0006-DWQ). Compliance with the Construction General Permit requires the preparation and implementation of a project-specific Storm Water Pollution Prevention Plan (SWPPP). The SWPPP describes which BMPs will be implemented on site, where they will be located to prevent pollutants from contacting stormwater, and how they will impede polluted runoff from moving off site into receiving waters. Categories of BMPs include erosion control, sediment control, waste management, good housekeeping, and post-construction. The SWPPP must also detail any pertinent monitoring and sampling requirements to be performed throughout the construction period, which are identified in the Construction General Permit and are dependent on the sediment and receiving water risk level of the site. Compliance with the Construction General Permit is implemented and enforced by the SWRCB, which runs the Storm Water Multiple Application and Report Tracking System website, where storm water permit documents are electronically filed. The SWRCB also processes all Notice of Intent documents prepared by projects intending to comply with the Construction General Permit (SDRWQCB, 2016d). Projects evaluated and prioritized by this SWRP disturbing more than an acre of ground surface would be required to comply with the Construction General Permit requirements.

4.1.3.2 Industrial General Permit

The SWRCB adopted the most recent version of the Industrial General Permit in July of 2015 (Order 2014-0057-DWQ). The purpose of this permit is to protect water quality during industrial operations. A SWPPP must be prepared that includes BMPs to be implemented throughout the site operation. BMPs must include all minimum BMPs identified in the Industrial General Permit that are required for all facilities, along with any applicable advanced BMPs. The SWPPP also requires monitoring. Minimum BMP types include good housekeeping, preventative maintenance, spill and leak prevention and response, material handling and waste management, erosion and sediment control, quality assurance, and record keeping. Operation of industrial facilities must comply with discharge prohibitions, effluent limitations, receiving water limitations, and TMDLs for receiving waters. Monitoring and receiving water sampling requirements for the facility must also be detailed in the SWPPP. The Industrial General Permit requires each facility to have a Pollution Prevention Team established and responsible for assisting with the implementation of the requirements in the Permit (SWRCB, 2014).

Projects evaluated and prioritized by this SWRP would be required to comply with the Industrial General Permit if they involve industrial operations as identified by the permit, although this is not expected for the types of projects that are typically used to address storm water.

4.1.3.3 San Diego Municipal Separate Storm Sewer System (MS4) Permit

The San Diego Region's MS4 Permit (Order No. R9-2013-001, as amended by Order Nos R9 2015-001 and R9 2015-011) is designed to regulate discharges from municipal separate storm sewer systems. The MS4 Permit covers 39 municipal, county government, and special district entities (referred to jointly as Copermittees) located in San Diego County, southern Orange County, and southwestern Riverside County who own and operate large MS4s, which discharge storm water (wet weather) runoff and non-storm water (dry weather) runoff to surface waters (SDRWCB, 2015).

The MS4 Permit includes minimum BMPs required for commercial, industrial, municipal, and residential operations. The Permit also requires inspection of BMPs. Additionally, each development project must implement, where applicable and feasible, low impact development (LID) BMPs to mimic the natural hydrology of the site and retain and/or treat pollutants in storm water runoff prior to discharging to and from the MS4 (SDRWQCB, 2015). The San Diego Low Impact Development Design Manual details various LID BMPs and provides guidance on how to select them (CSD, 2011).

The MS4 Permit requires the preparation of WQIPs for each WMA. The goal of the WQIPs is to guide the Copermittees' jurisdictional runoff management programs towards achieving the outcome of improved water quality in MS4 discharges and receiving waters. WQIPs must identify the highest priority water quality conditions and sources of pollutants or stressors. To identify the water quality priorities within each watershed addressed by their WQIP, the responsible agencies within each WMA considered various factors. These factors included but are not limited to: receiving waters listed as impaired on the Clean Water Act Section 303(d) List, TMDLs adopted and under development by the SDRWQCB, sensitive or highly valued receiving waters, and monitoring data. Following identification of highest priority water quality conditions, water quality improvement goals and strategies must be developed to address these conditions (SDRWQCB, 2015).

The MS4 Permit requires implementation of the Jurisdictional Runoff Management Programs (JRMPs) in accordance with the strategies identified in the WQIPs. The goal of JRMPs is to effectively prohibit non-storm water discharges to the MS4 and reduce the discharge of pollutants in storm water to the maximum extent possible (SDRWQCB, 2015). A list of entities within the San Diego Region that have developed JRMPs and the corresponding watersheds is provided in Table 4-3 below.

TABLE 4-3
JRMPS WITHIN THE SAN DIEGO REGION

Jurisdiction	Watershed
City of Carlsbad	Carlsbad
City of Chula Vista	San Diego Bay
City of Coronado	San Diego Bay
City of Del Mar	San Dieguito River, Los Peñasquitos
City of El Cajon	San Diego River
City of Encinitas	Carlsbad
City of Escondido	Carlsbad, San Dieguito River
City of Imperial Beach	San Diego Bay, Tijuana River
City of La Mesa	San Diego Bay
City of Lemon Grove	San Diego Bay
City of National City	San Diego Bay
City of Oceanside	San Luis Rey River, Carlsbad
City of Poway	San Dieguito River; Los Peñasquitos
City of San Diego	San Dieguito River; Los Peñasquitos; Mission Bay; San Diego River; San Diego Bay; Tijuana River
City of San Marcos	Carlsbad
City of Santee	San Diego River
City of Solana Beach	Carlsbad; San Dieguito River
City of Vista	San Luis Rey River; Carlsbad
County of San Diego	All
San Diego County Regional Airport Authority	San Diego Bay
San Diego Unified Port District	San Diego Bay

SOURCE: PCW, 2016

4.2 Pollutant-Generating Activities

Per MS4 Permit requirements, the WQIP prepared for each WMA within the San Diego Region identifies facilities, areas, and activities responsible for generating the highest priority water conditions within that WMA. The WQIPs also recognize and identify principal pollutant sources outside of the responsible agencies' jurisdictions that are sources for pollutants in the WMAs. These include:

- Other permitted discharges
- Other potential point sources[1]
- Other nonpoint sources[2]

1 Point sources are discrete conveyances, such as pipes or ditches.

2 Nonpoint sources typically flow over land and discharge to receiving waters over a broad area, as opposed to a point location.

- Phase II MS4[3] outfalls

Other permitted discharges include those permitted under the Industrial General Permit (Section 4.1.3.2) and Construction General Permit (Section 4.1.3.1). The following sections identify the highest priority water quality conditions and the pollutant-generating facilities, areas, and facilities for each of the nine WMAs in the San Diego Region. The information in each of these sections was adapted from each WMA's respective WQIP.

4.2.1 Santa Margarita River

Although the Santa Margarita River WMA WQIP is still in development, pollutant-generating activities for the WMA are available through other documents. Several of the water bodies in the WMA are impaired by eutrophication, nitrogen, and phosphorus, likely from nutrient applications from agriculture, nursery operations, municipal wastewater discharges, urban runoff, and septic systems. In addition to nutrient-related concerns, other water quality concerns within the watershed include excessive sedimentation, groundwater degradation and contamination, habitat loss, channelization, flooding, and scour (erosion).

4.2.2 San Luis Rey River

The San Luis Rey River WMA WQIP (LWA, 2016a) identified bacteria as the highest priority water quality condition for storm water or dry weather runoff for the San Luis Rey River watershed. Other general potential pollutant sources for the San Luis Rey River watershed include 1) parks, recreational, and open space areas, 2) landfills and other treatment facilities for municipal waste, and 3) tribal lands, federal lands, state parks, and lands regulated by State Board Phase II permits. It should be noted that there is very limited data available to identify potential pollutants in the watershed due to the monitoring locations. These monitoring locations do not represent a single land use type and thus, cannot be used to distinguish pollutant sources (LWA, 2016a).

The number of potential pollutant-generating facilities, areas, and activities within each jurisdiction of the San Luis Rey River watershed is shown in Table 4-4 below.

[3] Phase II MS4s are smaller agencies (relative to municipalities) or areas that are regulated under the State's Phase II MS4 General Permit (State Board Order No. 2013- 0001-DWQ) (SDRWQCB, 2013). They are outside the authority of the responsible agencies and, within the San Diego region, can include, but are not limited to, correctional, transit, educational, and federal facilities. Phase II MS4 permittees are responsible only for the runoff from their facilities and activities, whereas the responsible agencies are responsible for receiving runoff from other sources.

TABLE 4-4
POTENTIAL POLLUTANT-GENERATING FACILITIES IN WATERSHED

Land Use	City of Vista	City of Oceanside	County of San Diego
Commercial Sites	537	1,085	340
Industrial Sites	181	59	8
Construction Sites	29	0	1,406
Parks/Recreation	1,250 acres	20 parks, 3 marinas	9 parks
Landfill Site	None	1 inactive site	2 inactive sites

SOURCE: LWA, 2016a (Table 2-16)

4.2.2.1 Bacteria

Bacteria are a primary source of pollutants in the storm drain system of the San Luis Rey River watershed. Potential pollutant sources for bacteria are listed in Table 4-5 below.

TABLE 4-5
POTENTIAL POLLUTANT BACTERIA SOURCES

General Source Categories	Targeted Source Categories
• Construction	• Food Establishments
• Commercial	• Commercial Animal Facilities
• Industrial	• Nurseries
• Municipal Parks and Recreation Areas	• Residential Land Uses
• Municipal Burn Sites and Landfills	• Agricultural Land Uses
• Residential	• Human Sources (sewer infrastructure, on-site wastewater treatment systems, homeless encampments)

SOURCE: LWA, 2016a (Table 2-18)

The highest rated potential sources of human-related bacteria for dry and wet weather include: sanitary sewer overflows, leaking sewer pipes, homeless populations, and leaking septic systems. Sanitary sewer overflows typically occur during dry weather and are usually episodic events. During these events, leaking sewer pipes and aging infrastructure can allow water to flow outside of the intended conveyance and increase potential for cross-contamination if located near storm drains or receiving waters. Similarly, failing septic systems typically contribute to bacteria loads to the MS4 and receiving waters, and can occur during dry weather.

4.2.3 Carlsbad

The Carlsbad WMA WQIP (MOE, 2016) identified pesticides, bacteria, sedimentation, riparian habitat degradation, and hydromodification impacts as the highest priority conditions for storm water and dry weather runoff in the Carlsbad WMA. Specifically, riparian habitat degradation is the highest priority water quality condition for the Agua Hedionda and Escondido hydrologic area. The six HAs in the Carlsbad WMA have distinct pollutant sources. Table 4-6 below shows the number of pollutant-generating facilities and sites within each HA.

TABLE 4-6
MS4 POLLUTANT GENERATING SOURCES PER HA[a]

Pollutant Generating Sources	Loma Alta HA	Buena Vista Creek HA	Encinas HA	San Marcos HA
Aggregates/Mining	0	1	0	1
Agriculture	0	1	4	0
Animal Facilities	10	5	5	45
Auto Repair, Fueling, or Cleaning	92	131	67	136
Auto Parking Lots or Storage	6	16	27	4
Auto Body Repair or Painting	28	19	12	48
Nurseries/Greenhouses	4	28	59	96
Building Materials Retail	2	0	2	30
Chemical and Allied Products	4	0	4	4
Concrete Manufacturing	6	1	0	4
Eating or Drinking Establishments	123	391	162	501
Equipment Repair or Fueling	14	8	40	87
Fabricated Metal	17	6	42	39
Food Manufacturing	8	3	21	30
General Contractors	54	26	51	129
General Industrial	62	10	98	76
General Retail	125	94	58	65
Health Services	0	2	0	1
Institutional	6	2	0	0
Mobile Landscaping	0	0	0	0
Motor Freight	12	3	10	23
Offices	70	36	0	2
Parks and Rec (including Golf, Cemetery)	1	3	4	9
Pest Control Services	6	1	4	1
Pool and Fountain Cleaning	2	1	0	5
Publicly owned treatment works	0	0	1	3
Primary Metal	8	0	5	1
Recycling & Junk Yards	0	2	6	4
Roads, Streets & Parking, Freeways, Railways	0	0	0	1
Stone/Glass Manufacturing	8	3	10	10
Storage/Warehousing	14	9	48	108
Municipal	34	81	69	119
Residential (acres)	2,025	7,345	6,613	12,977

a. The quantities in this table represent current data at the time of the WQIP's publication. These quantities are subject to change given the high turnover of facilities in the hydrologic area.

SOURCE: MOE, 2016 (Tables 23, 28, 35 and 39)

4.2.4 San Dieguito River

The San Dieguito River WMA WQIP (Amec, 2015a) identified bacteria as the highest priority condition for storm water and dry weather runoff in the San Dieguito River WMA. According to the WQIP, the highest priority MS4 sources potentially contributing bacteria are residential areas and sanitary sewer overflows/septic systems. The likely sources for causing bacteria impairments are shown in Table 4-7 below. Sources of bacteria according to land uses are summarized in Table 4-8.

TABLE 4-7
LIKELY SOURCES OF BACTERIA IN SAN DIEGUITO RIVER WMA[a]

Source	Land Use Category	Number of Identified Likely Sources
Agriculture	Other	2 facilities
Animal Facilities	Commercial	49 facilities
Eating or Drinking Establishments	Commercial	420 facilities
Mobile Landscaping	Commercial	3 facilities
Nurseries and Greenhouses	Commercial	34 facilities
Roads, Streets and Parking	Municipal	2 facilities
Residential Areas	Residential	38,988 acres

a. The quantities in this table represent current data at the time of the WQIP's publication. These quantities are subject to change given the high turnover of facilities in the water management area.

SOURCE: Amec, 2015a (Table 3-1)

Other potential sources have been identified that may contribute to the bacteria impairment within the San Dieguito River WMA but are outside of the jurisdiction of the Responsible Parties. These sources are transferred to receiving waters by the Responsible Agencies' MS4s, and include: Phase II MS4 outfalls (Del Mar Fairgrounds and North County Transit District), other permitted discharges, other potential point sources, and other nonpoint sources.

TABLE 4-8
SOURCES OF BACTERIA IN THE SAN DIEGUITO RIVER WMA

Known or Suspected Source	Land Uses								
	Construction	Commercial	Industrial	Municipal	Residential	Parks and Recreational Areas	Open Space	Landfills	Other
By Facility									
Nurseries and Greenhouses		✓		✓		✓			✓
Eating and Drinking Establishments		✓		✓		✓			✓
Animal Facilities		✓		✓					✓
By Area									
Agriculture				✓	✓				✓
Roads, Streets, Parking Areas		✓	✓	✓		✓			✓
Residential Areas					✓				✓
By Activity									
Mobile Landscaping		✓		✓	✓	✓			
Other									
Bacteria Regrowth and Biofilms				✓					✓
Transient Encampments									✓
Sanitary Sewer Overflows and Septic Systems	✓	✓	✓	✓	✓	✓			✓
Wildlife				✓		✓	✓	✓	✓

SOURCE: Amec, 2015a (Table 3-3)

4.2.5 Los Peñasquitos

The Los Peñasquitos WMA WQIP (Amec, 2015b) identified freshwater discharge, hydromodification, sediment, and bacteria as the highest priority conditions for storm water and dry weather runoff in the Los Peñasquitos WMA.

4.2.5.1 Freshwater

Freshwater discharge has a more significant impact during dry weather than wet weather since historically the creeks in the Los Peñasquitos WMA did not run at all during dry weather. Table 4-9 summarizes the sources of freshwater discharge in the Los Peñasquitos WMA.

TABLE 4-9
SOURCES OF FRESHWATER DISCHARGE IN THE LOS PEÑASQUITOS WMA

Known or Suspected Source	Land Uses								
	Construction	Commercial	Industrial	Municipal	Residential	Parks and Recreational Areas	Open Space	Landfills	Other
Outfalls with Persistent Dry Weather Flow		✓	✓	✓	✓				✓
Irrigation Runoff				✓		✓			
Parks and Recreation (including golf courses and cemeteries)				✓		✓			✓
Roads, Streets, Highways, and Parking		✓		✓	✓				✓
Residential Areas									
Sanitary Sewer Overflow	✓	✓	✓	✓	✓	✓			✓

SOURCE: Amec, 2015b (Table 3-3)

4.2.5.2 Hydromodification

The sediment TMDL states that hydromodification has a more significant impact during wet weather than dry weather. With the increase of impervious surfaces in the watershed, less storm water can infiltrate into the ground, and more is instead directed to natural waterways or the MS4s. This means that the peak (and total) flow in the creeks is greater and occurs more rapidly than under undeveloped conditions (with fewer impervious surfaces). Table 4-10 summarizes the sources of hydromodification in the Los Peñasquitos WMA.

TABLE 4-10
SOURCES OF HYDROMODIFICATION IN THE LOS PEÑASQUITOS WMA

Known or Suspected Source	Land Uses								
	Construction	Commercial	Industrial	Municipal	Residential	Parks and Recreational Areas	Open Space	Landfills	Other
Land Development	✓	✓	✓	✓	✓				✓
Impervious Surfaces	✓	✓	✓	✓	✓				✓
Outfalls Discharging to Canyons/Bluffs		✓	✓	✓	✓				✓
Open Space Areas							✓		✓
Flood Control Basins				✓					
Channel Drop Structures				✓					

SOURCE: Amec, 2015b (Table 3-3)

4.2.5.3 Sediment

The sediment TMDL states that sources of sediment are more significant in wet weather than in dry weather. Hydromodification can cause significant erosion in the natural drainages and canyon walls, as well as within creek beds, banks, and floodways, as the geomorphology shifts to transport the larger flow. The higher peak flows possess greater energy, which can mobilize greater amounts and sizes of sediment. Table 4-11 summarizes the sources of sediment in the Los Peñasquitos WMA.

TABLE 4-11
SOURCES OF SEDIMENT IN THE LOS PEÑASQUITOS WMA

Known or Suspected Source	Land Uses								
	Construction	Commercial	Industrial	Municipal	Residential	Parks and Recreational Areas	Open Space	Landfills	Other
By Facility									
Aggregates/Mining			✓						✓
Animal Facilities		✓		✓					✓
Building Materials Retail		✓				✓			
Nurseries and Greenhouses		✓	✓	✓					✓
Health Services		✓		✓					
Recycling and Junk Yards			✓	✓				✓	
Stone/Glass Manufacturing			✓						
Storage/Warehousing	✓	✓	✓	✓					✓
By Area									
Agriculture				✓	✓				✓
Auto Parking Lots or Storage	✓	✓		✓	✓	✓			✓
General Retail		✓							
Municipal	✓			✓	✓	✓	✓	✓	
Residential Areas					✓				
By Activity									
Concrete Manufacturing	✓		✓						
Construction	✓								
General Contractors	✓								
Mobile Landscaping		✓		✓	✓				
Other									
Hydromodification	✓	✓	✓	✓	✓	✓			✓
Ocean Sediment Contribution						✓			✓
Open Space Areas							✓		
Roads, Streets, Highways, and Parking		✓		✓	✓				✓

SOURCE: Amec, 2015b (Table 3-3)

4.2.5.4 Bacteria

The bacteria TMDL states that sources of bacteria may be the same in wet and dry weather, however, the transport mechanisms are different. During storm events, bacteria are discharged to the MS4 over a general area, which receives rainfall and which can be well represented by land use. During dry weather, bacteria are conveyed by illicit discharges, irrigation runoff, infiltration, and permitted discharges. Table 4-12 provides the sources of bacteria in the Los Peñasquitos WMA.

TABLE 4-12
SOURCES OF BACTERIA IN THE LOS PEÑASQUITOS WMA

Known or Suspected Source	Land Uses								
	Construction	Commercial	Industrial	Municipal	Residential	Parks and Recreational Areas	Open Space	Landfills	Other
By Facility									
Animal Facilities		✓		✓					✓
Eating and Drinking Establishments		✓		✓		✓			✓
Nurseries and Greenhouses		✓	✓	✓		✓			✓
By Area									
Residential Areas									
Agriculture									
By Activity									
Mobile Landscaping									
Other									
Bacteria Regrowth and Biofilms				✓					✓
Transient Encampments									✓
Open Space Areas							✓		
Sanitary Sewer Overflows	✓	✓	✓	✓	✓	✓			✓
Wildlife				✓		✓	✓	✓	✓

SOURCE: Amec, 2015b (Table 3-3)

4.2.5.5 Other Sources

Other potential sources have been identified that may contribute to the impairment within the Los Peñasquitos WMA, including Phase II MS4 outfalls (Marine Corps Air Station Miramar, North County Transit District (NCTD), and the University of California, San Diego), other permitted discharges (Table 4-13), other potential point sources, and other nonpoint sources.

TABLE 4-13
STORM WATER DISCHARGE PERMITS

Permit Type	Number of Permits in WMA
Municipal Storm Water	5
Industrial Storm Water	75
Construction Storm Water	46
Caltrans Storm Water	1
Other Individual NPDES Discharges	0
Total	**127**

SOURCE: Amec, 2015b (Table 3-2)

4.2.6 Mission Bay

The Mission Bay WMA WQIP (Amec, 2016) identified bacteria and sediment as the highest priority pollutants in its WMA. Table 4-14 lists the likely sources of bacteria and sediment within the Mission Bay WMA.

TABLE 4-14
LIKELY SOURCES OF BACTERIA AND SEDIMENT

Source Type	Category	Total Number of Sources in WMA	Bacteria	Sediment
Agriculture	Other	2 (80 acres)	-	✓
Animal Facilities	Commercial	77	✓	-
Construction	Construction	N/A	-	✓
Eating/Drinking Establishments	Commercial	1,281	✓	-
Golf Courses/Parks	Municipal	14	✓	✓
Home and Garden Care	Residential	11,463 acres	✓	✓
Hydromodification	Construction	N/A	-	✓
Landscaping	Commercial	32	✓	✓
Land Use Alteration	Construction	N/A	-	✓
Mobile eating/Drinking Establishments	Commercial	2	✓	-
Mobile Landscaping	Commercial	205	✓	✓
Nurseries/Greenhouses	Commercial	7	-	✓
Publicly Owned Treatment Works (POTWs)	Municipal	1	✓	-
Waste Disposal	Municipal	3	✓	-

Sources are quantified by facility counts or acreage. Facility counts help define the sources during dry weather and land uses help defines sources during wet weather.
NA = not available. The number of sources is either variable, as with construction, or is not currently assessed by the jurisdiction because of the difficulty in obtaining an accurate count.
"✓" = Source applies to highest priority water quality condition. "–" = Source does not apply to highest priority water quality condition.

SOURCE: Amec, 2016 (Table 3-1)

Other potential sources have been identified that may contribute to the impairment within the Mission Bay WMA, including Phase II MS4 outfalls (Marine Corps Air Station Miramar, NCTD, Veterans Administration San Diego Healthcare System, and the University of California, San Diego), other permitted discharges (Table 4-15), other potential point sources, and other nonpoint sources

TABLE 4-15
STORM WATER DISCHARGE PERMITS

Permit Type	Numbers of Permits[a]
Municipal Storm Water	2
Industrial Storm Water	6[b]
Construction Storm Water	15[b]
Caltrans Storm Water	1
Other Individual NPDES Discharges	4
Total	**28**

a. Number of permits in Tecolote and Scripps subwatersheds only.
b. Number of individual permittees filing under statewide general permit.

SOURCE: Amec, 2016 (Table 3-2)

During wet weather, storm water runoff may carry bacteria and sediment from agricultural lands to the MS4. The bacteria TMDL identifies wildlife areas, which include open space land uses and are sometimes not under the jurisdiction of Responsible Agencies, as sources of bacteria. The wildlife areas partially account for bacteria contributions from wild animals and decaying plant sources.

During dry weather, bacteria may enter the MS4 or receiving waters through groundwater infiltration or irrigation runoff into municipal drainage channels. Also, groundwater may contribute to the bacteria in the MS4 and receiving waters. The Tecolote Creek Comprehensive Load Reduction Plan (City of San Diego and Caltrans) identifies aerial deposition (i.e., sediment blown and redeposited by wind) as both a natural source and a source influenced by human activity for sediment in the San Diego Region.

4.2.7 San Diego River

The San Diego River WMA WQIP (LWA, 2016b) identified bacteria as the highest priority water quality condition. Table 4-16 provides a summary of the applicable pollutant generating facilities, areas, and activities within each participating agency's boundaries.

TABLE 4-16
SUMMARY OF APPLICABLE POLLUTANT GENERATING FACILITIES, AREAS, AND/OR ACTIVITIES BY JURISDICTION

Potential Pollutant Source Areas	County of San Diego	City of San Diego	City of Santee	City of La Mesa	City of El Cajon
Construction, Commercial, Industrial, Municipal, Residential Facilities and/or Areas	✓	✓	✓	✓	✓
Publicly Owned Parks and/or Recreational Areas	✓	✓	✓		✓
Open Space Areas	✓	✓	✓		✓
Municipal Landfills or Other Treatment, Storage, or Disposal Facilities for Municipal Waste	✓	✓			
Areas Not within the Copermittee's Jurisdiction	✓	✓			

SOURCE: LWA, 2016b (Table 2-17)

Table 4-17 presents a summary of the number of pollutant generating land uses in the San Diego River WMA.

TABLE 4-17
POLLUTANT GENERATING LAND USES

Land Use	County of San Diego	City of San Diego	City of Santee	City of La Mesa	City of El Cajon
Construction Sites	288	247	14	28	12
Commercial Sites	493	3,703	540	342	700
Industrial Sites	79		n/a	17	104
Municipal Sites	40	57	17	49	34
Parks/Recreation Areas (in sites or acres)	25 sites	67 sites	279 acres	--	78 acres

SOURCE: LWA, 2016b (Table 3-17)

Some additional sources of pollution identified in the San Diego River WQIP that are naturally present include wildlife, kelp, natural erosion, bacterial regrowth, natural groundwater, and wildfires. Natural sources that can be anthropogenically influenced include groundwater altered by imported water supply, aerial deposition of transportation and industrial pollutants, and erosion exacerbated by hydromodification. Sources specific to bacteria were identified within the watershed including homeless populations living near receiving waters, sludge/sewage disposal sites, and portable bathroom facilities.

4.2.8 San Diego Bay

The San Diego Bay WMA WQIP (SDBRP, 2016) identified indicator bacteria, metals, and trash as the highest priority water quality conditions. Table 4-18 summarizes the facilities and activities identified as known or suspected sources of pollutants and stressors identified for the highest priority conditions for the San Diego Bay WMA.

TABLE 4-18
LIKELY SOURCES OF POLLUTANTS AND STRESSORS

Source Type	Total Number of Facilities in Hydrologic Area[a]	Bacteria	Metals
Agriculture	1	✓	✓
Animal Facilities	82	✓	
Automotive	876		✓
Eating or Drinking Establishments	2,316	✓	
Equipment	91		✓
General Industrial	95		✓
Institutional	68		✓
Manufacturing	57		✓
Metal	40		✓
Nurseries/Greenhouses	18	✓	✓
Stone/Glass Manufacturing	9		✓
Storage/Warehousing	210		✓
Municipal	298		✓
Residential Areas[b]	10,716	✓	✓

✓ = Stressor has been identified for the Highest Priority Condition in the hydrological area.
Blank = Stressor is not identified as a potential source in the WURMP Annual Reports.
a. Total number of facilities in San Diego Mesa HA. Many of these facilities do not drain to the Chollas Creek HSA.
b. Residential areas are reported as acreage and not by the number of dwellings.

SOURCE: SDBRP, 2016 (Table 3-3)

Other potential sources have been identified that may contribute to the impairment within the San Diego Bay WMA, including Phase II MS4 outfalls (Metropolitan Correctional Center San Diego and R.J. Donovan Correctional Facility), other permitted discharges, other potential point sources, and other nonpoint sources. Table 4-19 lists discharge permits within the Pueblo HA of the San Diego Bay WMA. The Pueblo San Diego Watershed contains the most concentrated area of urban land uses and MS4 outlets and outfalls and has the highest priority water quality conditions for bacteria and metals.

The highest relative load contributions of dissolved copper, lead, and zinc have been attributed to freeways and commercial/industrial land uses, which may include both point and nonpoint sources. Brake pad wear on automobiles is a likely nonpoint source of copper, and, to a lesser extent, a source of lead and zinc in the creek. Discharge of drinking water supply has also been identified as a point source of metals, and may partially be contributed to by piping infrastructure. Sediment and groundwater flows have also been identified as nonpoint sources of these metals into the creeks.

TABLE 4-19
DISCHARGE PERMITS

Permit Type	Number of Permits in the Pueblo Hydrologic Area
Municipal Storm Water	1
Industrial Storm Water	93
Construction Storm Water	89
Caltrans Storm Water	1
Other Discharge Permits[a]	5
Total	**189**

Caltrans = California Department of Transportation
a. Includes Order No. R9-2010-0003, R9-2011-0022, 2011-0002-DWQ, 2011-0003-DWQ, and 2011-0004-DWQ. Dischargers may apply for such permits, as necessary.

SOURCE: SDBRP, 2016 (Table 3-2)

4.2.9 Tijuana River

The WQIP for the Tijuana River WMA (URS, 2016) identified sedimentation and siltation in the Tijuana River and turbidity in the Tijuana River and Tijuana River Estuary as the highest priority water quality conditions in the WMA. Segments of both the Tijuana River and the Tijuana River Estuary are identified on the 303(d) list as impaired by sedimentation/siltation or the associated constituents solids, total suspended sediment (TSS), and turbidity.

Sediment and turbidity were determined to originate from a range of sources including regulated and unregulated; point and nonpoint; and natural and anthropogenic sources. Anthropogenic sources of sediment occur when storm water runoff rates exceed natural levels in urbanized areas, causing increased stream bank erosion. Other priority water quality conditions that were not selected to be addressed in the Tijuana River WQIP (indicator bacteria, low dissolved oxygen, nutrients, surfactants, TDS, trash, pesticides, synthetic organics, and toxicity) are being addressed by the JRMP. In addition, by addressing sediment, these pollutants often associated with sediment load, will be addressed concurrently.

Table 4-20 lists the inventory of potential pollutant-generating facilities within the Tijuana Valley hydrologic area that may cause or contribute to sedimentation/siltation and turbidity water quality condition in Tijuana River and Tijuana River Estuary in the Lower Watershed. Table 4-21 shows a similar inventory for land uses in the Tijuana Valley hydrologic area.

TABLE 4-20
POTENTIAL POLLUTANT-GENERATING FACILITIES THAT MAY CONTRIBUTE TO THE HIGHEST PRIORITY WATER QUALITY CONDITION

Facility Type	Total
Construction Sites	136
Commercial Facilities	1,444
Industrial Facilities	99
Municipal Facilities	38
Treatment, Storage or Disposal Facilities	20

SOURCE: URS, 2016 (Table 2-12)

TABLE 4-21
POTENTIAL POLLUTANT-GENERATING AREAS THAT MAY CONTRIBUTE TO THE HIGHEST PRIORITY WATER QUALITY CONDITION

Area Type	Total
Areas where the RAs have Oversight and Discharge Responsibility	
Commercial	321
Institutional	139
Low Density Residential	1,373
High Density Residential	577
Transportation[a]	2,291
Vacant and Undeveloped Land	3,403
Open Space Park or Preserve	3,892
Other Park, Open Space and Recreation	126
Areas where the RAs have Oversight Responsibility Only	
Industrial	1,053
Areas where the RAs do not have Oversight or Discharge Responsibility	
Federal Lands[b]	3,162
Caltrans	1,057
Other State Lands[c]	952
School Land	368
Agricultural	1,109

a. Includes local streets and parking lots. Excludes Caltrans.
b. Includes California Department of Fish and Game, State Parks, and other state lands.
c. Includes BLM, USFWS, military, and other federal lands

SOURCE: URS, 2016 (Table 2-13)

Other potential sources have been identified that may contribute to the impairment within the Tijuana River WMA, including other permitted discharges (Table 4-22), other potential point sources, and other nonpoint sources.

TABLE 4-22
NPDES PERMITTED DISCHARGES THAT MAY CONTRIBUTE TO HIGHEST PRIORITY WATER QUALITY CONDITION

Permit Type	Number of Permits in Tijuana River WMA
Industrial	47
Construction	19
Individual permits	2

Includes NPDES permits that may be relevant to sediment: Individual NPDES permit for discharges from Naval Base Coronado, specifically, Naval Outlying Field (NOLF) and discharges from Caltrans sites.

Includes permittees in the Lower Watershed only.

SOURCE: URS, 2016 (Table 2-14)

Potential nonpoint source discharges in the Tijuana River WMA include agricultural operations, erosion related to unimproved roadways in rural areas, homeless encampments, and natural sources.

The Tijuana River main stem and tributary drainages of Yogurt Canyon, Goat Canyon, and Smuggler's Gulch transport anthropogenic-derived sediment and other pollutants generated in Mexico to receiving waters. Both point and nonpoint sources of pollutants are present in the Mexican portion of the watershed.

SWRP Checklist Guidelines

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.
- ☒ 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)
- ☒ 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.
- ☒ 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.
- ☒ 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.
- ☒ 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.

CHAPTER 5

Quantitative Methods (SWRP Guidelines Section VI.C) and Identification and Prioritization of Projects (SWRP Guidelines Section VI.D)

To evaluate storm water management on a watershed basis, a combination of storm water management objectives throughout the watersheds and sub-watersheds is required. The objective of this plan is to fully utilize existing watershed and regional planning documents that identify, develop, and prioritize projects, and integrate these plans to "bring to the top" multi-benefit projects that will most effectively meet the watershed goals. This integration of plans and development of multi-benefit projects is achieved through this SWRP by the integrated analysis and prioritization process presented in this chapter.

The scoring and ranking of projects submitted for listing in the SWRP meets the SWRP Guidelines for project prioritization (Section VI.C and VI.D). The project scoring and ranking provide a basis for state-wide comparison of the San Diego region listed projects on a "level playing field" with other regions of the state that may have different sets of watershed goals and opportunities. For example, the San Diego Region has fewer opportunities for large storm water capture and groundwater infiltration to augment local water supplies than other regions due to its geology and topography. The local regional scoring compares projects that all have similar regional constraints and, therefore, provides a "local perspective" that takes into account regional opportunities and constraints, priorities, and goals specific to the region. Projects in the region may rank stronger overall in other benefit areas. This will allow comparisons of top-ranked projects from this region with top-tier projects from other regions in the state.

The SWRP provides ranking on a watershed level as well, to encourage partnerships and collaboration of municipalities,

SWRP Checklist Guidelines

- ☒ Plan identifies opportunities to augment local water supply through groundwater recharge or storage for beneficial use of storm water and dry weather runoff.
- ☒ 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.
- ☒ Plan identifies projects that reestablish natural water drainage treatment and infiltration systems, or mimic natural system functions to the maximum extent feasible.
- ☒ 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.
- ☒ 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.
- ☒ 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.
- ☒ 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 benefits within the watershed.)

agencies, and stakeholders to identify and develop multi-benefit projects that provide the greatest measureable effectiveness in meeting watershed goals and priorities established through the existing watershed plans (Section 5.3).

Quantification methods, as described under the SWRP guidelines, are used in this plan to assess and score projects that are included on the SWRP project list. These methods include prioritization through a three-step SWRP project checklist (checklist). Quantification of benefits is achieved both through scoring the main and secondary benefits defined in the SWRP guidelines, and through quantitative measurement of these benefits through project metrics (e.g., volume of water infiltrated or area of habitat restored).

As presented in this chapter, projects that are listed in the SWRP are assessed through a three-step process, including 1) project eligibility, 2) project benefit metrics, and 3) watershed prioritization. The process includes a series of "yes" and "no" questions that are then scored.

Step 1, project eligibility, is based on the criteria listed in the SWRP guidelines. Step 2, project benefit metrics, is an integrated analysis of project-specific benefits and the quantification of these benefits. Projects receive higher scores for addressing more benefits and providing the quantification of these benefits. For Step 3, watershed analysis, the SWRP utilizes project identification and prioritization provided in watershed- and region-based planning documents. Projects receive higher scores when they have been ranked and identified as a priority within a watershed-based plan. A summary of these planning documents is presented in Section 5.1.

Scores are tallied for each of the main benefits and totaled for an overall score. This integrated analysis and prioritization method provides a quantification of the project benefits and encourages the development of multi-benefit projects that most effectively meet watershed goals as measured through defined project metrics. The three-step integrated analysis and prioritization process of the SWRP checklist is presented in Section 5.4.

5.1 Watershed and Regional Plans for Watershed Prioritization

The SWRP is a functionally equivalent plan that is composed of existing and future watershed and regional plans, which provide project identification, development, assessment, and prioritization under a set of criteria applicable to these plans. As these plans provide an assessment and prioritization of projects and strategies at a watershed basis, they are used to complete Step 3, watershed analysis. This SWRP builds from these plans to further encourage the development of multi-benefit projects with an emphasis on storm water and dry weather flow capture for beneficial uses. The use and integration of these plans into the SWRP is illustrated in Figure 5-1.

These existing plans include the WQIPs and IRWM Plan, which provide analysis of project opportunities for water quality, flood management, environmental, and community benefits. The only assessment not covered in existing plans is the analysis of public parcels for project opportunities for storm water and dry weather flow capture and beneficial use to augment local water supply. Assessment of public lands for water supply opportunities is included in Section 5.2 and Appendix H of this document.

The following sections summarize several of the existing plans that are used as part of this functional equivalent SWRP, as illustrated in Figure 5-1. Additional plans that are not referenced or future plans that have not yet been developed may still be used in Step 3, watershed analysis, although they are not presented here.

5.1.1 Water Quality Plans

This SWRP uses the WQIPs (along with other water quality plans) as a basis to assess and prioritize storm water management projects that have a primary benefit of water quality. Projects listed in the SWRP that have storm water water quality as a key benefit are prioritized based on whether they meet the goals stated in the WQIP for each WMA and are consistent with the strategies and timelines to meet interim and final goals per the WQIPs. No assessment or quantification of overall storm water projects within a watershed with a primary water quality goal are conducted in this SWRP as this analysis is presented in each of the WQIP by WMA. Strategies to meet water quality goals based on the highest priority water quality conditions are assessed in the WQIP with regard to how these strategies will meet goals and timelines. Projects listed in the SWRP are assessed in how they meet the goals, priorities, strategies, and timelines on a watershed basis per the WQIPs through the completion of the checklist process for listing in this SWRP. Further discussion of the goals, strategies, and timelines are provided in Section 5.3.

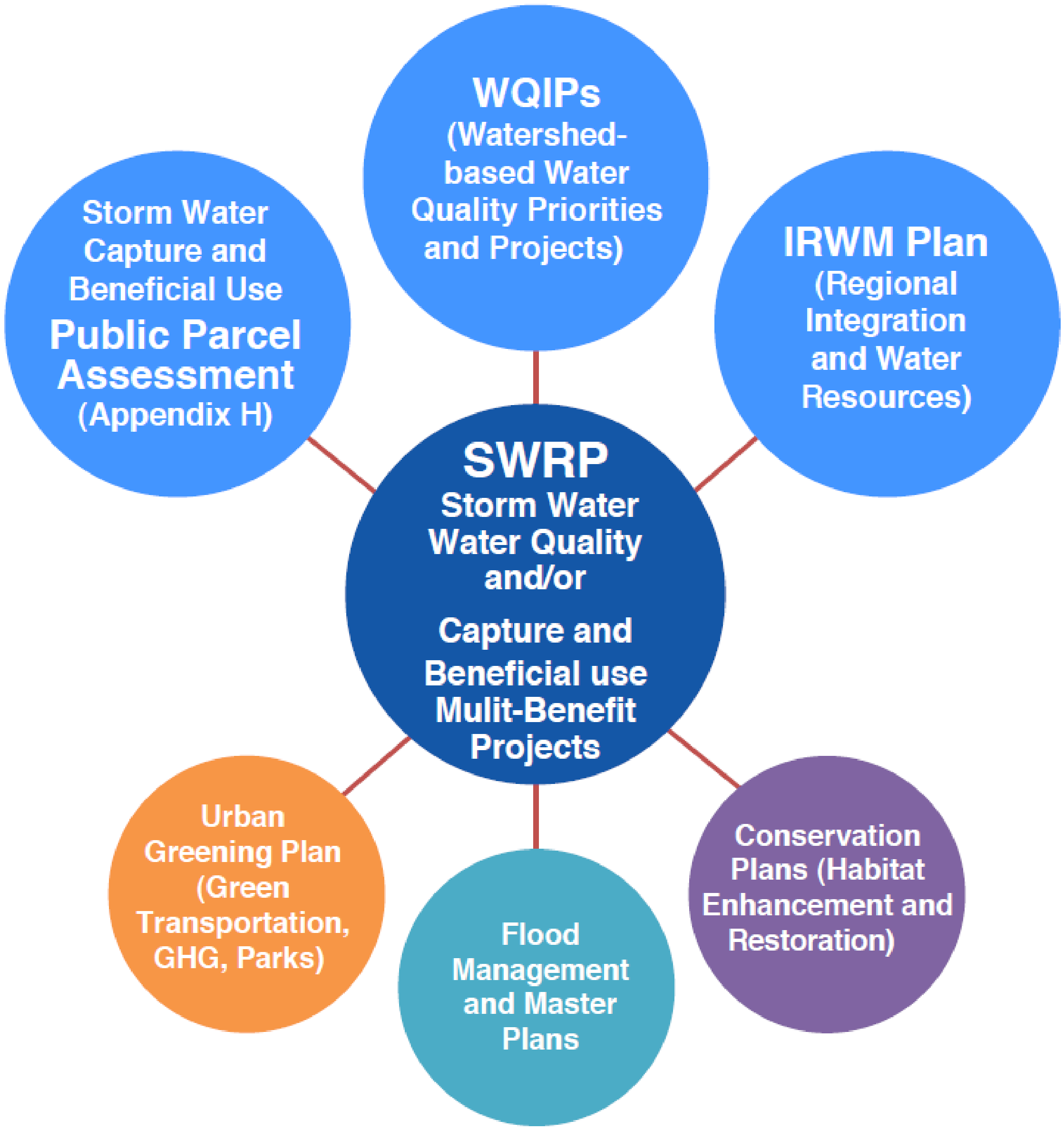


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Figure 5-1
Functionally Equivalent SWRP –
Builds on Existing and Future Watershed and Regional Plans

WQIPs were developed in compliance with the Regional MS4 Permit. These watershed-specific plans were developed by the Copermittees of each WMA, and are intended to provide a process by which the Copermittees can select and address the highest priority water quality issues within the applicable WMA. The WQIPs include descriptions of the highest priority pollutants or conditions in a specific watershed, goals and strategies to address those pollutants or conditions, and time schedules associated with those goals and strategies. The WQIPs include drainage area assessments of the highest priority areas in order to identify the pollutant discharges and other sources that are causing the high priority condition. They also provide strategies to address the high priority water quality conditions, interim and final water quality targets for these strategies, and timelines to achieve the targets. While the WQIPs focus on water quality, they also provide multi-benefit project goals, targets, identification, assessment, prioritization, and timelines for implementation. These plans, therefore, provided significant input to the SWRP checklist. Additional water quality plans that are elements of the WQIP are discussed below.

Watershed Management Area Analyses (WMAAs) are included in the WQIPs. These analyses are intended to describe the hydrologic features of the WMAs. The WMAAs are used to develop watershed-specific requirements for structural BMP implementation.

In accordance with the San Diego Storm Water MS4 Permit, each Copermittee is to implement a program to control the contribution of pollutants to and the discharges from the MS4 within its jurisdiction. The goal of the jurisdictional runoff management programs is to implement strategies that effectively prohibit non-storm-water discharges to the MS4 and reduce the discharge of pollutants in storm water to the MEP. This goal will be accomplished through implementing the jurisdictional runoff management programs in accordance with the strategies identified in the WQIP. Each Copermittee must update its jurisdictional runoff management program document. These documents include provisions for storm water management practices for new and redevelopment projects and the use of BMPs to prevent and reduce sources of water quality pollutants at construction sites and in existing residential, commercial, and industrial land uses within the jurisdiction.

The MS4 permit provides Copermittees the option of pursuing off-site compliance for hydromodification and pollutant control if there is a greater overall water quality benefit than complying on site. The Water Quality Equivalency (WQE) guidelines were created to clarify the "greater overall water quality benefit" language and develop minimum standards for demonstrating water quality equivalence.

5.1.2 Water Supply Plans

No watershed- or regional-plans currently analyze public parcels for opportunities for storm water and dry weather flow capture and beneficial use to augment local water supply. The IRWM Plan provides identification and assessment of water resource management projects, which include augmentation and conservation of local water supplies, but the plan does not provide specific focus on storm water and dry weather flow capture for direct use. Examples of direct use include: infiltration into groundwater aquifers for water supply, use to supplement irrigation at local parks or habitat restoration projects, and diversion of these flows to a sanitary sewer that will treat the water for potable or recycled water use. A number of the WQIPs also include discussion of these types of projects, but do not focus on achieving the water supply benefit or an assessment of public parcels for these types of water supply opportunities. Assessment of public lands for water supply opportunities is included in Section 5.2 and Appendix H.

5.1.3 Flood Management Plans

Storm water management projects may have the additional benefit of decreasing flood risk. For this reason, flood management is considered as a potential benefit for SWRP projects.

The Integrated Flood Management Plan (IFMP) is part of the IRWM Plan and addresses the need to maximize productivity and benefits of a floodplain while maintaining public safety. The IFMP incorporates water resources management, flood plain development, sustainability, inter-agency and inter-watershed cooperation, and flood risk management into a regional and system-wide approach that can reduce potential negative unintended consequences.

The IFMP includes evaluation criteria to determine how projects are prioritized for federal funding. A numerical ranking system objectively prioritizes projects based on what watershed objectives they achieve. This system is called the Analytical Hierarchy Process and involves pairing different proposed objectives to determine relative values, and results in an objective numerical ranking of competing projects.

The County of San Diego Capital Improvement Program also analyzes potential flood management projects. The Department of Public Works manages capital improvement projects to improve infrastructure in the unincorporated areas of San Diego County. Funds are approved by the Board of Supervisors, with a budget of over $69 million for Fiscal Year 2016-2017. Other cities also have Capital Improvement Programs.

5.1.4 Environmental Plans

Environmental restoration projects are evaluated based on a number of criteria. The main environmental concerns in coastal Southern California include protection of wildlife and endangered species and controlling urban runoff. Estuaries are considered one of the most productive habitats and provide many benefits, including hosting a variety of species, providing flood protection and mitigation to sea-level rise, acting as carbon sinks, and providing aesthetic community areas. Unfortunately, many of these coastal wetlands have been negatively affected by nearby urban development, resulting in alteration of the natural ecology, hydrology, and hydrodynamics of the system. Storm water management projects may have the additional benefit of enhancing and restoring habitats. For example, the implementation of a regional storm water bio-retention basin may include the enhancement and restoration of adjacent and downstream riparian habitat. Another example is the implementation of a dry weather diversion and beneficial use to reduce fresh water inputs to a coastal lagoon under a TMDL due to increased sediment and freshwater inputs. This project is a dry weather flow diversion and beneficial use project that has a habitat restoration component. The environmental plans referenced here provide for identification of sensitive and protected habitat that may provide opportunities for enhancement such as removal of invasive species and re-planting with native vegetation as part of storm water and dry weather flow water quality and/or beneficial use projects.

The San Diego region has restoration plans to address impacts to habitats at the regional, county, and watershed level. For example, the Southern California Wetlands Recovery Project (SCWRP) is dedicated to acquiring, restoring, and expanding coastal wetlands and watersheds throughout Southern California. SCWRP produces an annual work plan that prioritizes wetland restoration projects in the region.

The Multiple Species Conservation Program (MSCP; CSD, 2016) covers southwestern San Diego County and was developed to protect biodiversity and preserve the region's habitats and open space. Under this program, identified areas are monitored in order to meet the habitat needs of multiple species and protect biological resources and native vegetation. The Multi-Habitat Planning Area Guidelines are used to evaluate development projects in order to ensure compliance with MSCP.

At the watershed level, many of the lagoons in the region have restoration or enhancement plans associated with them. For example, the Los Peñasquitos Lagoon Enhancement Plan (2016) presents a phased approach to restoration with different restoration actions prioritized over other longer-term actions.

As part of the development of this SWRP, a public parcel analysis was completed for selected watersheds to assess the opportunities for creek and wetland restoration. The public parcel analysis was completed using available parcel data that was screened for public parcels within a quarter mile of streams and tributaries, that are at least one acre in size, and have less than 15 percent slope. Stream segments within public parcels and right of ways are also identified. Parcels that are designated as habitat protection areas that would likely require mitigation for temporary disturbance are also identified within the set of public parcels that meet the stated criteria. The results of this public parcel analysis are presented in Appendix E. These maps are provided as additional tools in coordination with regional and watershed plans to assist in identifying multi-benefit creek and riparian habitat restoration and enhancement opportunities.

5.1.5 Community Plans

Communities within San Diego have local plans that describe their values and guide land use and development to achieve the communities' desired goals. For example, the San Dieguito Community has a plan that outlines their values and concerns such as enhancing public areas, promoting conservation and habitat protection, and maximizing educational opportunities. Storm water management projects may be integrated with these community goals and plans to provide additional benefits that include improving communities. For example, the implementation of a green street and bio-retention basin to improve water quality and recharge local groundwater can be integrated with the expansion of adjacent trails, green space and educational signage linked to a community park. Existing community plans that include planned green spaces, trails, and educational opportunities can therefore be used to integrate the storm water management projects with these community plans and goals to provide additional benefits. Community plans provide goals that may be different from storm water management plans, but when integrated can provide multiple benefits, including education and behavior changes that can lead to improved water quality.

There are also plans that span multiple benefit categories and include a community component. For example, the San Diego River WURMP addresses both water quality issues and education to enhance public understanding of sources of water pollution and to encourage community stakeholders to participate in the plan.

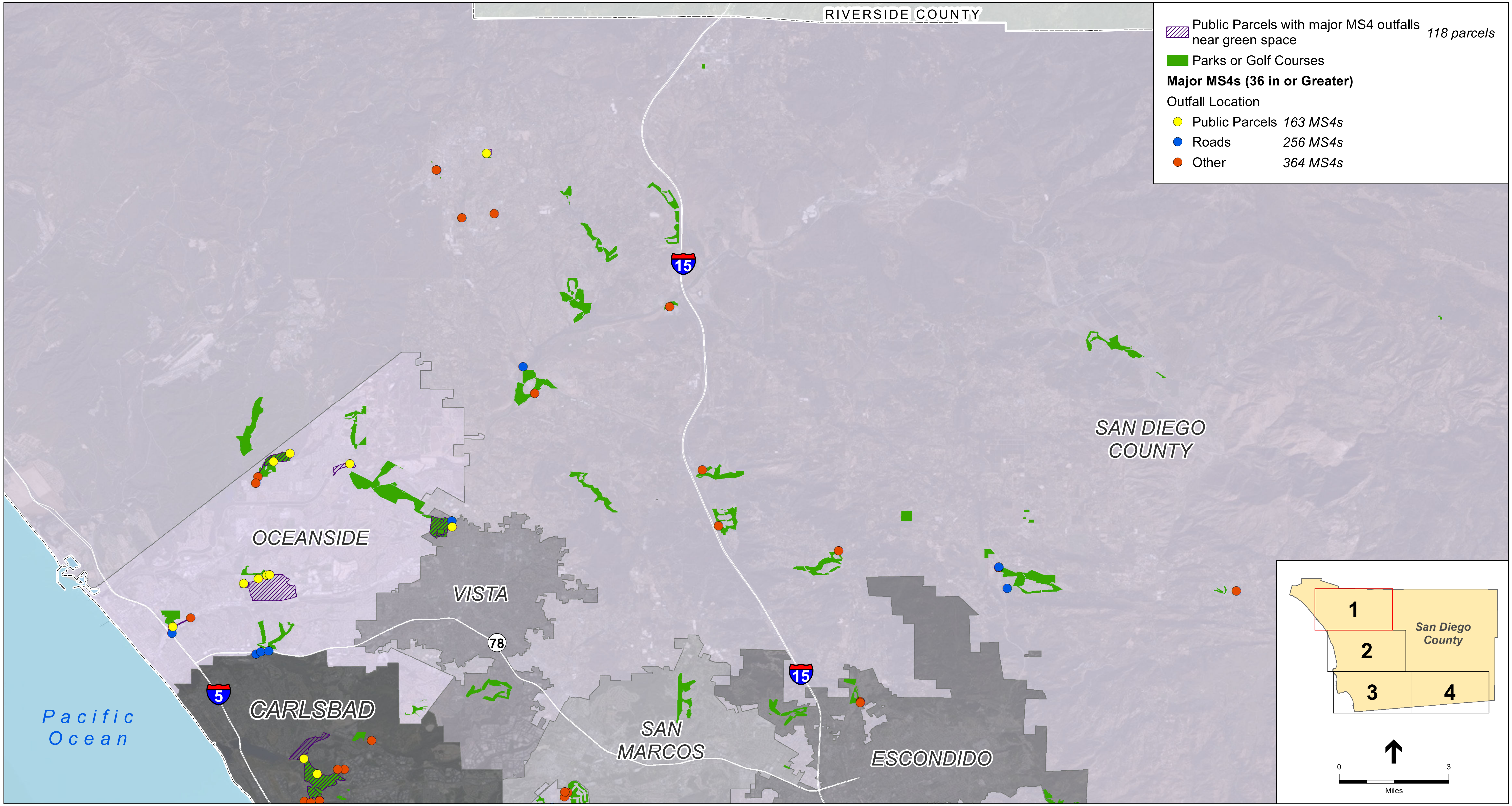
Some cities within San Diego County have Urban Greening Plans that outline opportunities for the city to increase and enhance public green areas. These documents can inspire projects to integrate green streets, community connectivity and transportation, and urban forestry design into project proposals.

A variety of other plans also provide prioritization of community-oriented projects. These plans include recreational, education, development, active transportation, and job opportunity plans, and are most common at the local level.

5.2 Water Supply Project Opportunities

Appendix H presents an assessment of potential storm water and dry weather flow capture and direct use opportunities in the region. Direct use, in this context, is an end use that can augment or conserve local water supplies. Opportunities for direct use of captured storm water and dry weather flows have greater constraints in this region compared to other regions due to a more limited number of groundwater aquifers that are used for potable water supply and a more limited current capacity for treatment and redistribution of captured storm water. The purpose of this assessment is to supplement watershed and regional plans to identify these opportunities for further development and prioritization. The opportunities presented in Appendix H provide a tool for project sponsors to potentially develop or expand projects in order to provide greater water supply benefits and to increase the project score under the SWRP prioritization process described in Section 5.4.

Project applicants can use the analysis presented in Appendix H and the maps presented in Figures 5-2 through 5-5 to develop or add a water supply component to their project based on the project location. The County and IRWM Program plan to augment this initial opportunity assessment with a more detailed analysis and identification of specific projects for storm water capture and beneficial use in 2017. The San Diego IRWM Region secured a Proposition 1 IRWM planning grant to update its 2013 IRWM Plan. As part of the update, it will complete a Storm Water Capture Feasibility Study (SWCFS). The SWCFS will be used to expand and strengthen the storm water discussion in the IRMW Plan and help identify and prioritize future storm water projects to augment water supply and other beneficial uses, where feasible.



SOURCE: ESRI, 2016; SanGIS, 2016

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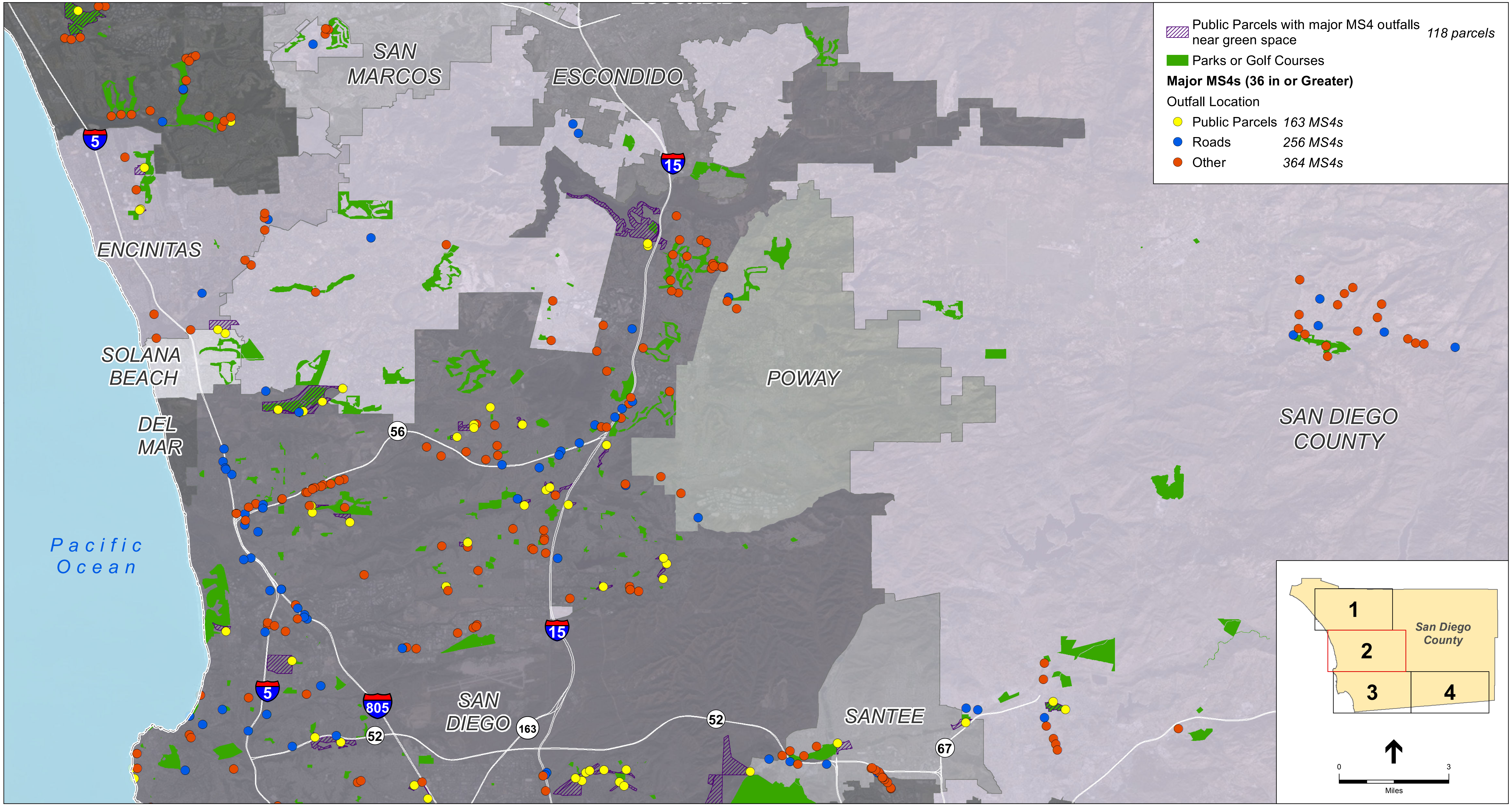
Figure 5-1
Public Parcels with Major MS4 Oufalls
Located within 1/4 Mile of Green Space



SOURCE: ESRI, 2016; SanGIS, 2016

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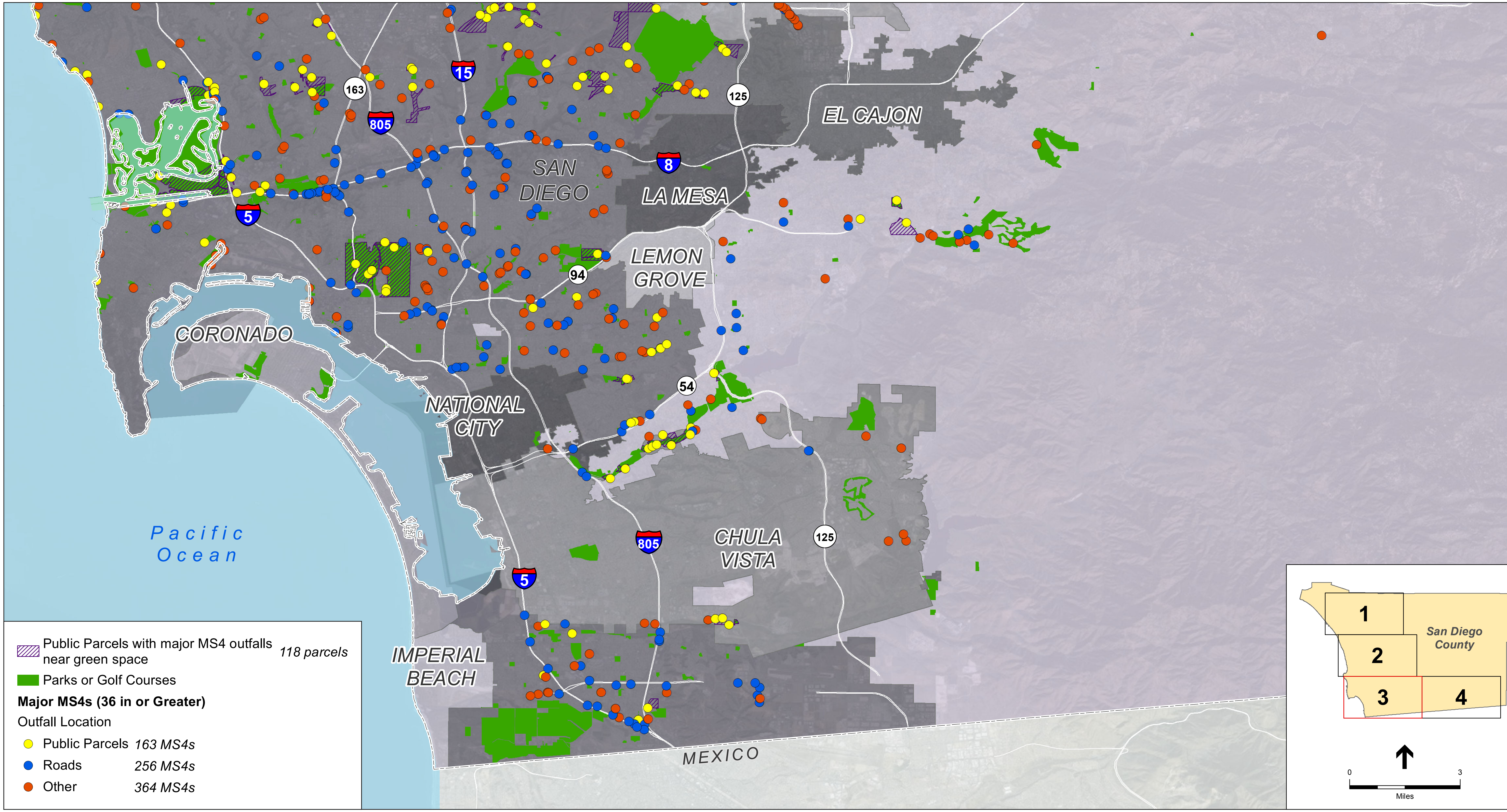
Figure 5-2b
Public Parcels with Major MS4 Oufalls
Located within 1/4 Mile of Green Space



SOURCE: ESRI, 2016; SanGIS, 2016

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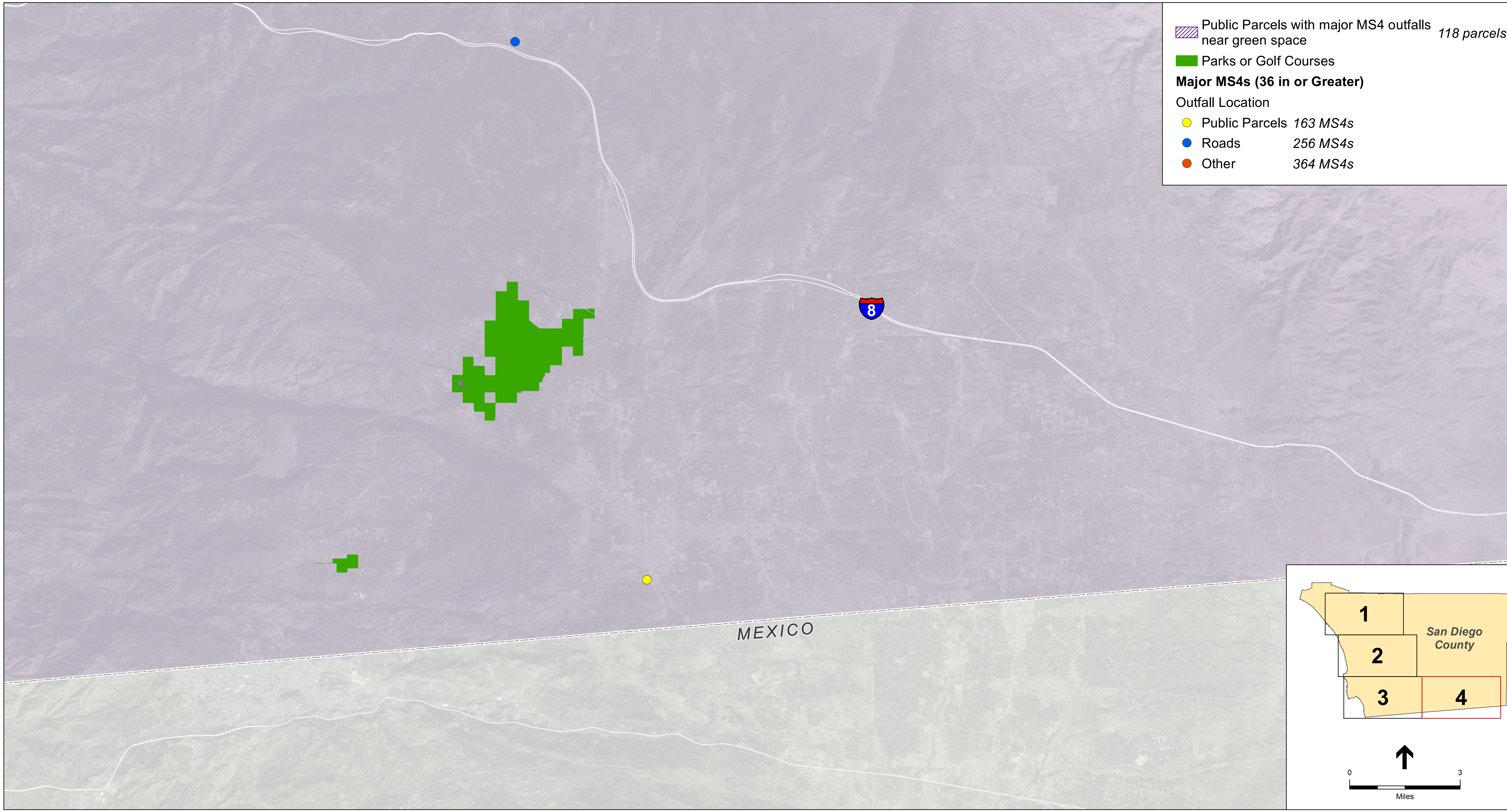
Figure 5-2c

Public Parcels with Major MS4 Oufalls
Located within 1/4 Mile of Green Space



SOURCE: ESRI, 2016; SanGIS, 2016

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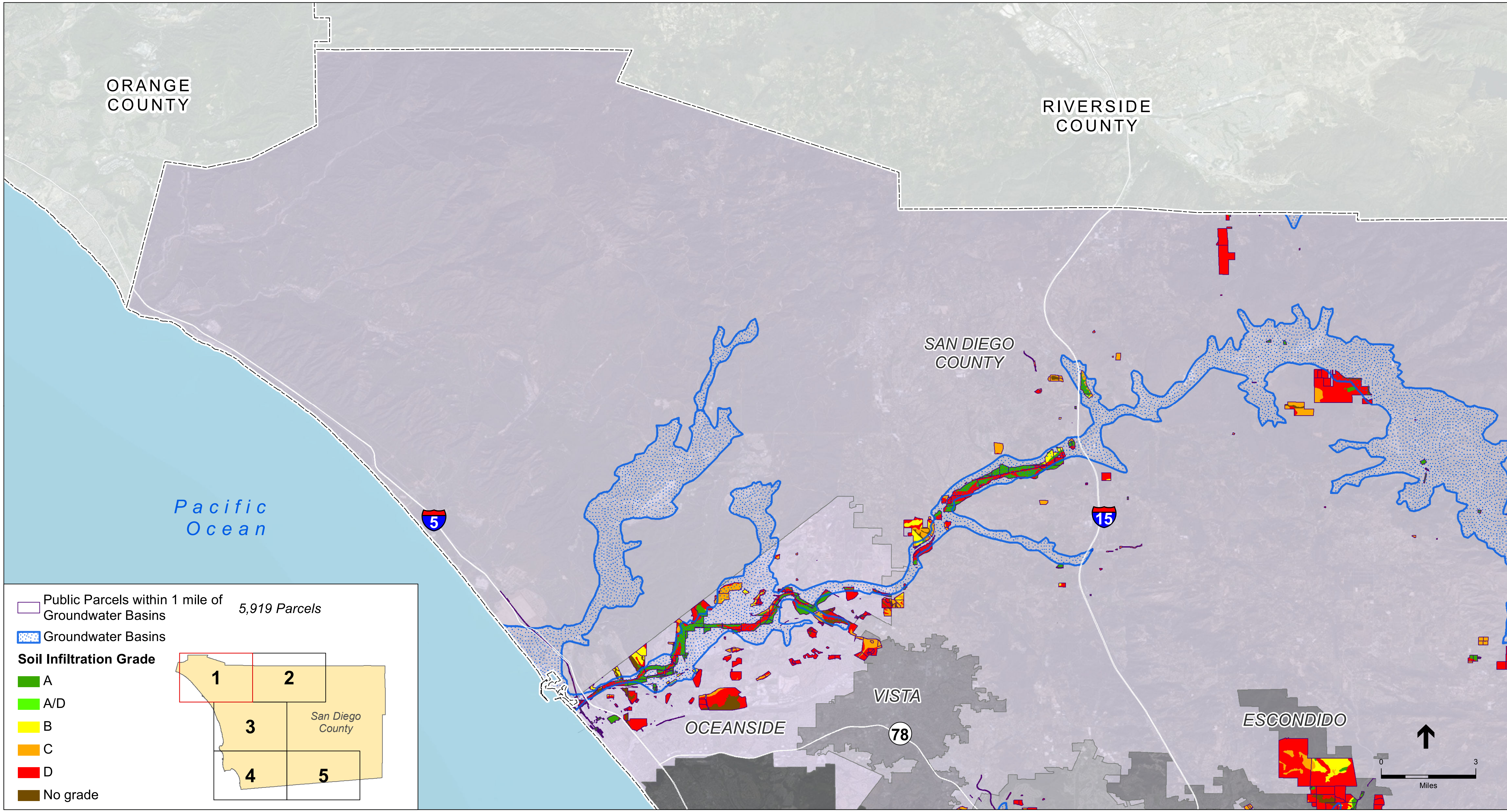
Figure 5-2d

Public Parcels with Major MS4 Oufalls Located within 1/4 Mile of Green Space



SOURCE: ESRI, 2016;SanGIS, 2016; NRCS, 2016

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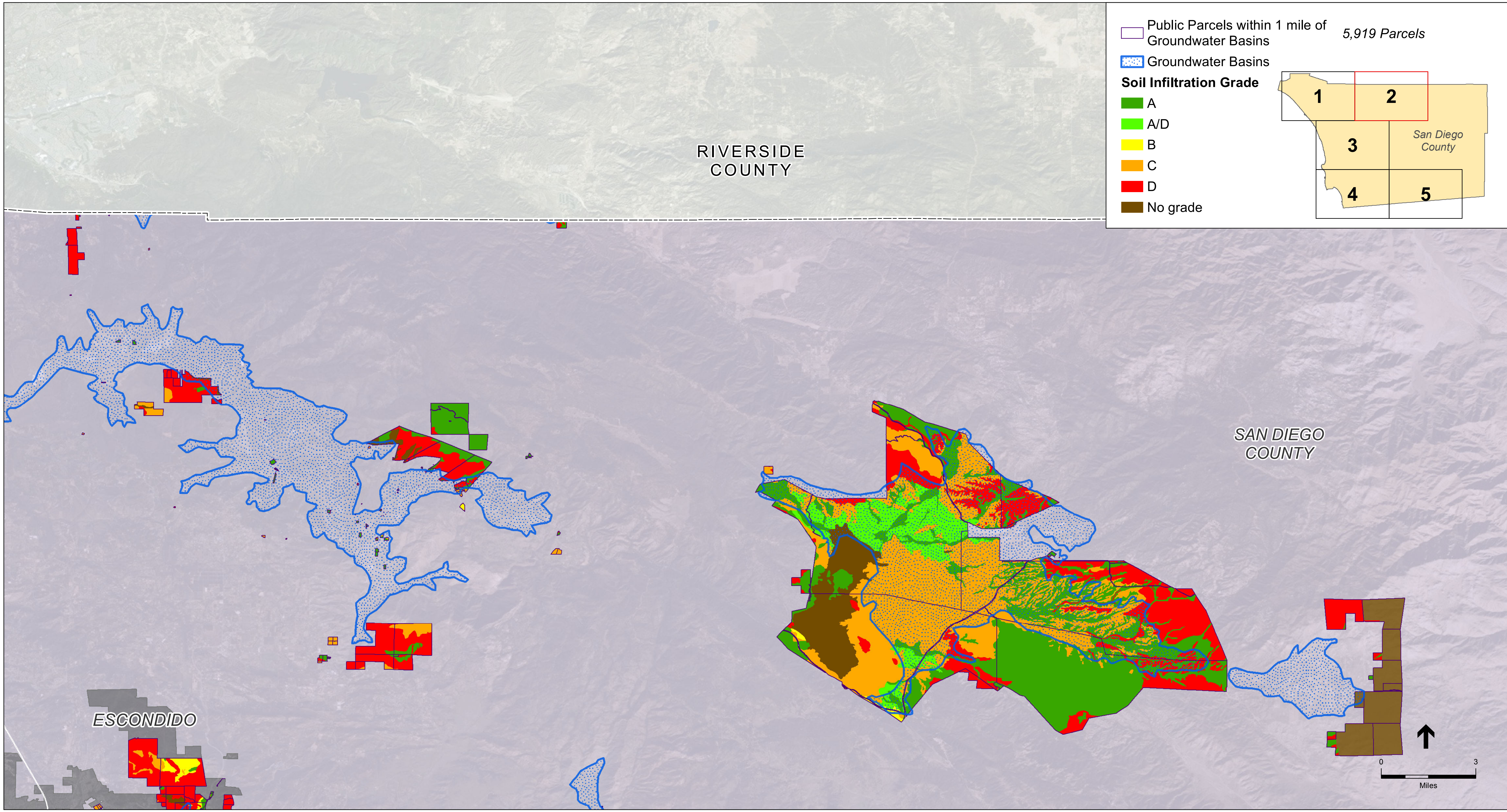
Figure 5-3a

Public Parcels Within a Mile Of a Groundwater Basin



SOURCE: ESRI, 2016;SanGIS, 2016; NRCS, 2016

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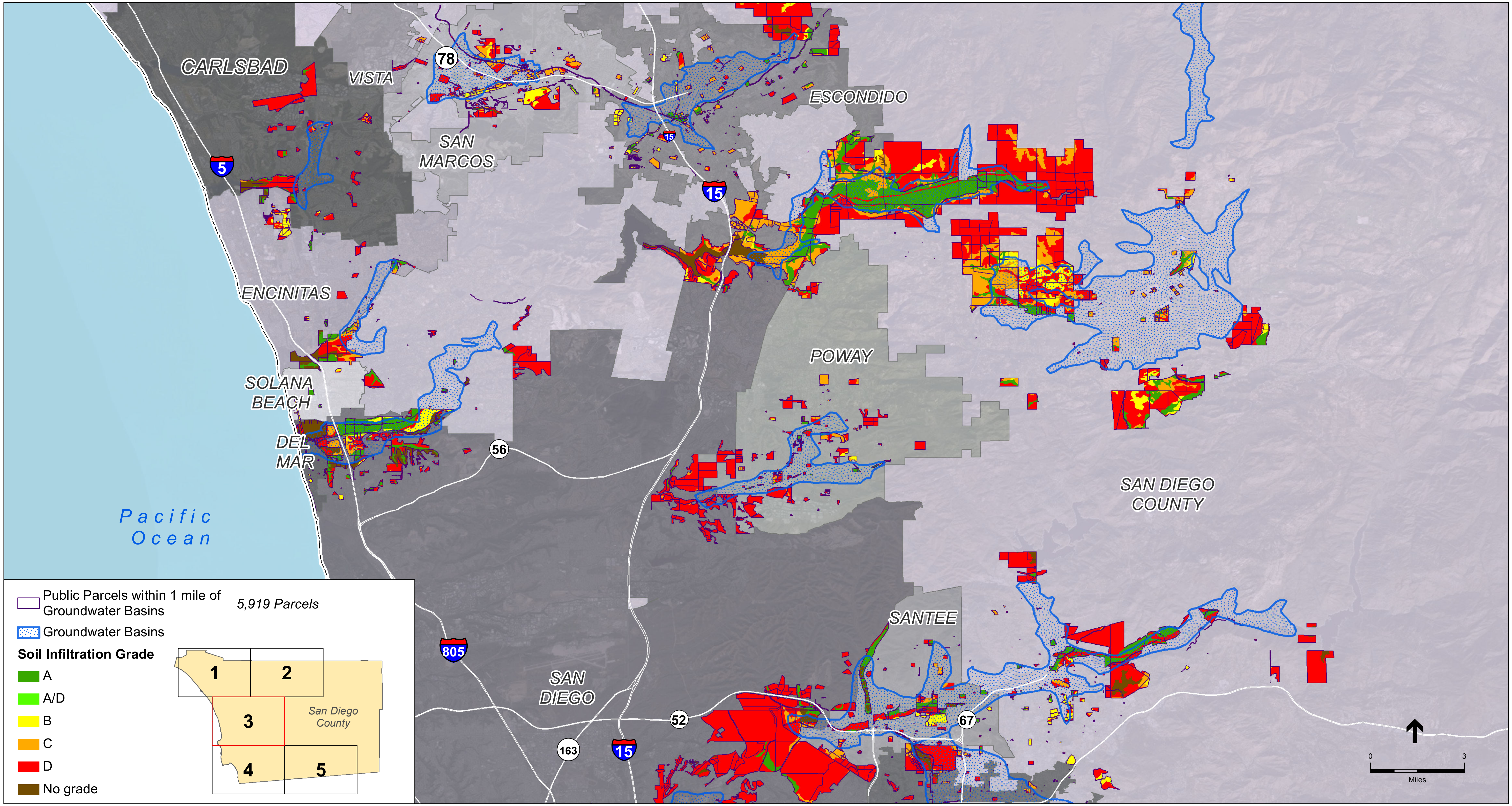
Figure 5-3b

Public Parcels with Major MS4 Outfalls Located Within ¼ Mile of Green Space



SOURCE: ESRI, 2016;SanGIS, 2016; NRCS, 2016

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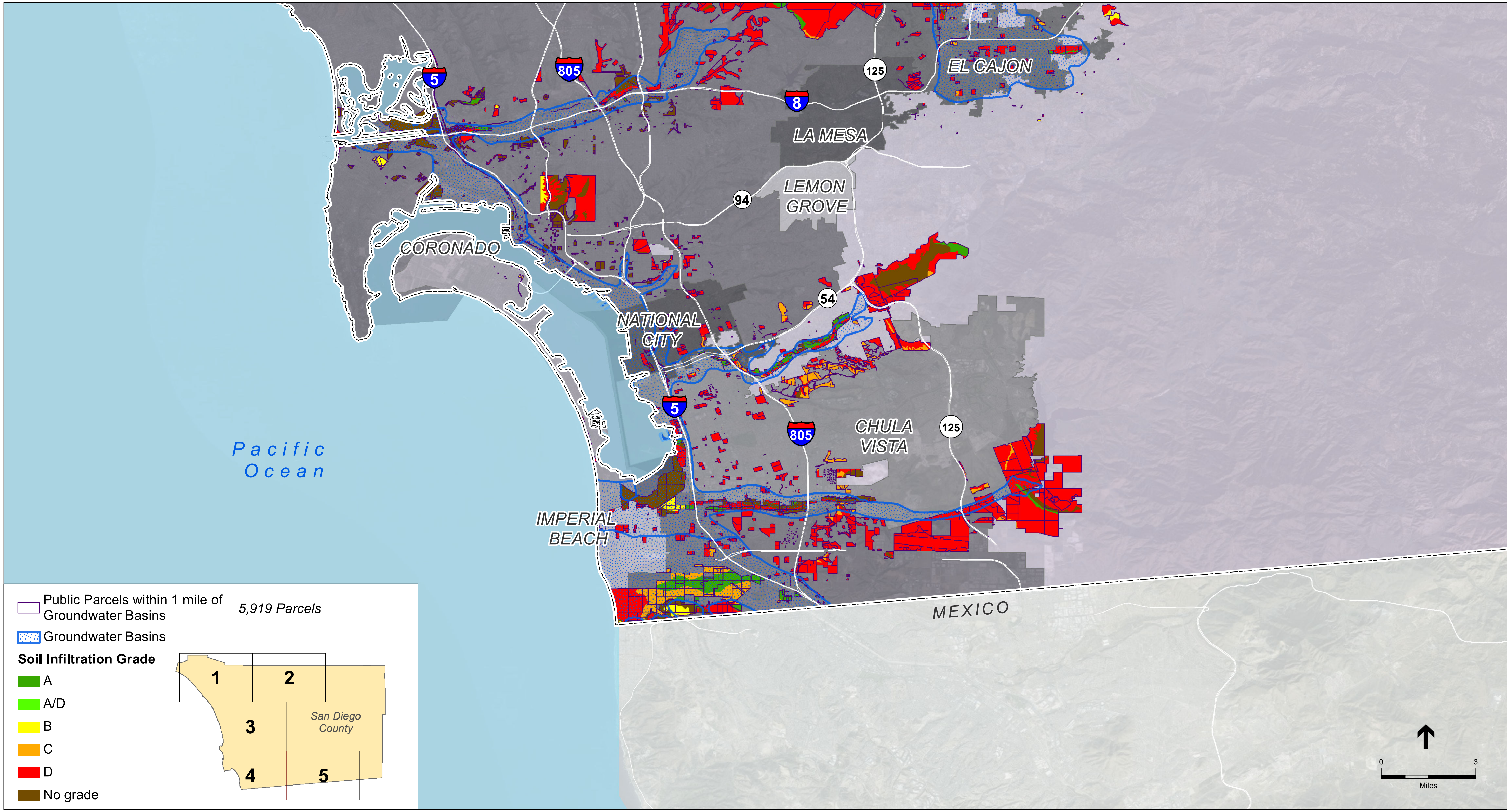
Figure 5-3c

Public Parcels Within a Mile Of a Groundwater Basin



SOURCE: ESRI, 2016;SanGIS, 2016; NRCS, 2016

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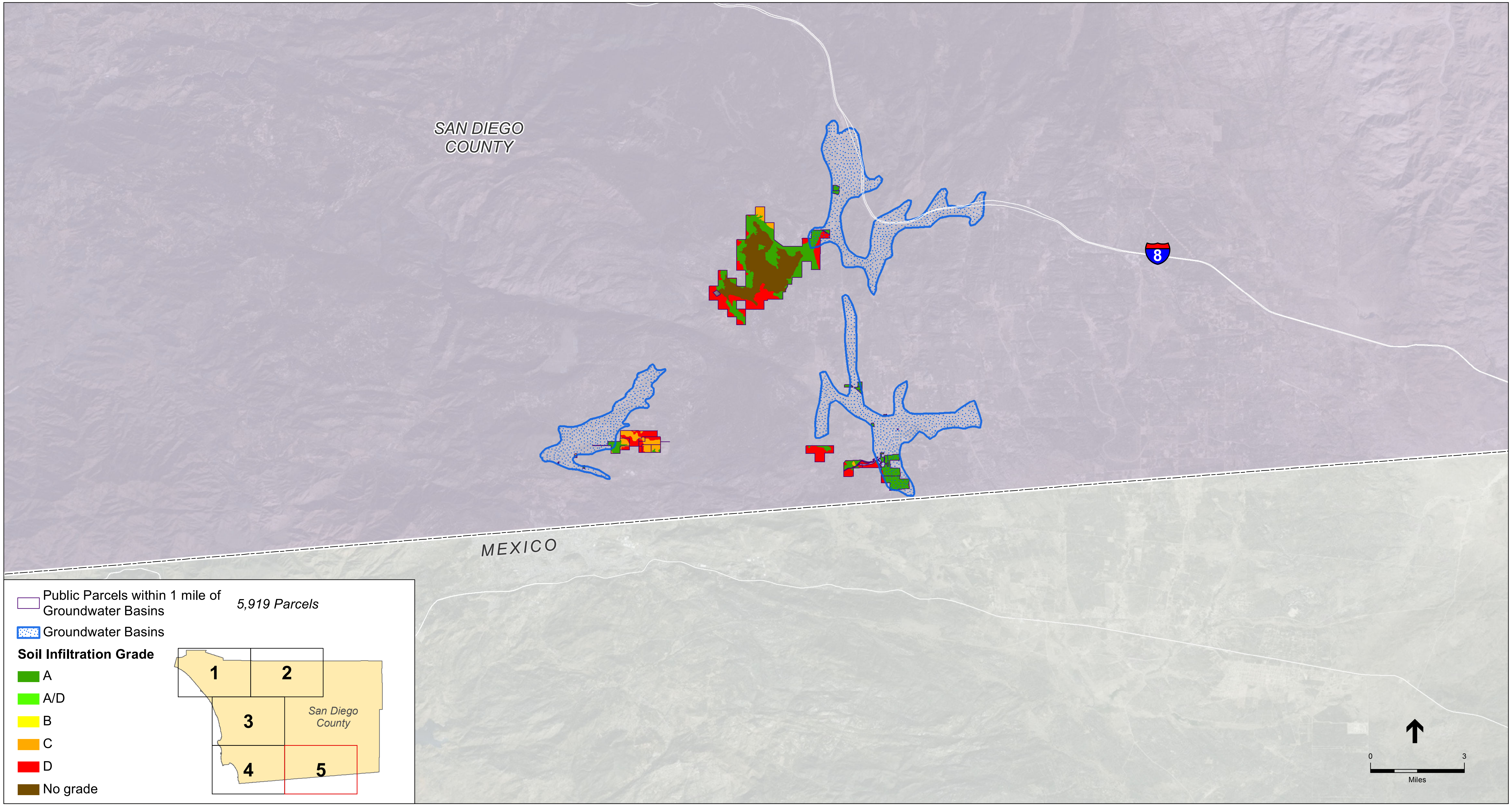
Figure 5-3d

Public Parcels Within a Mile Of a Groundwater Basin



SOURCE: ESRI, 2016;SanGIS, 2016; NRCS, 2016

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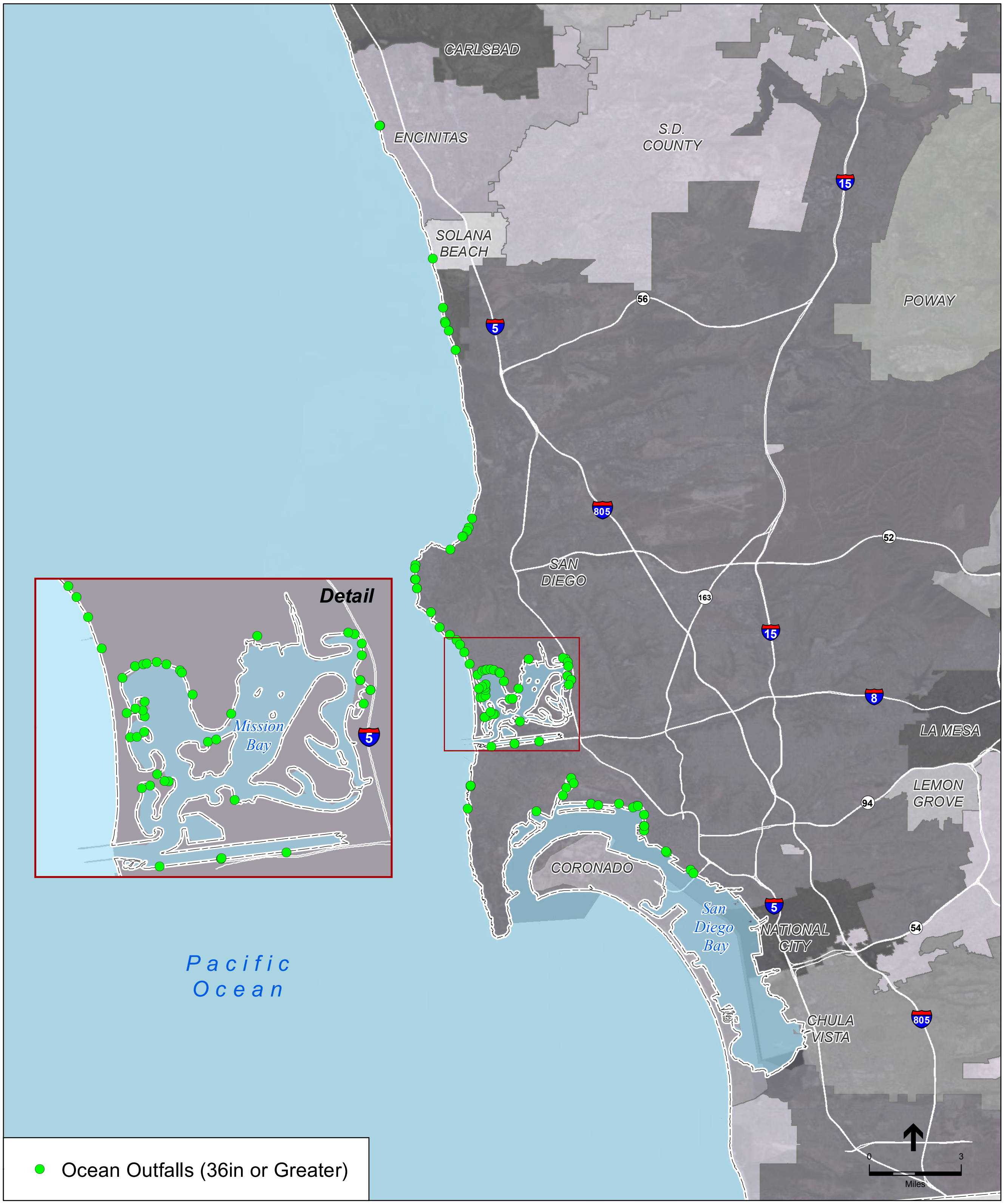
Figure 5-3e

Public Parcels Within a Mile Of a Groundwater Basin



SOURCE: ESRI, 2016; SanGIS, 2016; IRWM, 2016

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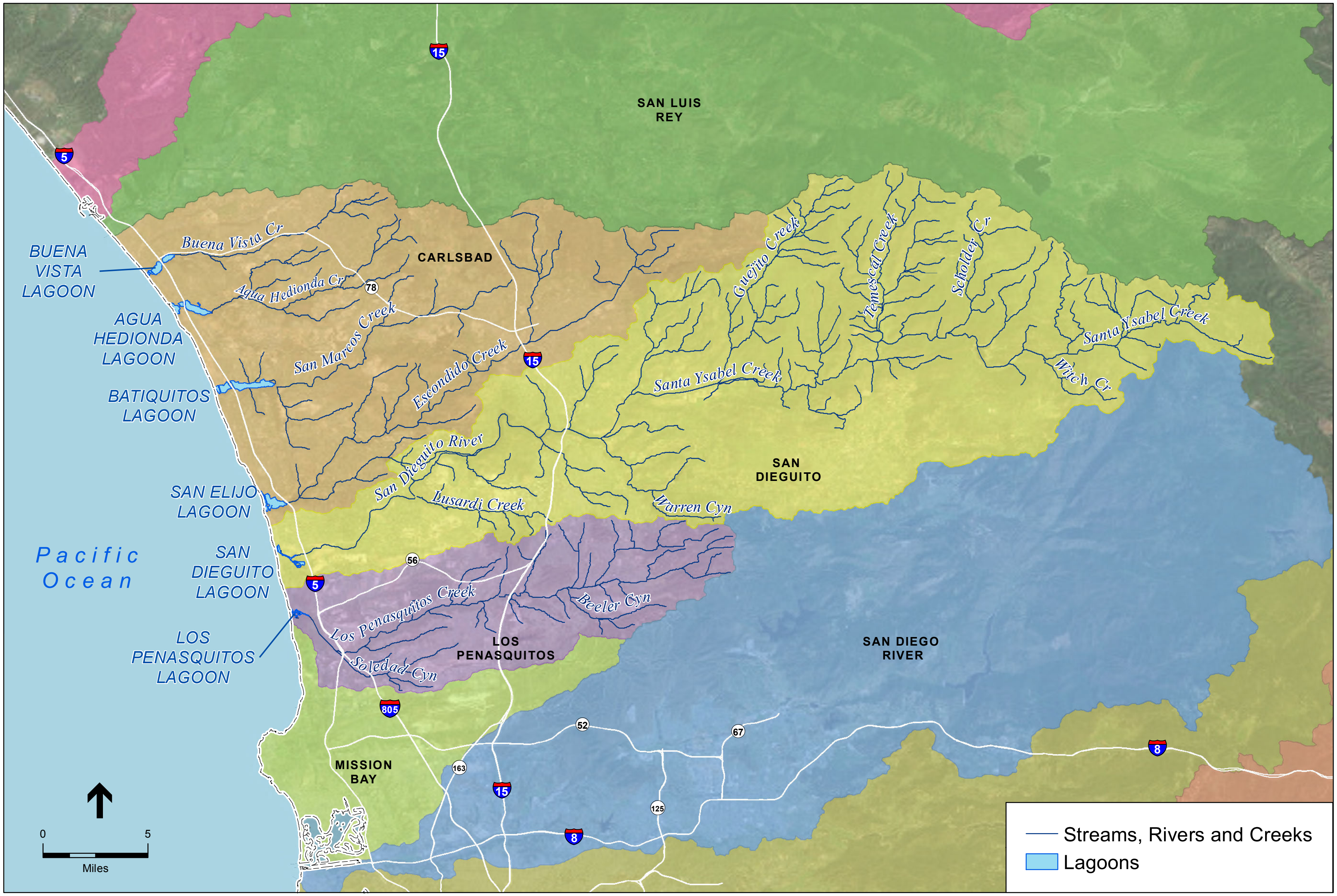
Figure 5-4

Major MS4 Outfalls to the Ocean



SOURCE: ESRI, 2016; SanGIS, 2016

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Figure 5-5
Creeks Systems with Lagoon Outlets

The SWCFS will quantify the amount of storm water potentially available for capture in each watershed in the region; analyze existing centralized and decentralized storm water capture facilities, projects, and programs, that may affect storm water capture and use in the region; identify and prioritize specific areas, projects, and alternatives to increase storm water capture and reuse; and complete a cost analysis. Any projects that are identified would be added to the IRWM Plan and SWRP project lists through OPTI. Since this more detailed analysis is through the IRWM Plan, their more detailed project list will become one of the plans used to develop and list projects in the SWRP. As an adaptive SWRP, new and revised regional and watershed plans will continue to be used to develop, prioritize, and list projects in the SWRP.

Three types of storm water capture and beneficial use (direct use that augments and/or conserves local water supply) opportunities are presented and assessed in this SWRP. These types consider the opportunities and constraints in the San Diego Region and include:

- **Irrigation -** Store and divert storm water and dry weather flows to be used as irrigation on site, at a park, for habitat restoration, or to sustain a natural treatment system. Figure 5-2 identifies the parcels with a major MS4 outfall (greater than 36 inches) that are within a quarter mile of a park or a golf course and so could be used for irrigation.
- **Groundwater Aquifer Recharge -** Store and infiltrate storm water and dry weather flows to recharge a groundwater aquifer that is used as a potable water supply. Figure 5-3 identifies parcels within a mile of a groundwater basin which could be used for infiltration.
- **Treatment Facility for Recycled and Potable Water** – Store and divert storm water and dry weather flows to a wastewater or water treatment facility for recycled or potable water use. Figure 5-4 shows existing ocean outfalls, while Figure 5-5 shows creeks that enter lagoons, both of which could provide opportunities for dry weather flow diversion.

These opportunity types are further discussed and quantified in Appendix H.

5.3 Water Quality Watershed-Based Goals, Strategies, Quantifications, and Timelines

This SWRP uses the WQIPs to assess and prioritize storm water management projects on a watershed basis that have water quality as the primary benefit. This SWRP does not present the assessment or quantification of overall water quality storm water projects on a watershed basis, as this analysis is presented in each of the WQIPs. The WQIPs provide the basis for the larger set of water quality projects, programs, and strategies by which the SWRP-listed projects are compared and scored. In each of the WQIPs, goals have been developed based on the highest priority water quality conditions for each WMA. For many of the coastal watersheds in the region, Bacteria TMDL load reduction goals are the basis for the development of interim and final goals. These goals are therefore regulation-driven and part of the MS4 permit. As the highest priority water quality conditions vary with each WMA, the defined interim and final goals and timelines are WMA-specific. Strategies to meet water quality goals based on the highest priority water quality conditions are assessed in the WQIP with regard to how these strategies will meet the goals and timelines. Specific projects and strategies have been modeled to determine the type and quantity needed to meet the pollutant load reduction goals, hydromodification, and other water quality goals that correspond to the highest priority water quality condition. Therefore, the quantification of the strategies to meet the watershed-based water quality goals are conducted and presented in the WQIPs.

Methods for identifying projects and strategies to meet the watershed-based water quality goals are extensive and are in some cases being updated. Conceptual projects used to assess how goals are to be met are in various phases of assessment, and in some cases determined to be infeasible, requiring the development of new concepts. In order to maintain the adaptability of this SWRP, the goals, timelines, and quantification assessment of the strategies of each WMA refers to the WQIPs. This approach is more adaptable and builds on the extensive work completed and ongoing by the Copermittees. The MS4 Permit requires that the WQIPs be updated and adaptable. This approach is used for the identification and prioritization of any projects to be listed in the SWRP, as it builds on the work and assessment of existing plans at a benefit and watershed level. The Text Box on the San Diego River WQIP presented on the following pages provides an example of the analysis that is conducted in the WQIPs. This SWRP addresses the plan goal of assessing and prioritizing on a watershed basis by requiring all projects listed in the SWRP to be assessed using the SWRP checklist, which prioritizes projects based on whether they meet the water quality goals stated in the WQIP for each WMA and are consistent with the strategies and timelines to meet interim and final goals per the WQIPs. This is the watershed analysis step in the checklist process. Table 5-1 presents the priority strategies listed in each WMA’s WQIP.

Example WQIP Identification and Analysis of Watershed Strategies –San Diego River WMA

The WQIP includes a thorough analysis of water quality conditions and identifies the highest priority conditions for which to develop interim and final goals. For the San Diego River WMA, fecal indicator bacteria (FIB) were identified as the highest priority water quality condition. Goals were then developed for each jurisdiction based on the Bacteria TMDL load allocations and modeling that was performed for the TMDL, Comprehensive Load Reduction Plans, and the WQIPs. Interim and final FIB load reduction goals have been developed on a jurisdictional level for wet weather flows. These are presented in the WQIPs as a percent of the baseline annual FIB load from MS4 discharges. Percent load reductions are presented for each period prior to the final compliance date. The percent load reductions for the San Diego River WMA are undergoing updates.

Watershed strategies were then identified and analyzed using modeling, in some cases, to determine the type and extent of strategies needed to meet the established interim and final goals. Strategies considered in the San Diego River WMA WQIP to address the bacteria reduction goals are listed in the table below. These strategies include current jurisdictional programs and non-structural BMPs, such as source control measures and structural BMPs. These strategies include addressing potential pollutant loadings from new and re-development projects through BMP design standard updates, inspections, and enforcement measures. Strategies were analyzed and prioritized for each jurisdiction.

Existing Baseline Strategies[a]	Nonstructural Strategies[b]	Structural Strategies[c]
• Development and Redevelopment Planning • Construction Management and Inspections • Existing Development Management • Illicit Discharge Detection and Elimination • Education of Municipal, Industrial, Commercial, and Residential audiences • Public Outreach and Participation • Stormwater conveyance cleaning • Street sweeping • Commercial/Industrial inspections • Municipal audits	• Identification and control of sewage discharge to the stormwater conveyance system • Pet waste programs • Trash cleanups • Onsite wastewater treatment source reduction • Commercial/industrial good housekeeping • Irrigation runoff reduction and good landscaping practices • Animal facilities management • Erosion Monitoring and Repair • Street and median sweeping • Stormwater conveyance system cleaning and channel maintenance • Education and Outreach • Homelessness waste management • Property Based Inspections and Enforcement	• Infiltration BMPs (e.g., basins, bioretention, permeable pavement) • Rainwater harvesting • Biofiltration BMPs • Green Streets • Infrastructure improvements • Pretreatment BMPs • Strategic retrofits in areas of existing development; • Water course rehabilitation (e.g., stream restoration/ enhancements) • Advanced treatment and proprietary devices • Potential Public Private Partnership Program • Redevelopment and LID implementation

a. Existing Jurisdictional Programs

b. Potential shifts of current resources and/or enhance Existing Jurisdictional Programs to focus on areas/activities identified to be most effective at targeting reductions in bacteria

c. The identification of potential improvement strategies is intended to create a list of activities that may or may not be implemented by each Participating Agency; and at this stage no commitment is made with regard to each strategy. The County of San Diego has concerns as funding sources for implementation of structural BMPs have not been identified. By reason of constraints in California law and the California constitution, Caltrans funds are subject to legislative appropriation and availability of funds.

For the San Diego River WMA, distributed BMPs, including green streets, were identified in a number of jurisdictions as one of multiple watershed strategies to meet the water quality goals. Potential locations and priority drainage areas were identified to prioritize the implementation of these strategies. The identification of potential BMP sites included an assessment of public parcels. The figure below presents potential distributed BMP locations that provide a set of potential projects to meet the stated goals.

The water quality benefits from distributed systems are quantified in the WQIPs as load reductions to be achieved toward meeting the interim and final goals from these strategies. The implementation of distributed green-street BMPs contribute to the overall load reduction goals. For this watershed, the percent load reduction for some jurisdictions using distributed BMPs may range from 10-15% and provide a significant portion of the total FIB load reduction needed to meet the interim and final goals.

The WQIPs provide the basis for the analysis of storm water management opportunities that have water quality as the main benefit. This analysis identifies the set of watershed strategies that are planned to meet the interim and final water quality goals. In this example, the water quality benefit of distributed green-street type projects is quantified and compared to the overall load reduction goals in the WQIP. As a strategy that provides a significant portion of load reduction for some jurisdictions, this watershed strategy would be rated high based on this quantifiable analysis presented in the WQIP. Projects listed in the SWRP are assessed quantitatively with these strategies to provide a comparison to this larger set of opportunities in each watershed and regionally with regard to attainment of the water quality goals stated in the WQIPs.

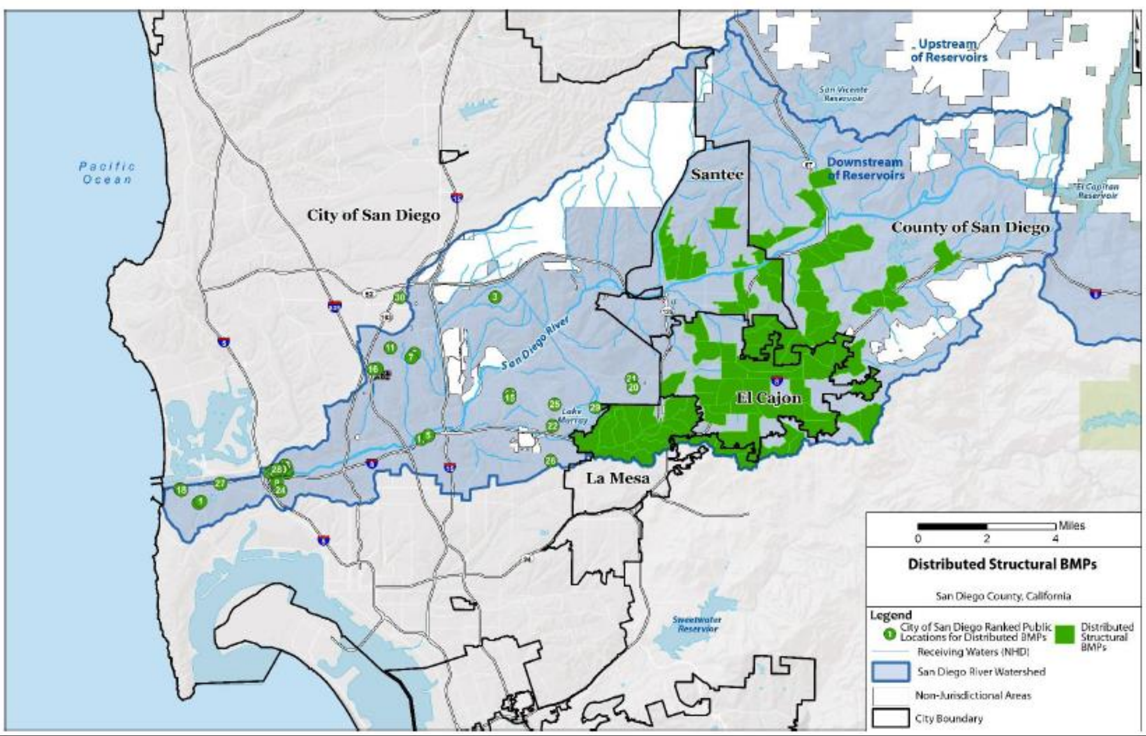

TABLE 5-1
PRIORITY WATERSHED STRATEGIES

WMA	Jurisdiction (or HA)	BMPs	Green Streets	Irrigation control	JRMPs	Think Blue Program	SWPPP	Non-SUSMP (Standard Urban Storm Water Mitigation Plan)	MS4 Infrastructure	Infiltration and Detention Basins	Retrofit and Rehabilitation in Areas of Existing Development	Pesticides, Herbicides, and Fertilizer BMP Program	Road, Street, Parking Lot Structure Projects	Priority Development Projects	Illicit discharge, detection, and elimination	Urban Tree Canopy	Public outreach
Los Peñasquitos	Caltrans	X															X
	City of Del Mar		X	X	X												X
	City of Poway	X			X												X
	City of San Diego	X	X			X		X				X		X			X
	County of San Diego	X			X												X
Carlsbad (by HA)	Loma Alta HA	X		X	X				X		X				X		X
	Buena Vista Creek HA	X	X	X	X				X								X
	Agua Hedionda HA	X			X				X		X		X		X		X
	Encinas HA	X			X								X		X		X
	San Marcos HA	X	X	X	X						X		X		X		X
	Escondido Creek HA	X		X	X			X			X		X	X	X		X
Mission Bay	Caltrans	X			X					X		X	X		X		X
	City of San Diego	X	X	X	X				X		X	X	X		X	X	X

WMA	Jurisdiction (or HA)	BMPs	Green Streets	Irrigation control	JRMPs	Think Blue Program	SWPPP	Non-SUSMP (Standard Urban Storm Water Mitigation Plan)	MS4 Infrastructure	Infiltration and Detention Basins	Retrofit and Rehabilitation in Areas of Existing Development	Pesticides, Herbicides, and Fertilizer BMP Program	Road, Street, Parking Lot Structure Projects	Priority Development Projects	Illicit discharge, detection, and elimination	Urban Tree Canopy	Public outreach
San Dieguito	City of Del Mar		X	X	X												X
	City of Escondido	X															X
	City of Poway	X			X		X										X
	City of San Diego	X	X			X		X									X
	City of Solana Beach	X															X
	County of San Diego	X			X												X
San Diego Bay	Coronado	X			X				X		X		X	X	X		X
	Port of San Diego	X			X				X		X		X	X	X		X
San Diego River	Caltrans	X									X						X
	City of El Cajon	X									X						X
	City of La Mesa	X	X								X						X
	City of Santee	X	X								X			X			X
	City of San Diego	X						X			X				X		X
	County of San Diego	X							X		X				X		X

WMA	Jurisdiction (or HA)	BMPs	Green Streets	Irrigation control	JRMPs	Think Blue Program	SWPPP	Non-SUSMP (Standard Urban Storm Water Mitigation Plan)	MS4 Infrastructure	Infiltration and Detention Basins	Retrofit and Rehabilitation in Areas of Existing Development	Pesticides, Herbicides, and Fertilizer BMP Program	Road, Street, Parking Lot Structure Projects	Priority Development Projects	Illicit discharge, detection, and elimination	Urban Tree Canopy	Public outreach
San Luis Rey	City of Oceanside	X		X	X									X	X		X
	City of Vista	X			X									X	X		X
	County of San Diego	X	X		X					X	X			X	X		X
	Caltrans	X			X										X		X
Tijuana	Caltrans	X	X		X				X	X	X	X	X		X		X
	City of San Diego	X	X		X				X	X	X	X	X		X		X
	City of Imperial Beach	X	X		X				X	X	X	X	X		X		X
	County of San Diego	X	X		X				X	X	X	X	X		X		X
Santa Margarita*	Caltrans	X															
	County of San Diego																X

*Santa Margarita WQIP still in development so list of strategies may be incomplete

5.4 Three-Step Project Integrated Analysis and Prioritization Process

The integrated analysis and prioritization process is a three-step process that assigns points to projects for addressing benefits in multiple categories (Figure 5-6). The first step of project prioritization is determining eligibility. In order for a project to be considered eligible to be included in the SWRP, it must be an implementation project that includes elements of storm water or dry weather runoff capture, water quality improvement, or beneficial use. A goal of the SWRP is to identify opportunities to enhance utilization of storm water as a resource. Beneficial use of collected storm water and dry weather flows are further assessed in this SWRP to address storm water as a resource. Eligible projects must also meet at least two SWRP benefits. Therefore, one of the two project benefits needs to include water quality or water resource benefits through storm water or dry weather runoff capture. This SWRP also covers projects that may have habitat restoration, flood management, and water conservation elements and benefits. Implementation projects must also identify the funding source for operations and maintenance for the timeline required in the grant application (Figure 5-7). Most grants (such as Proposition 1) will cover funding of construction, but not operations and maintenance costs. Proposition 1 eligibility requires that operations and maintenance funding already be secured, since SWRCB, among others, is not supportive of implementing a project if an entity does not have the means to operate and maintain that project. After a project is determined eligible, the project is evaluated against a series of criteria for each benefit category addressed by the project to meet the eligibility under Step 1. Points are assigned for achieving certain benefits (e.g., increasing infiltration or providing urban green space) and providing project metrics (e.g., volume of flow reduced). In Step 3, points are given to projects that have been identified and assessed in a watershed-based plan.

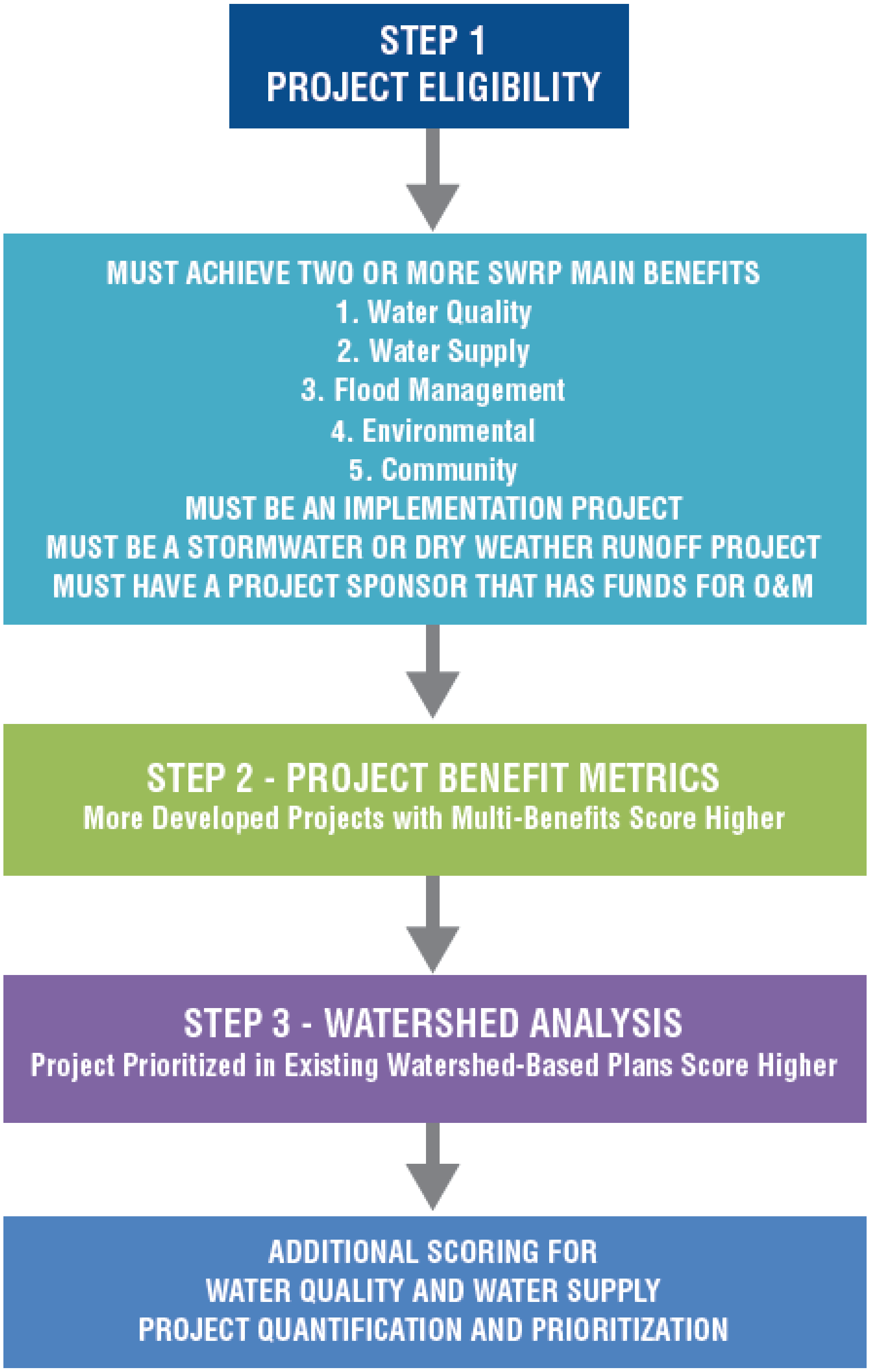

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Figure 5-6
Project Prioritization Process

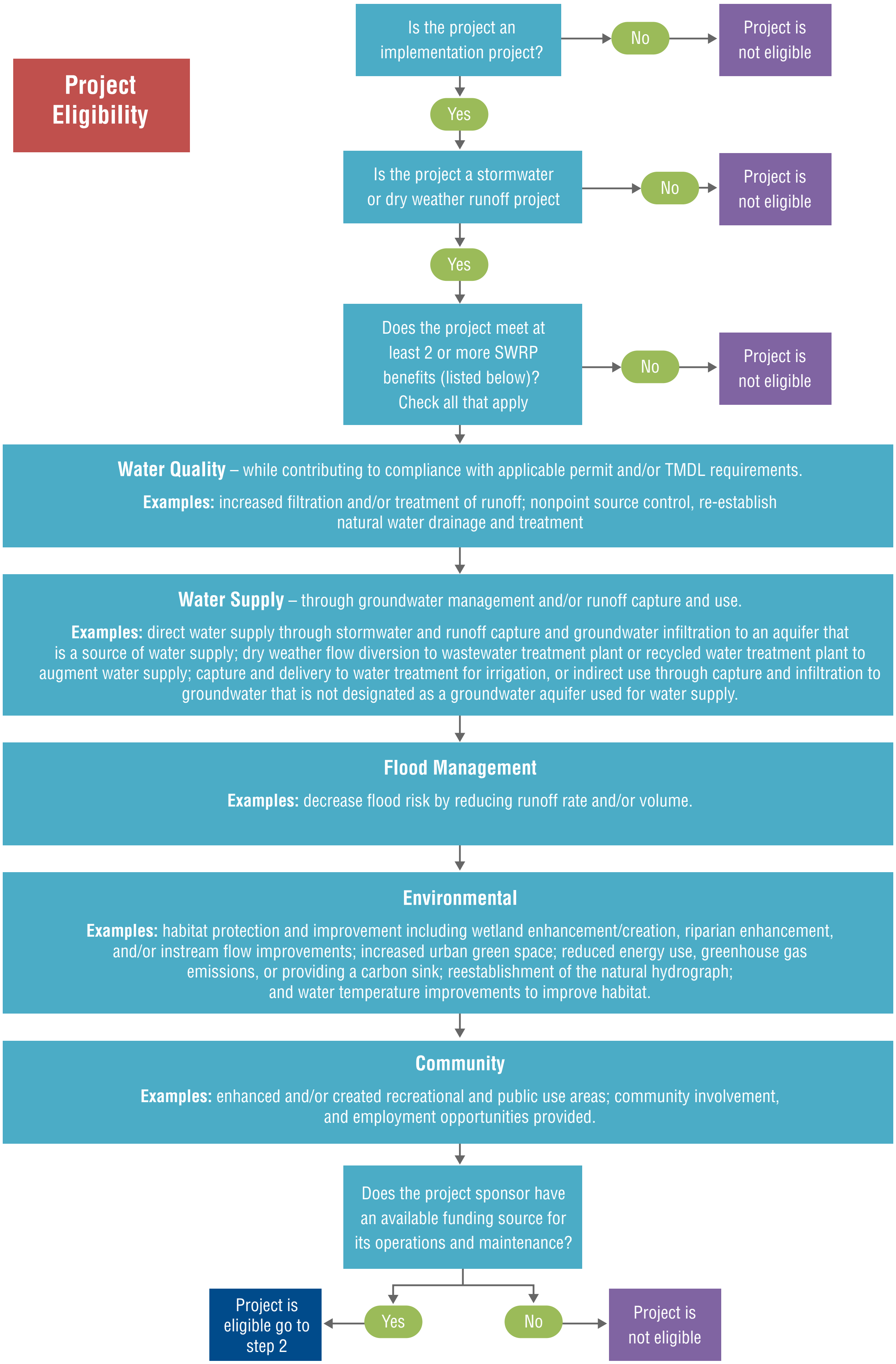

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Figure 5-7
Project Eligibility Flow Chart

5.4.1 Step 1- Project Eligibility

Proposition 1 funding requires that grant proposals must be for project implementation. Depending on the specific grant criteria, a portion (which varies between grant solicitations) of total project costs may include planning (design, permitting, and environmental assessment). Project sponsors need to check specific grant application requirements for the portions of the requested funding allowable for planning activities. The implementation project must also include as its primary elements storm water or dry weather runoff capture and water quality improvement and/or beneficial use. Eligible projects must also meet at least two SWRP benefits. In order to prioritize projects within the region, projects must provide two or more of the following benefits: water quality, water supply, flood management, environmental, and community (Figure 5-7). Therefore, one of the two project benefits needs to be water quality or water resource benefits through storm water and/or dry weather runoff capture. A project that achieves the water quality benefit would contribute to water quality compliance or address a TMDL requirement. For example, a project could involve stabilizing streambanks in order to reduce sediment loads to comply with a local sediment TMDL. Water supply projects would involve augmenting current water supply by runoff capture and groundwater infiltration to an aquifer for storage. A flood management project would reduce flood risk by reducing rate and or volume of storm flows. A project may provide environmental benefits, such as increasing urban green space, reducing greenhouse gas emissions, or improving creek habitat. Any project that enhances public areas, creates employment opportunities, or helps disadvantaged communities, would be considered to provide a community benefit.

Many projects will naturally fall into multiple benefit categories. For example, a project that involves BMP elements such as bioswales would help re-establish a natural hydrograph, providing flood and environmental benefits, would enhance water quality, and could benefit the community by increasing urban green space. Projects must fall in a minimum of two benefit categories to be eligible, but could potentially have benefits in all five categories.

5.4.2 Step 2- Project Benefit Metrics

For each benefit addressed, the project may receive up to 40 points: 20 points from the project benefit metrics (Step 2) and 20 points from the watershed analysis (Step 3, Section 5.4.3). Applicants are to complete the checklist provided in Appendix F (available through the OPTI system) to determine which benefits are applicable and how many points their project should receive. Appendix G provides the worksheets available in the OPTI system for further information on how to determine and calculate project benefits.

All of the five benefit categories have a total possible score of 40 points each (combined Steps 2 and 3 score) with the exception of the water supply category. In the case of the water supply benefit, additional “bonus points” are possible above the total 40 points under Step 2. These additional bonus points have been assigned to the water supply benefit because the SWRP guidelines and grant funding emphasize the beneficial use of captured storm water and dry weather flows. Projects that achieve water supply benefits can be assigned bonus points above the 20 points for project benefit metrics (Step 2) by addressing more than one type of beneficial use of captured storm water and dry weather flows. For example, a project will receive bonus points when it captures storm flows and both directs these flows to infiltration to a groundwater aquifer that is used for potable water supply, and is used to irrigate and sustain a wetland habitat enhancement. Additional examples are provided in Section 5.4.2.2.

5.4.2.1 Water Quality

The main benefit of a water quality project is increasing filtration or treatment of runoff to reduce pollutant loading to local creeks, rivers, estuaries, and the ocean. Additionally, a project could receive more points for including secondary benefits, such as addressing a high priority water quality condition as defined in the applicable TMDL or WQIP, restoring natural hydrology by reducing stormwater runoff, and restoring natural sediment transport by reducing stormwater runoff or sediment delivery. Figure 5-8 provides a flow chart that illustrates the water quality checklist questions in Appendix F.

Bioretention basin example project

An example of a project that would receive the full 20 points for water quality is a potential bio-retention and infiltration basin located upstream of the Los Peñasquitos Lagoon. The potential project consists of a bioretention and infiltration basin that would receive storm water and dry weather flows from a drainage area with residential, commercial, and open space land uses. Stormwater and a portion of dry weather flows would enter the bioretention through a bioswale. The project would reduce excess sediment loading, peak flows, and dry weather runoff volume through retention, infiltration, filtration, and evapotranspiration. Water quality conditions that are identified as high priorities in the WQIP include excess sediment loading to the lagoon, hydromodification, and perennial dry weather flows from the watershed. The bio-retention and infiltration basin and bioswales are designed to capture storm flows offline from Los Peñasquitos Creek and retain the storm flows to allow for sediment to settle out, which would reduce sediment loading to the lagoon. The bio-retention basin would also provide infiltration and evapotranspiration of a portion of the storm and dry weather flows. The bioretention basin and bioswale are designed to retain the 85th percentile design storm to provide measurable sediment removal. The bioretention basin outlet is also designed to meet the hydromodifcation requirements to reduce the peak flow and peak flow duration and reduce the impact of downstream hydromodification.

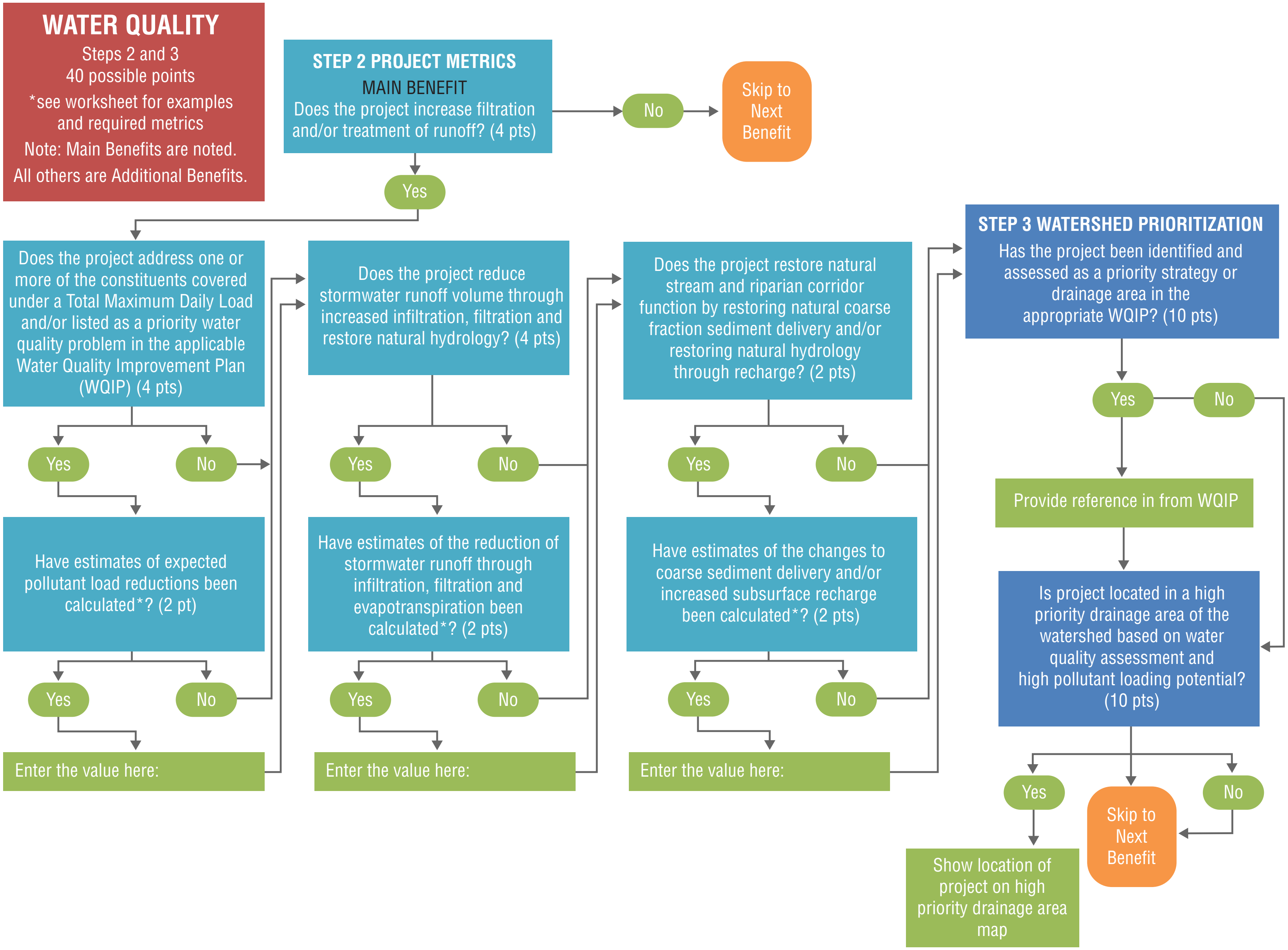

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Figure 5-8
Water Quality Benefit Flow Chart

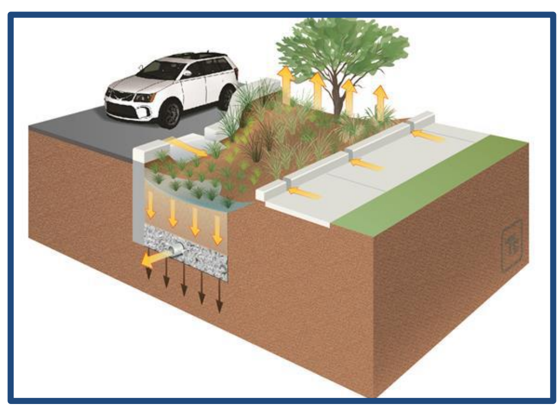
The project would receive a total of 14 points under Project Metrics (Step 2), as it increases filtration and infiltration to remove pollutants (4 points), including the high priority water quality condition of excess sediment to the lagoon under the Sediment TMDL (4 points); restores the natural hydrology by reducing stormwater runoff peak flows and volume through infiltration, filtration, and evapotranspiration (4 points); and, restores natural stream function with increasing infiltration and subsurface retention time (2 points). The project would receive the full 20 points under Project Metrics (Step 2) if calculations are completed and quantities provided for sediment load reduction, stormwater volume reduction (restoring natural hydrology), and the increased subsurface retention time. Example calculations to determine the quantifiable measurements of the water quality benefits are provided in Appendix G for the following:

- Worksheet #3: Water Quality Benefit – Pollutant Load Reduction
- Worksheet #5: Water Quality Benefit – Restore Natural Hydrology (Volume Reduction)
- Worksheet #7b: Water Quality Benefit – Subsurface Retention Time

This project would provide additional flooding and environmental benefits that will be discussed in Section 5.4.2.3 and 5.4.2.4, respectively.

Green street example project

Another example of a type of project that is eligible under the SWRP is a programmatic green street project. A programmatic project is one that covers numerous similar projects that are planned for implementation in a priority drainage area or sector of the watershed. For this example, the programmatic green street project is proposed in the San Diego River Watershed to meet the water quality goals for the WQIP. The programmatic green street project consists of implementing multiple green streets to achieve a portion of the required percent of fecal indicator bacteria (FIB) load reduction stated in the TMDL and in the WQIP for the watershed. The green streets would reduce FIB loading through filtration and infiltration using bioretention along the rights-of-way of the streets. Stormwater would be directed into these bioretention cells and strips along the roadway and allowed to infiltrate through filter media and either further infiltrate to subsoils or to underdrains connected to the storm drain system, where applicable. Porous pavement and pavers may be used to increase runoff filtration and infiltration. The programmatic green street project would be implemented over a multi-year period per the implementation strategy in the WQIP.



Green street example project

The programmatic project increases filtration and infiltration to remove pollutants (4 points), including the high priority water quality condition, FIB, under the Bacteria TMDL (4 points); restores the natural hydrology by reducing stormwater runoff peak flows and volume through infiltration, filtration, and evapotranspiration (4 points); and restores natural stream function with increasing infiltration and subsurface retention time (2 points) for a total of 14 points. The project would receive the full 20 points if calculations are provided for bacteria load reduction, stormwater volume reduction (restoring natural hydrology), and increased subsurface retention time. Example calculations to determine the quantifiable measurements of the water quality benefits are provided in Appendix G. This project would provide additional flooding and environmental benefits that will be discussed in Sections 5.4.2.3 and 5.4.2.4.

5.4.2.2 Water Supply

The main benefit of a water supply project is the capture of stormwater or dry weather runoff for direct use. There are three ways a project can use storm water and dry weather flows for direct use. The first is the diversion of flows to a wastewater or water treatment facility that is then treated and used for recycled water or indirect potable use. The second is collecting and storing flows for irrigation at a nearby park or golf course, for a habitat restoration project, or through a natural treatment system that also provides wetland habitat. Direct use also can be achieved through the infiltration of storm water to a groundwater aquifer that is a source of local supply. Additional points can be earned by a project if the applicant includes calculations of volume of stormwater and runoff storage volumes, and agreements with the necessary facility owners to divert and use the captured storm water or dry weather flows for recycled water or potable use. If the project has multiple methods to directly use flows, it can score "bonus points" above the base 20 points. Figure 5-9 provides a flow chart that illustrates the water supply checklist questions in Appendix F.

An example programmatic project is regional water conservation via turf replacement and a downspout disconnect program for residences and commercial properties. It is a programmatic project because it includes multiple implementation projects over a number of watersheds, all of which have similar goals, benefits, and project metrics. Water conservation via turf replacement is an IRWM project that was proposed for an implementation grant (RWMG, 2013). Under the Water Supply Benefit, this programmatic project would provide quantifiable water conservation (5 points). The programmatic project would score an additional 10 points for reducing potable water use for irrigation through quantifiable water conservation. If the project sponsors also provided the volume of potable water conserved, an additional 5 points would be awarded for a total of 20 points under the Project Metrics (Step 2). Example calculations to determine the quantifiable annual volume of water that is conserved are presented in Appendix G with additional examples calculations of quantifiable measurements of the water supply benefits for the following:

- Worksheet #12: Water Supply Benefit – Approved Flow or Volume Diverted for Beneficial Use
- Worksheet #14a: Water Supply Benefit – Volume Stored and Volume to Beneficial Use
- Worksheet #14b: Water Supply Benefit – Volume of Water Conserved
- Worksheet #16/18: Water Supply Benefit – Volume Infiltrated to Groundwater

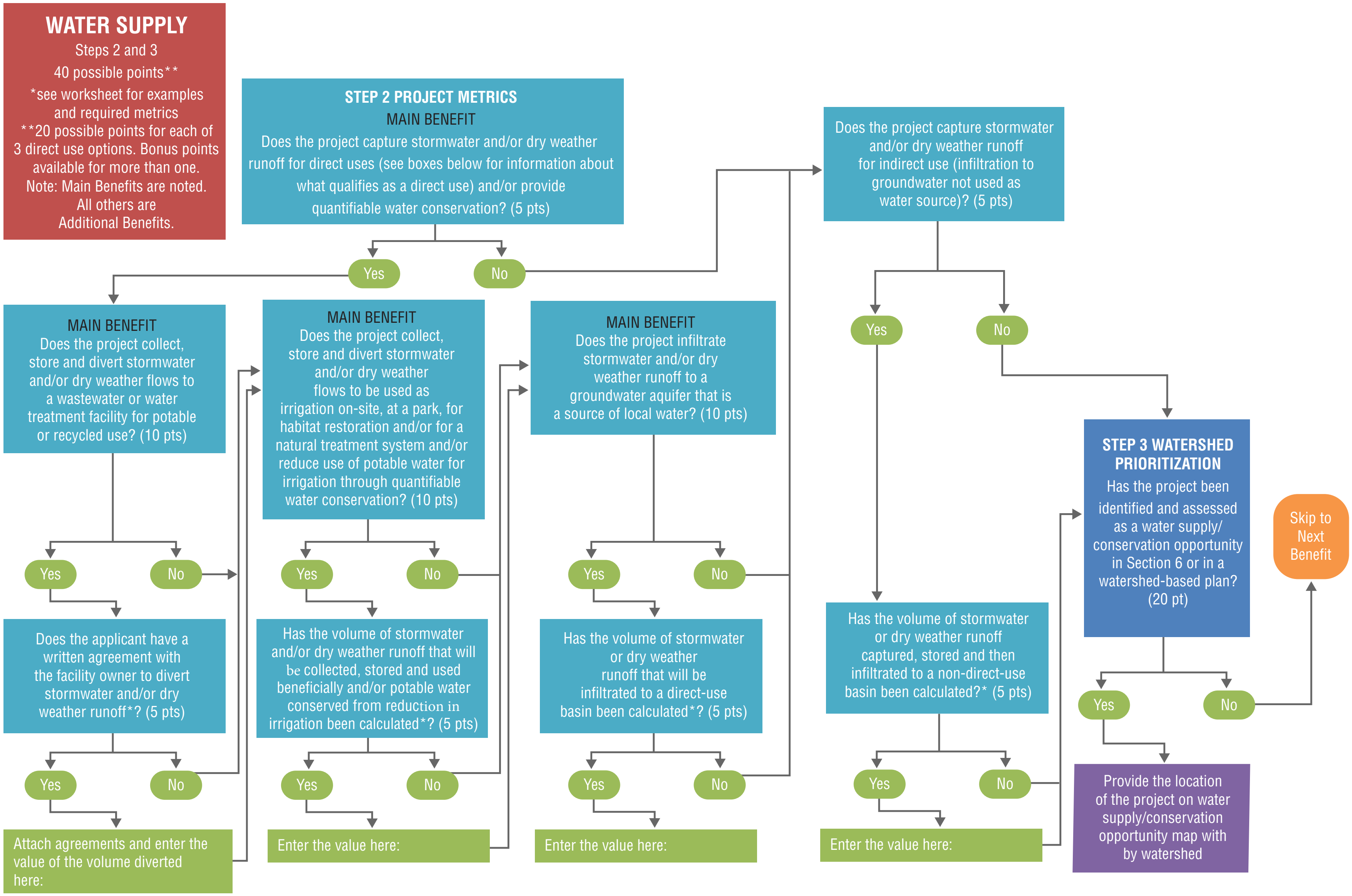


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Figure 5-9
Water Supply Benefit Flow Chart

An example of a project that could score bonus points above 20 points is the Safari Park Drought Response and Outreach project (DWR, 2015). The project proposes capturing dry weather and storm runoff in a pond (5 points). Water from the pond would then be treated for reuse as on-site irrigation (10 points). The project proposal includes calculations of how much water will be stored and used and, therefore, scores 5 additional points. Additionally, the project involves updating a wastewater treatment facility at the park. If the storm water and dry weather flows from on site could be recycled for beneficial use, the project would receive an additional 10 points. Since the project sponsor operated the treatment facility (agreement with operator already secured), the project could gain another 5 points for a total of 35 potential points. The project could score points in the community category as well for providing hands-on water education and conservation programs.

5.4.2.3 Flood Management

The main benefit of flood management projects is decreasing flood risk by reducing the runoff rate and/or volume, thereby reducing impacts of flooding on private property and public facilities and infrastructure. Additional points are awarded for projects that have calculated the volume of storm water stored on site, the reduction of peak flows, and infiltration volume. Figure 5-10 provides a flow chart that illustrates the flood management checklist questions in Appendix F.

There are two types of flood management projects. The first addresses large flow, low frequency events. These projects, such as flood plain restoration, can reduce the peak flow of a storm and increase retention time. Worksheet #21 in Appendix G provides example calculations to quantify peak flow reduction from flood event management projects.

The second type of project that falls into the flood management benefit category addresses low flow, high frequency storms. Flood management projects focus on reducing peak flows and damage to property, while most of the low flow projects benefit primarily from water quality control. However, projects that fall in this category, such as green streets, also can contribute to flood management by peak storm flow attenuation. Many of these projects fall into the environmental benefit category as well; hydromodification projects fall into both environmental and flood management categories as these projects protect and restore natural hydrology by retaining and controlling storm flow discharges to mimic predevelopment conditions. Worksheet #22/23 in Appendix G describes the process for quantifying reduction in annual flow.

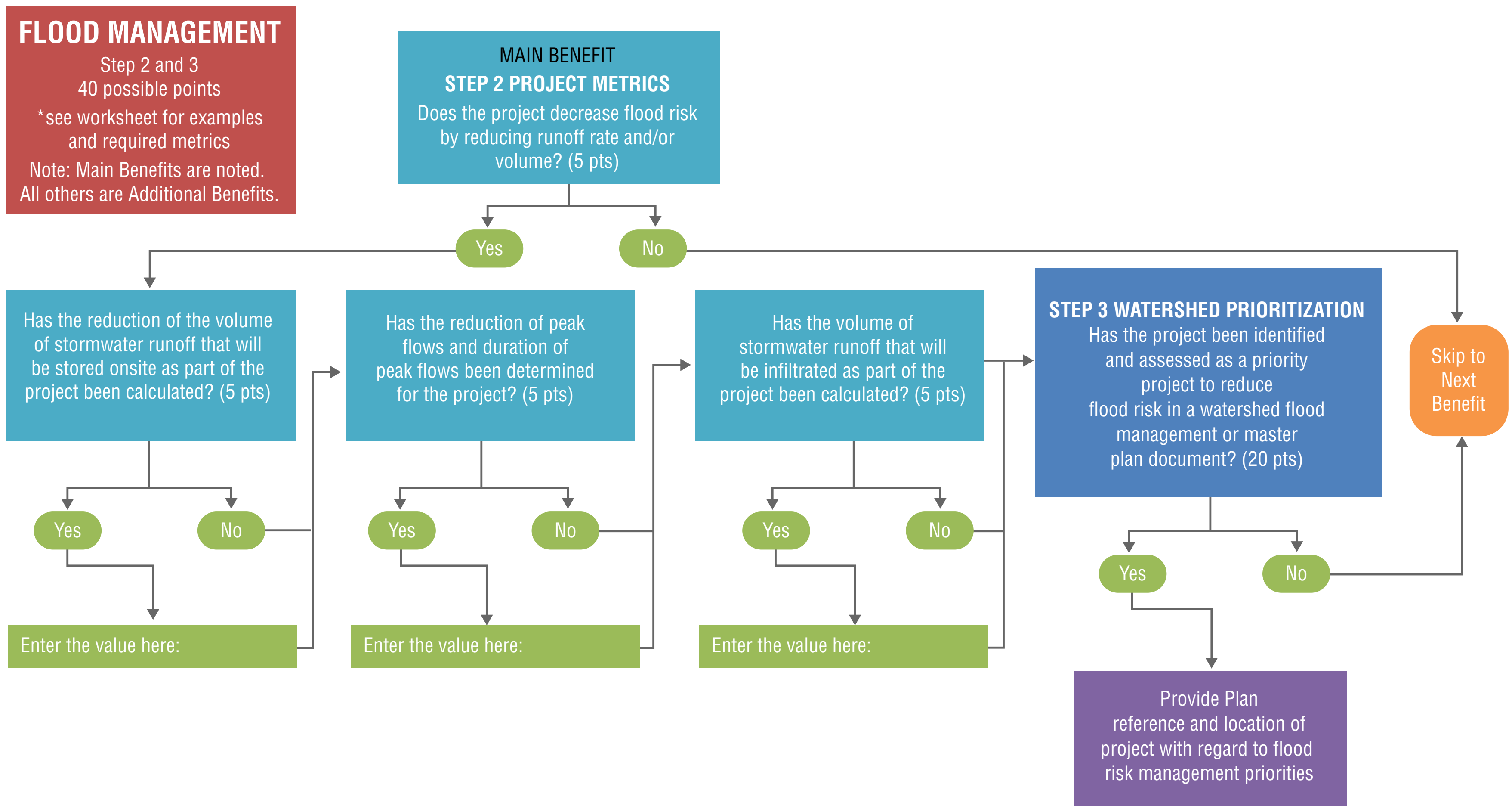

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Figure 5-10

Flood Management Benefit Flow Chart

Flood Control Retention Basin Example Project

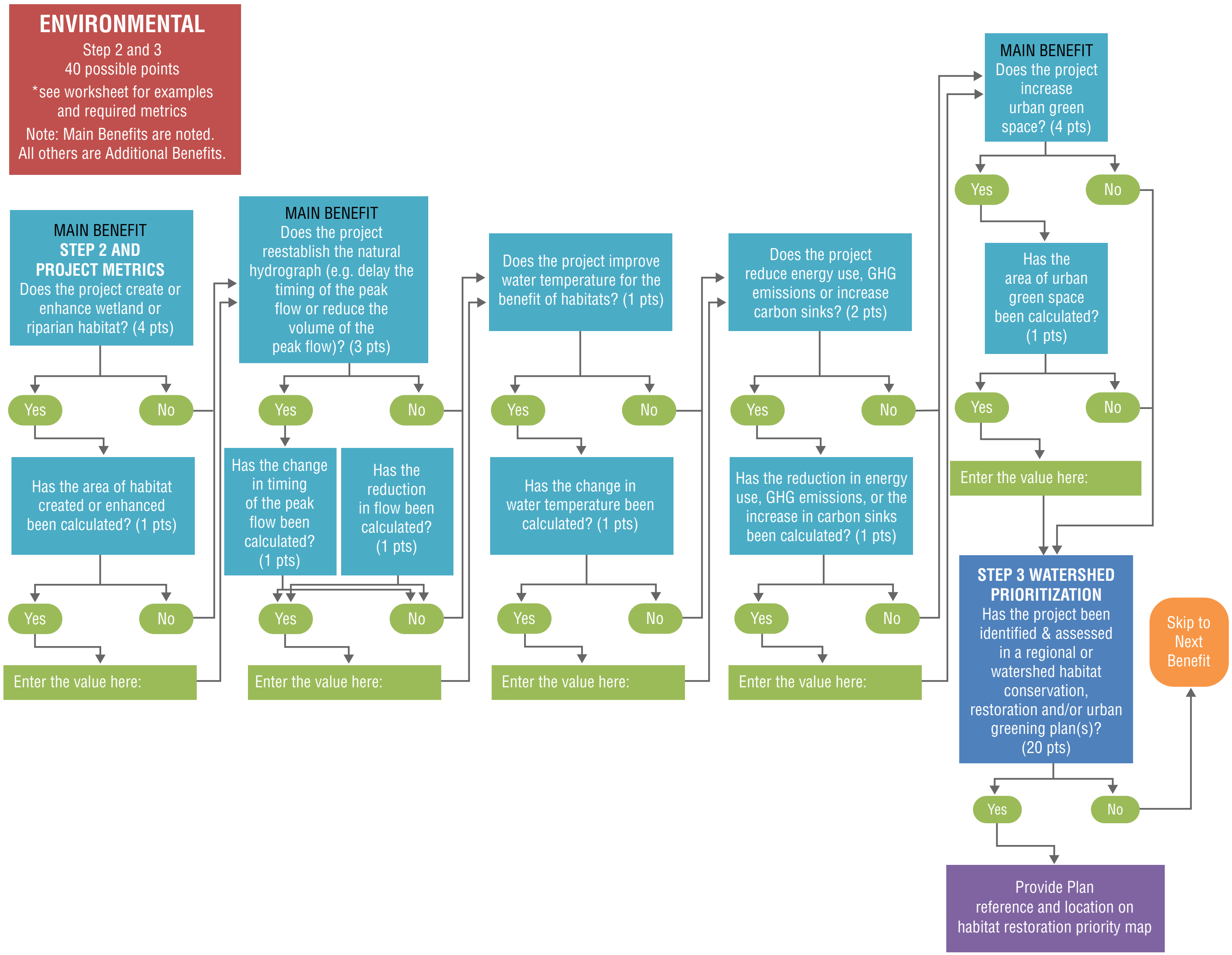
An example of a multi-benefit flood control project is the Woodside Avenue Water Quality Basin, a San Diego County Flood Control Grant Project. This project includes a flood control retention basin that was retro-fitted with a low-flow vegetated channel to filter runoff. The BMP was designed to prevent Woodside Avenue, in San Diego County near Lakeside, from seasonal flooding. The detention basin can control water volumes for up to a 100-year storm (1 percent chance of annual occurrence). This project would receive 20 points in Step 2: 5 points for reducing runoff rate and volume, 5 points for quantifying the runoff control, 5 points for quantifying the reduction in peak flows, and 5 points for quantifying the increase in infiltration at the site. This project could also receive points in the water quality and community categories. Appendix G provides example calculations of quantifiable measurements for flood management benefits in the following worksheet:

- Worksheet #21: Flood Management Benefit – Reduction of Peak Flows and Duration
- Worksheet #22: Flood Management Benefit – Volume of Infiltration
- Worksheet #23: Flood Management Benefit – Volume of Runoff Reduced

5.4.2.4 Environmental

There are three main benefits under the environmental benefit category: enhancement of wetland or riparian habitat, re-establishment of the natural hydrograph, and an increase of urban green space. Secondary benefits include improving water temperature for the benefit of habitats, reducing energy use and greenhouse gas (GHG) emissions, or increasing carbon sinks. Projects can receive additional points for quantifying the environmental improvements due to the project. Figure 5-11 provides a flow chart that graphically illustrates the environmental checklist questions in Appendix F.

An example of a multi-benefit environmental project is the Murphy Canyon Creek and Flooding project proposed by the San Diego River Park Foundation. Murphy Canyon Creek is an artificial drainage channel that often floods during storm events. The San Diego River Park Foundation has proposed re-engineering the channel to establish a more natural flow pattern and provide additional habitat. This project would achieve many of the environmental benefit criteria. The project would create new habitat along the creek (4 points) and re-establish the natural hydrograph (3 points). The project also involves creating a 3-acre neighborhood park, which contributes to urban green space (4 points), for a total of 11 points. If the area of created habitat and urban green space were calculated along with the change in timing of the peak flow and the flow reduction, the project could receive an additional 4 points, for a total of 15 points.



SOURCE: ESA

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Figure 5-11
Environmental Benefit Flow Chart

To receive the full 20 points, the project could further demonstrate water temperature benefits (e.g., through shading of the water by willows) and an increase in carbon sinks (through increased vegetation). This project could also score in flood management benefit because it reduces flood risk. Further benefit categories that may be applicable to this project include community through creation of additional community recreational space and public education. Example calculations to determine the quantifiable measurements of the environmental benefits are presented in Appendix G for the following:

- Worksheet #28: Environmental Benefit – Peak Flow Reduction and Reduction of Time Duration of Peak Flow
- Worksheet #33: Environmental Benefit – GHG Emissions Reduction

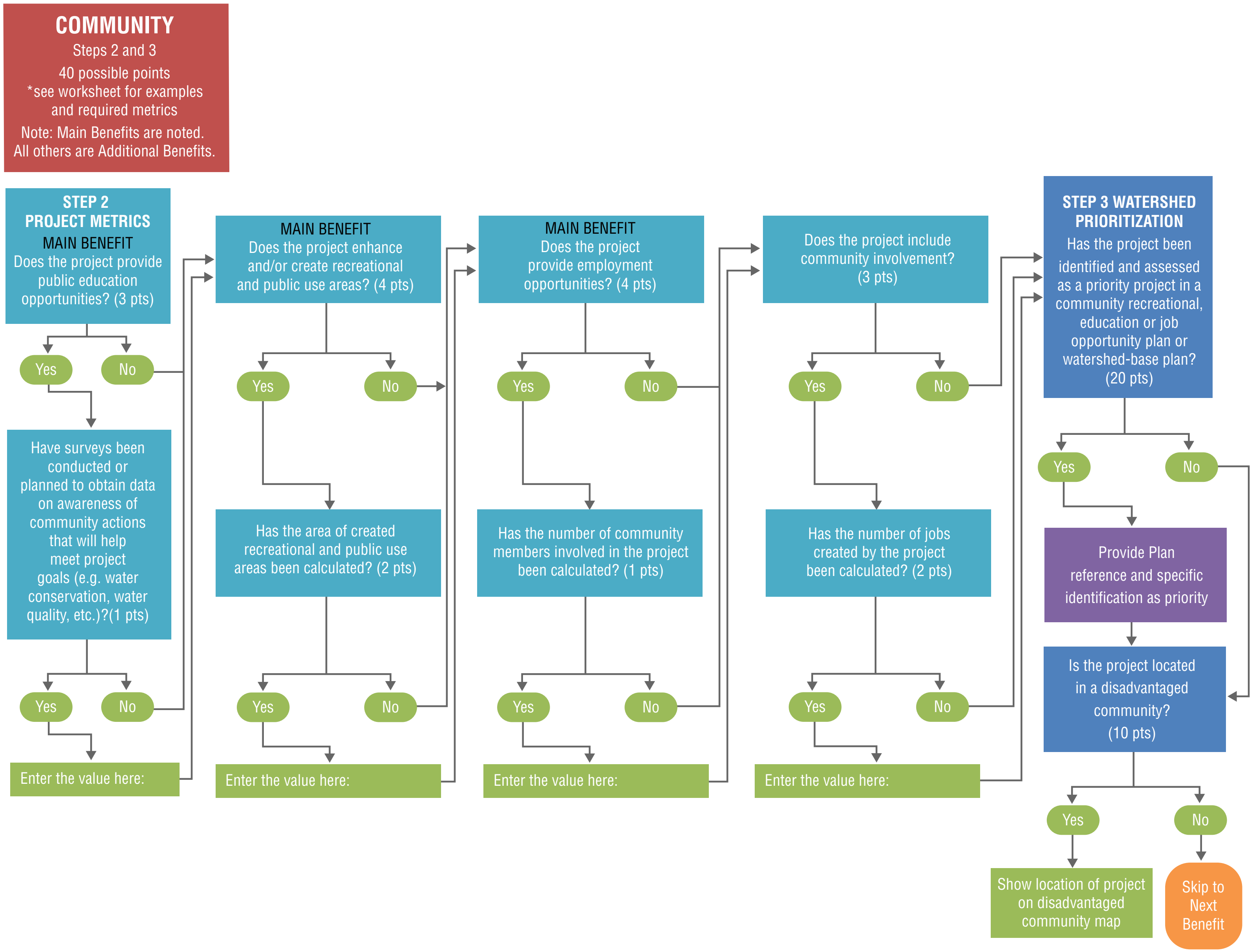
5.4.2.5 Community

The main community benefits a project can provide include public education, enhancing or creating recreational and public use areas, and providing employment opportunities. A secondary benefit is community involvement in the project. Projects can receive additional points for quantifying these benefits and providing calculations of additional recreational and public use areas, number of jobs created, and number of community members involved. A project that provides public education opportunities will receive points for conducting surveys or collecting data on awareness of community actions that will help meet project goals. Figure 5-12 provides a flow chart that illustrates the community checklist questions in Appendix F.

The San Diego River Healthy Headwaters Restoration Project in the IRWM work plan meets some community benefit criteria. The main goal of this project is to restore and rehabilitate sites in the San Diego River watershed and improve habitat, water supply, and water quality. However, this project would also score in the community benefit category by enhancing public spaces and maintaining trails at the El Capitan Reservoir (4 points), which involves community volunteers through San Diego River Park Foundation (3 points). The US Forest Service would set up kiosks at 4 sites where the public could learn about water-wise gardening and how to minimize watershed impacts and fire risks (3 points). The project also receives points for calculations of the restored public area acreage (2 points). This restoration project would also score in the environmental and water quality categories.

5.4.3 Step 3- Watershed Analysis

Step 3 of the integrated analysis and prioritization process is the watershed analysis. As projects are compared on a watershed basis, the regional constraints and opportunities are considered and provide a level playing field for all projects. As discussed under Section 5.1, existing and future watershed and regional planning documents are used for project identification and prioritization. Under this analysis projects receive higher scores when they have been ranked in an existing watershed or regional plan and if they have been identified as a priority on a watershed basis in such a plan.



SOURCE: ESA

SWRP . 160618

Figure 5-12
Community Benefit Flow Chart

Projects could get up to 20 additional points under each benefit category for being identified as a priority in an existing watershed or regional planning document. These management plans could either be one described in Section 5.1, or another region- or watershed-based prioritization plan. Any future plans that detail goals under a specific category and outline a prioritization method may be considered as well. A project will be assigned 10 points for being ranked by one of these plans and will receive an additional 10 points for being identified as a priority project or strategy in a plan.

In the community benefit category, a project can get 5 points for being identified in the community plan, and an additional 5 points for being a priority project in that plan. A project can achieve the remaining 10 points if it is located in a disadvantaged community.

For example, the programmatic project presented previously—the regional water conservation via turf replacement and downspout disconnect program—would receive 20 points under the watershed prioritization (Step 3) for the water supply benefit. It would receive these points since it is included in the 2013 IRWM Plan. This programmatic multi-benefit project would gain further points under the water quality benefit watershed prioritization (Step 3) if the down spout disconnect program were listed as a priority watershed strategy to meet pollutant load reduction goals.

Another example of the scoring process for the watershed prioritization (Step 3) is shown in Table 5- 3 for the programmatic green street project previously presented in Section 5.4.2.1. The programmatic green street project consists of implementing multiple green streets to achieve a portion of the required percent of FIB load reduction stated in the TMDL and in the WQIP for the watershed. The green streets would reduce FIB loading through filtration and infiltration using bioretention along the right of ways of the streets. Stormwater would be directed into these bioretention cells and strips along the roadway and allowed to infiltrate through filter media and either further infiltrate to subsoils or to underdrains connected to the storm drain system where applicable.

Green street example project

As presented in Table 5-2, under Step 1, the project is eligible because it achieves two or more benefits, is an implementation project, and the project sponsor has the means to maintain the project. The benefits that are achieved by this programmatic project include water quality through increased runoff treatment, water supply by increasing infiltration to groundwater, flood management by reducing the volume of runoff and reducing peak flows, environmental by increasing urban green space, and community through a public education program on water quality and water conservation.

TABLE 5-2
EXAMPLE GREEN STREET PROGRAMMATIC PROJECT – COMPLETE CHECKLIST PROCESS AND SCORING

Checklist Step/Benefit	Step 1 Eligibility	Step 2 Project Metrics	Step 3 Watershed Analysis	Total Score
Water Quality	✓ Increases Runoff Treatment	14 points - Reduces TMDL pollutants & runoff volumes	20 points – Priority in WQIP & located in high loading area	34 points
Water Supply	✓ Increases Groundwater Recharge	10 points – infiltrates to groundwater non-direct use	Not located in groundwater aquifer and recharge area	10 points
Flooding	✓Decreases Flood Risk	20 points – reduces flood risk & metrics calculated	20 points – located in high risk flood area	40 points
Environmental	✓ Increases Urban Green Space	5 points – increases urban green space	20 points – identified as high priority in watershed plan	25 points
Community	✓Provides Public Education	4 points – signage and outreach for public education	20 points – identified as high priority in outreach opportunity	24 points
Results/Score	Meets 2 Or More Benefits	55 points	80 points	135 out of 200 points

Under Step 2, the project metrics criteria, scores are provided under each of the five benefits. Under the water quality benefit (see Figure 5-8): the programmatic project increases filtration and infiltration to remove pollutants (4 points), including the high priority water quality condition, FIB, under the Bacteria TMDL (4 points); restores the natural hydrology by reducing stormwater runoff peak flows and volume through infiltration, filtration, and evapotranspiration (4 points); and restores natural stream function with increasing infiltration and subsurface retention time (2 points) for a total of 14 points. The programmatic project is identified as a high priority watershed strategy in the WQIP, and is located in a high priority sector of the watershed thereby achieving a score of 20 points under Step 3, watershed prioritization. Under the water quality benefits, the total score is 34 points.

Under the Step 2 project metrics for the water supply benefit (see Figure 5-9), the project captures stormwater and dry weather flows and infiltrates a portion of the volume captured to the groundwater (5 points). Calculations for the amount of volume captured and infiltrated have been completed and provided (5 points) for a total of 10 points under Step 2. The project is not a priority water supply/water conservation project in regional or watershed plans, and therefore does not receive points under Step 3, watershed prioritization. The total score under the water supply benefit is 10 points.

Under the Step 2 project metrics for the flooding management benefit (see Figure 5-10), the project decreases flood risk by reducing the volume of runoff (5 points). Calculations and quantifiable measurements have been provided for volume of runoff reduction, the reduction of peak flows, and the volume that will be infiltrated, for an additional 15 points. The total for Step 2 is therefore 20 points. The project is located within a flood-prone sector of the watershed and identified as a priority for flood risk reduction in jurisdictional flood management plans, thereby scoring 20 points under Step 3, watershed prioritization. The total score under the flood management benefit is 40 points.

For the Step 2 project metrics for the environmental benefit (see Figure 5-11), the project increases urban green space, and the area created is provided, for a total of 5 points. The project is located within neighborhoods that have been identified as a priority for increasing urban green space in local planning and climate actions plans, thereby scoring 20 points under Step 3, watershed prioritization. The total score under the environmental benefit is 25 points.

Finally under the Step 2 project metrics for the community benefit (see Figure 5-12), the project provides public education opportunities (3 points) and would include surveys to obtain data on community awareness of the importance of water conservation and water quality for an additional 1 point, for a total of 4 points. The project is located within neighborhoods that have been identified as a priority for educational outreach on water conservation and water quality in regional and watershed plans, thereby scoring 10 points under Step 3, watershed prioritization. Additionally, the project is in a disadvantaged community, for an extra 10 points. The total score under the environmental benefit is 24 points.

The total combined score for the programmatic green street project is 135 out of a total possible score of 200 points. The project provides multiple benefits and scores well for meeting the criteria under all five benefits.

5.5 Project Quantification and Prioritization

Completion of the SWRP checklist (Section 5.4) by responding to all the applicable questions, results in a total score under each benefit. Scores are tallied for each of the main benefits and totaled for an overall score. The SWRP project list uses the total score of each project to rank each project on a watershed and regional basis. This integrated analysis and prioritization method provides a quantification of the project benefits and encourages the development of multi-benefit projects that most effectively meet watershed goals as measured through defined project metrics.

5.5.1 Additional Quantification and Ranking of Project with Water Quality Benefits

In addition to the quantification through project scoring by completing the online OPTI checklist, projects are further quantified and ranked based on the larger set of water quality strategies in the WQIPs and stormwater capture and use opportunities identified in the public parcel assessment presented in Section 5.2 and Appendix H of this document. This additional analysis and ranking provide a quantifiable prioritization of listed projects based on the level of benefit provided compared to the collective set of opportunities in each watershed to meet the overall watershed goals. The goals for water quality are presented in the WQIPs, as discussed in Section 5.3.

For listed projects that have water quality as a main benefit, the additional quantitative analysis and ranking is based on confirmation that the project is addressing a high priority water quality condition per the WQIP, quantification of the water quality benefits have been provided, and these quantitative benefits have been compared to the range of quantities for priority constituents and volume reductions. Projects are then ranked using color coding in addition to the overall OPTI checklist score to provide a quantitative analysis at the project and regional level. This additional quantitative ranking is summarized in Table 5-3.

TABLE 5-3
ADDITIONAL QUANTIFICATION OF WATER QUALITY BENEFITS FOR LISTED SWRP PROJECTS

Basis for Quantification	Criteria for Quantification Ranking	Rank	Color Score
1. Meets the stated requirements under Watershed Prioritization – Questions 8 and 9[1] in the OPTI checklist 2. Quantities have been provided for the amount of pollutant load reductions achieved in lbs/yr or MPN/yr, and volume of stormwater and/or urban runoff reduce in gallons/yr[2] 3. Based on the quantities provided , the project ranks in either the upper, middle or lower range of quantifiable water quality benefits that have been prioritized per the applicable WQIP	Meets #1 and #2 and ranked in the higher range of quantifiable benefits	Highest Benefit	
	Meets #1 and #2 and ranked in the middle range of quantifiable benefits	High Benefit	
	Meets #1 and #2 and ranked in the lower range of quantifiable benefits	Medium Benefit	
	Meets #1 but no quantities have been provided	Lower Benefit	

#8: Has the project been identified and assessed as a strategy associated with high priority water quality conditions in the applicable WQIP that has been listed as a key strategy to meet a define interim and/or final water quality goal?
#9: Is the project located in a high priority drainage area of the watershed based on priority water quality assessment and high pollutant-loading potential?
See questions #3 and #4 in OPTI checklist in Appendix F

The quantities provided for each project through the OPTI checklist are compared to the set of projects listed to quantitatively evaluate the project. Projects are ranked highest when the quantifiable benefits are in the upper 30 percent. The other ranking categories are presented in Table 5-3. These quantities relate to the watershed priorities, as the projects that are ranked must be strategies that are associated with high priority water quality conditions per the applicable WQIP. The quantities provided demonstrate the level of water quality benefit provided to meet the goals of the applicable WQIP. As presented in Section 5.3, the WQIPs present the analysis of the overall reductions these prioritized strategies achieve toward the interim and final goals. The projects listed in the SWRP are provided in Appendix I. The listed projects include scores from the OPTI checklist and also additional quantification ranking using the criteria and color score shown in Table 5-3.

5.5.2 Additional Quantification and Ranking of Project with Water Supply Benefits

The additional quantification of projects is also conducted for listed projects that have water supply as a main benefit. All listed project are scored by completing the online OPTI checklist, which provides a quantifiable analysis of the project metrics and watershed analysis that was presented in Section 5.4. Projects with water supply as a main benefit are further quantified and ranked based on a comparison with the larger set of water supply opportunities presented in Section 5.2 and Appendix H. This additional analysis and ranking provide a quantifiable prioritization of listed projects compared to the collective set of opportunities in each watershed to meet the overall goal. The goal for stormwater capture and use is to maximize the quantity of stormwater and dry weather urban runoff that can be feasibly captured and used beneficially based on the parcel assessment and identification of opportunities presented in Section 5.2 and Appendix H.

For listed projects that have water supply as a main benefit, the additional quantitative analysis and ranking is based on confirmation that the project hast been identified and assessed as a water supply/conservation project opportunity on a watershed basis in Section 5.2 and Appendix H of this document or in a watershed-based plan, and prioritized based on the quantification of the benefits achieved. The projects are also ranked based on whether the quantification of the water quality benefits has been provided in the OPTI checklist under the Project Metrics. These quantities include volume of stormwater and dry weather urban runoff that would be captured and stored, and the quantities that would be used beneficially. Finally, the project quantities are compared to the range of volumes stored and used beneficially for the larger set of opportunities identified and quantified as part of the public parcel assessment presented in Section 5.2 and Appendix H. Projects are then ranked using color coding in addition to the overall OPTI checklist score to provide a quantitative analysis at the project and regional level. This additional quantitative ranking is summarized in Table 5-4 and will be integrated into the online OPTI checklist such that future project listings will also have this additional quantification and ranking.

TABLE 5-4
ADDITIONAL QUANTIFICATION OF WATER SUPPLY BENEFITS FOR LISTED SWRP PROJECTS

Basis for Quantification	Criteria for Quantification Ranking	Rank	Color Score
1. Meets the stated requirements under Watershed Prioritization – Question 19[1] in the OPTI checklist 2. Quantities have been provided for the amount of storm water and/or urban runoff that is captured and stored, and then used beneficially for the options presented in Project Metric step in acre-feet/yr..([2]) 3. Based on the quantities provided, the project ranks in either the upper, middle or lower range of quantifiable water supply benefits compared to the set of water supply opportunities identified and quantified in the parcel assessment in Section 5.2 and Appendix H.	Meets #1 and #2 and ranked in the higher range (upper 30%) of quantifiable benefits	Highest Benefit	
	Meets #1 and #2 and ranked in the middle range (middle 30%) of quantifiable benefits	High Benefit	
	Meets #1 and #2 and ranked in the lower range (lower 30%) of quantifiable benefits	Medium Benefit	
	Meets #1 but no quantities have been provided	Lower Benefit	

#19: Has the project been identified and assessed as a water supply/conservation project opportunity on a watershed basis in Section 6 or in a watershed-based plan, and prioritized based on the quantification of the benefits achieved in AF/yr.? 2 –see questions #14, 16, and 18 in OPTI checklist provided in Appendix F

The quantities provided for each project through the OPTI checklist are compared to the annual volumes quantified for the larger set of water supply projects developed through the parcel assessment to quantitatively evaluate each project. Projects are ranked highest when the quantifiable benefits are in the upper 30 percent; the other ranking categories are presented in Table 5-3. The projects listed in the SWRP are provided in Appendix I. The listed projects include the scores from the OPTI checklist and also this additional quantification ranking using the criteria and color score shown in Table 5-4. This additional color ranking of water supply projects will be integrated into the online OPTI checklist such that future project listings will also have this additional quantification and ranking.

5.5.3 SWRP Listed Projects

The current list of SWRP projects that have been assessed and prioritized using the quantitative scoring from the OPTI checklist and the additional quantification ranking for water quality and water supply project in this SWRP are presented in Appendix I. These projects include projects for Rounds 1 and 2 of the SWRCB Storm Water Grant funding (Round 2 solicitation is expected in Spring 2018). The project list will be continually updated using the online regional project integrated analysis and prioritization tool (Section 5) as more projects are submitted or existing projects are updated.

Future projects will be identified and developed through existing, updated, and new watershed and regional planning documents. The project sponsors will complete the most updated version of the project checklist using the online system. These projects will undergo assessment, scoring, and inclusion in an updated project list on the online system. This SWRP is therefore adaptive to updates and modifications to watershed and regional goals in existing and new planning documents through the online process established for this SWRP.

5.5.4 IRWM Project List

The OPTI database includes a list of projects that have been submitted under the IRWM Program. The list of IRWM projects is provided in Appendix I. These projects have not undergone the quantitative assessment and prioritization process. During the preparation of this SWRP, a request for projects was announced to a range of stakeholders including the IRWM (see Chapter 2) to submit projects for eligibility and analysis using the online OPTI checklist. As this is an open and on-going project list, IRWM-listed project sponsors may at any time enter their projects into the SWRP list through the online checklist to become SWRP-eligible. Project eligibility, quantification, and prioritization are performed by entering projects through the OPTI SWRP checklist as presented in this Section 5.

5.6 Data Management

To be part of this SWRP, project applicants must submit project details through the online SWRP checklist posted on the publicly accessible OPTI system (Section 5.6.1). The OPTI system provides projected benefit data prior to project implementation. Post-implementation data will be collected and reported by the project applicants in accordance with project plans and grant agreement requirements (Section 5.6.2).

5.6.1 Projected Project Benefits – OPTI Tool for SWRP and San Diego IRWM

Storm water and dry weather runoff projects to be scored and prioritized in the SWRP are entered through the OPTI[1] tool, an online and publicly accessible database system. OPTI has been in place for several years and has been the primary tool for project solicitation for the San Diego IRWM Program (see www.sdirwmp.org). OPTI was modified in 2016 to allow for use as part of this SWRP. When a project sponsor enters a project through OPTI, he/she can select to include the project in the San Diego IRWM Plan, the SWRP, or both documents. If the user selects to include the project in the SWRP, it will be prioritized and scored as described in Section 5.4: via OPTI, the project sponsor completes the SWRP project checklist and receives a score based on the projected benefits and metrics. The prioritized project list summarizes the projects in the SWRP that are scored and ranked (Appendix I).

Users can enter projects through OPTI at any time, regardless of whether there is a specific call for projects. Once a project is added into OPTI, it will remain on the list of projects indefinitely. Therefore, the project list can be continually updated and project information can be modified as projects are further developed, benefits are quantified, or details change. This results in OPTI providing a “living list” of projects. The current project list as of the March 2017 output for storm water and dry weather runoff projects is included in Appendix I. For a current list, generated by OPTI, contact sdirwm@woodardcurran.com. In addition to the flexibility that OPTI provides by allowing users and stakeholders to enter projects into the IRWM Plan, SWRP, or both, it also provides other useful features, such as maps, so that users can view other projects within the region to determine potential synergy or collaboration opportunities.

The OPTI system collates estimated project benefits before construction and monitoring of the project occurs. The data submitted into the OPTI system would help Copermittees assess the potential progress that each project would make toward WMA goals. However, OPTI data would not assess project performance.

5.6.2 Post-Implementation Project Data

Collection and management of post-implementation project data covered under the planning documents, discussed in Section 5.1, is conducted in accordance with the applicable regulations, permits, ordinances, and policies under these plans. For example, the MS4 permit requires Copermittees to “assess and report the progress of the water quality improvement strategies… towards reducing pollutants in storm water discharges from the MS4s…” (Provision D.2.a) including:

[a] Identifying reductions or progress in achieving reductions in pollutant concentrations and/or pollutant loads from different land uses and/or drainage areas discharging from the Copermittees’ MS4s in the WMA;

1 The OPTI database is accessible at this link: http://irwm.rmcwater.com/sd/login.php

[b] Assessing the effectiveness of water quality improvement strategies being implemented by the Copermittees within the WMA toward reducing pollutants in storm water discharges from the MS4s to receiving waters within the WMA to the MEP, with an estimate, if possible, of the pollutant load reductions attributable to specific water quality strategies implemented by the Copermittees; and

[c] Identifying modifications necessary to increase the effectiveness of the water quality improvement strategies implemented by the Copermittees in the WMA toward reducing pollutants in storm water discharges from the MS4s to receiving waters in the WMA to the MEP. (Provision D.4.b.(2)(c)(iii))

After a project is constructed, project data collection and reporting is the responsibility of the project sponsor in accordance with the Project Assessment and Evaluation Plan (PAEP), Quality Assurance Project Plan, and Monitoring Plan, where applicable. Data collection and management at the project level is the responsibility of the project sponsor in accordance with the approved project plans and grant agreement.

The WQIPs provide approaches to data management and making data accessible to the public for use to update data gaps, strategies, and timelines, as applicable. Data collection may be on a jurisdictional, watershed, or regional basis depending on the requirements of the WQIP. More detailed information on data collection and management is provided in the WQIPs.

CHAPTER 6
Implementation Strategy and Schedule (SWRP Guidelines Section VI.E)

SWRP Checklist Guidelines

- ☒ 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.
- ☒ 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.
- ☒ The Plan identifies the development of appropriate decision support tools and the data necessary to use the decision support tools.
- ☒ 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.
- ☒ Applicable IRWM Plan: The Plan will be submitted, upon development, to the applicable integrated regional water management group for incorporation into the IRWM Plan.
- ☒ Plan describes how implementation performance measures will be tracked.

This section summarizes implementation of the SWRP, including schedule, implementation strategy, and performance tracking. As this SWRP draws from existing regional and watershed plans to provide a functionally equivalent SWRP, the implementation strategy efforts for this plan build upon those existing efforts, which include the IRWM Plan, WQIPs, and other relevant plans referenced in this document.

6.1 Resources for Plan Implementation

Implementation of the SWRP began with the development and prioritization of strategies and projects through the existing planning documents that comprise this functionally equivalent SWRP. This document collates regional multi-benefit storm water and dry weather flow capture projects from various plans, and will also include future projects that are submitted to the online database. Implementation activities include the call for projects to develop the project list included in this SWRP, the completion of the SWRP checklist, and listing and ranking of the projects. The SWRP implementation will continue as additional projects are developed or updated and submitted through the online project database that is managed via the IRWM website. The SWRP project list will continually be updated as applicants submit new projects and update existing projects when additional data and project details become available. The online SWRP checklist will be automated to re-score and rank the project list on a watershed and regional basis. This will ensure watershed and regional goals are achieved effectively by implementing prioritized multi-benefit projects.

The San Diego IRWM Program will maintain the online project database to serve both the IRWM and the SWRP processes through June 2019. Future calls for projects will be advertised through the existing IRWM stakeholder list. At this time, it has not been decided how future project database administration (beyond June

2019) will be funded. Implementation of projects under the SWRP will follow the implementation strategies for the relevant plans within which each project is listed, as discussed below in Section 6.4.

Implementation of projects that are currently listed in the SWRP and future projects that will be submitted via the online database, will vary based on the participation of each project sponsor in grant solicitations as they become available, and as projects are awarded funding. Funding for implementation could come through SWRCB Prop 1 Storm Water Grant Program grants (Round 1 and Round 2), grants through conservancies, DWR IRWM funding, urban greening programs, and others.

6.2 Plan Implementation and Achievement of Multiple Benefits

The implementation of this SWRP achieves multiple benefits through the integrated analysis and prioritization of projects submitted using the checklist for inclusion on the SWRP list. In order to be considered an eligible project for the SWRP process, a project must be a storm water project that achieves multiple benefits. The more benefits that a project provides, the higher it will score through the checklist process. Therefore, the scoring and ranking process encourages project sponsors to develop and submit projects and programs that achieve a greater number of benefits.

The scoring and ranking of the SWRP project list is done on a watershed and regional basis to allow for comparison of projects on these scales. The quantification of benefits for each project is defined through the project metrics listed in the SWRP checklist. Projects that demonstrate quantitatively greater benefits will score higher, which will result in projects with measurably better effects being prioritized.

It is anticipated that each grant application process and grant agreement will require project sponsors to monitor and assess the benefits achieved by their projects, such as development and implementation of a PAEP. A PAEP defines the quantifiable measurements or metrics that will be used to assess the project's effectiveness in meeting the anticipated multi-benefit goals. This SWRP provides tools to develop the key elements of the PAEP required for SWRCB grant applications that will define the project-specific goals, measurements, and monitoring to demonstrate that multiple benefits are achieved.

6.3 Decision Support Tools and Supporting Data

The SWRP checklist supports the integrated analysis of projects and provides a basis to prioritize projects based on the multiple benefits the projects would achieve. The project information provided as part of the checklist may be updated based on specific grant application requirements. Chapter 5 provides more detailed discussion of the SWRP checklist tool and the data that supports it.

6.4 Implementation Strategy, Timelines, and Tracking

The implementation strategy for this SWRP includes allowing for continual project list updates through additions and modifications to the existing project list. In addition, calls for projects specific to current and anticipated grant solicitations under Proposition 1 and other potential funding sources will be conducted in order to update the SWRP project list and to identify multi-benefit storm water projects that may specifically address a grant program's scoring criteria and goals. Inclusion on the SWRP list requires completion of the checklist, which encourages the development and prioritization of multi-benefit projects for grant funding.

When the solicitation for Round 2 of the Prop 1 Storm Water Grant Program is announced, which is anticipated to occur in Spring 2018, project sponsors may update information previously submitted to OPTI or submit new projects for inclusion on the list. Future calls for projects would be announced prior to new grant solicitations as they are made available, and the online checklist and SWRP project database would then be available as tools to further assess, rank, and encourage multi-benefit projects for funding to meet the watershed and regional goals defined in the planning documents that comprise the SWRP.

These planning documents include their own goals, strategies to meet the identified goals, and schedules or potential timelines for implementing these strategies to meet interim and long-term goals. For example, the WQIPs include water quality goals for meeting interim and final pollutant load reductions under a TMDL (corresponding to a high priority water quality condition). Numeric goals have been developed in the WQIPs to measure progress toward addressing the highest priority water quality conditions. Numeric goals may take a variety of forms, but must be quantifiable so that progress toward and achievement of the goals are measurable. Each highest priority water quality condition may include multiple criteria or indicators. In accordance with the MS4 Permit and applicable regulatory drivers, final goals and reasonable interim goals have been developed in the WQIPs (see Section 5.3). Implementation of projects under the SWRP will therefore, follow the implementation strategy for the associated plans.

Project development, selection, and implementation will be the responsibility of the project sponsors and associated stakeholders. The SWRP encourages collaboration between agencies and stakeholders within each watershed, and regionally, in the development of multi-benefit projects. Development of the WQIPs has established the agreements and structure for collaboration and input from stakeholders within each WMA. The WQIPs present a summary of the compliance analysis results to demonstrate the anticipated progress toward achieving the interim and final goals. The WQIPs also provide schedules to demonstrate progress toward achieving the interim and final numeric goals.

In addition to the WQIPs, the IRWM Plan provides regional goals, strategies, and implementation schedules for multi-benefit projects that have a greater focus on water resources. The IRWM Plan includes an Implementation Action Plan for regional priorities. As this and other regional and watershed plans are updated, the goals, strategies, and implementation schedules will be updated. As these plans comprise this SWRP, such updates will be reflected in the projects that are developed and submitted for ranking and listing through the online SWRP checklist. Further discussion of SWRP updates and adaptive management is presented in Chapter 7.

A portion of the implementation strategy will be the responsibility of the project sponsor or responsible agency, including the following:

- Obtaining project permits.
- Complying with CEQA and NEPA, as required.
- Implementing the project.
- Tracking the implementation and effectiveness of the projects and strategies identified in the planning documents, permits, or grant agreements (if the project is funded by a grant).
- Completing necessary reporting to comply with applicable permits or grant agreements.

CHAPTER 7

Process for Plan Updates, Program Assessment, and Adaptive Management (SWRP Guidelines Section VI.E)

SWRP Checklist Guidelines

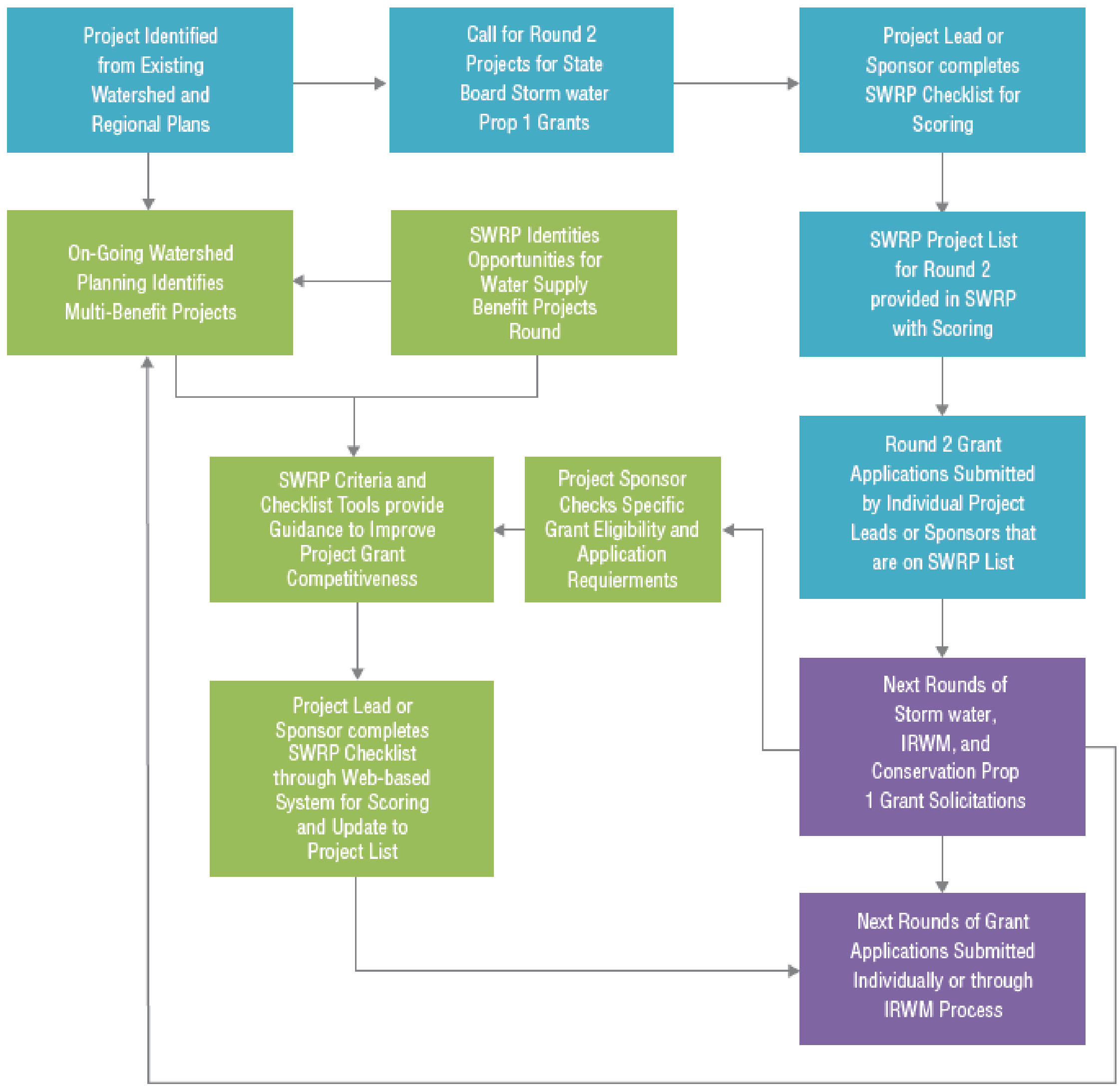
- ☒ The Plan identifies the development of appropriate decision support tools and the data necessary to use the decision support tools.
- ☒ Plan describes implementation strategy, including:
- ☒ Procedures for ongoing review, updates, and adaptive management of the Plan; and
- ☒ Plan describes how implementation performance measures will be tracked.

This section describes the process for updating the SWRP and the approach to adaptively manage the plan as existing plans are updated and future planning documents that have specific goals and timelines to meet watershed-based goals and implementation strategies are prepared. In addition, updates may be completed when new storm-water-related funding sources become available.

7.1 SWRP Updates and Adaptive Management

Updates to this SWRP will largely occur through the project submittal and evaluation process outlined in Chapter 5 of this plan, which includes completing the checklist for scoring and inclusion on the SWRP project list. Figure 7-1 presents the process for current and future project prioritization and inclusion in the SWRP. Anticipated updates to the SWRP checklist used to evaluate and score projects will be completed, as applicable, to reflect specific evaluation criteria in future Proposition 1 grant solicitations. As presented in Figure 7-1, this SWRP establishes a prioritized project list by watershed for the second round of SWRCB stormwater grant funding. As grant solicitations through Proposition 1 are announced, the SWRP project checklist may be updated prior to call for projects and updates to the SWRP project list.

Proposition 1 funds for multi-benefit storm water projects will be available through two solicitations or “rounds” of funding. Approximately, $80 million of Proposition 1 funds were available to fund implementation projects during the first solicitation (Round 1), which were distributed in the Fall of 2016. An additional approximately $86 million will be available to fund implementation projects during the second solicitation (Round 2) and will likely be distributed in the Spring of 2018. Preparation of this SWRP was initiated to identify and prioritize projects within the region in compliance with the requirements of Round 1 and Round 2 funds. The SWRP project checklist in Section 5 is based on SWRP funding solicitations, and may not be applicable to funding source solicitations that become available in the future. These include future rounds of SWRP funding for individual applicants or through the IRWM Program and conservation agency funding for projects that have a water quality or stormwater capture element. As new funding sources become available, the project checklist will be evaluated and updated as necessary. Updates to the project checklist, scoring, and project lists will be completed through the regional OPTI database established for the San Diego IRWM Program. Updates to the written SWRP are not anticipated.



San Diego Department of Public Works Regional Storm Water Resource Plan / 160618

Figure 7-1

Funding Process for Current and Future Project Submittal for SWRP Listing and SWRP Checklist Updates

As presented in Figure 7-1, future projects (those not included in the current project list, which was focused on meeting criteria for Round 1 and Round 2 of the Storm Water Grant Program) will be identified and developed through updates to existing plans or the development of new plans. Individual or regional applicants will complete the most updated version of the project checklist using the online OPTI system, and the projects will undergo assessment, scoring, and inclusion in an updated project list online. The current project list, included in Appendix I, is based on the call for projects for Round 2 of the Proposition 1 Storm Water Grant Program and evaluation and scoring using the current checklist. However, future project lists will be based on updated calls for funding and an updated checklist, if needed. This SWRP is, therefore, adaptive to updates and modifications to watershed and regional plan goals, project identification, and development based on new data, changes in conditions, and new regulations.

The OPTI system has been in place for several years, and was created for the San Diego IRWM Program.[1] The database provides an online system where interested parties can input projects for inclusion in the IRWM Plan. In the Fall of 2016, the OPTI system was modified to include a list of projects for the SWRP. The OPTI system provides a “living list” of projects such that users can continuously update their projects or add new projects. These projects will be included in either the IRWM Plan or the SWRP, or the user can select to have the project in both planning documents. This flexibility allows regional stakeholders to add new projects as they are identified and developed, modify projects to maximize integration and benefits, and include projects for funding consideration. In addition, the OPTI database also provides other useful features, such as maps, so that users can view other projects within the region to determine potential synergy or collaboration opportunities. In this way, the OPTI database is considered a regional resource for stakeholders that can be used to integrate project opportunities throughout the San Diego region.

After users log into the system, they can select the type of grant funding (either IRWM Program or Stormwater Grant Program, or both) for which they would like their project to be eligible. From there, users must input a certain amount of project information (required fields) for the projects to be included in either planning document. Once projects have been entered into the system, the projects will remain on the list of projects indefinitely.

7.2 Tracking of Performance Measurements

The process for tracking performance measurements to assess the effectiveness of grant-funded projects to meet the benefit criteria listed in the SWRP checklist will be conducted by the project sponsor for individual grant applications. Project effectiveness assessment, monitoring, and reporting will need to meet specific grant solicitation and grant agreement requirements. The SWRP checklist includes criteria and additional scoring for the quantification of benefits using specific metrics. Higher scoring provides an incentive for applicants to further develop projects and to quantify benefits using the metrics and worksheet provided with the checklist. As the completed checklists for projects are entered electronically in the OPTI system, performance measures for each project will be recorded and be part of the project database. Future updates to these quantitative measurements may be completed and tracked as projects are further developed

1 The OPTI database is accessible at this link: http://irwm.rmcwater.com/sd/login.php

and checklists and project scoring are updated. For example, a project that is at a conceptual stage may not have quantitative measurements of benefits when first entered in the OPTI database. In order to increase the scoring of a project for future grant funding, a project may be further developed to provide such data, and the checklist input could be updated to achieve a higher scoring and prioritization.

As funded projects are implemented, quantification of benefits per the listed metrics may become available as the design is completed and implementation performance measures are monitored and reported per the specific grant requirements, plans, and agreements. A PAEP is required for projects applying for SWRCB grants (including Round 2 of the Storm Water Grant Program), which entails the following requirements:

a) Identify targets appropriate for the benefits claimed, with emphasis on the benefits that are obtainable using the requested grant funds;

b) Discuss the proposed measurement methods needed to evaluate project performance and progress toward meeting the targets;

c) Describe any monitoring activities proposed, parameters and frequency of monitoring, and how the data will be integrated into California Environmental Data Exchange Network; and

d) Describe whether the proposal leverages existing monitoring efforts.

The SWRP checklist provides a basis for the development of the PAEP as it lists the quantifiable measurements and metrics in which to measure project effectiveness in achieving its benefits. The measurement and reporting of project-specific targets, as outlined in the PAEP, will be done according to the specific grant program and requirements.

Tracking of completion of projects and meeting benefit targets will be done at the watershed and regional plan level through updates to these plans, where applicable. For example, completion and achievement of water quality goals to meet TMDL and MS4 Permit targets will be documented in annual reporting and updates to the WQIPs. These updates will result in updated targets and identification of projects that will then feed into the process outlined in Figure 7-1.

In addition, projects that are funded through the IRWM Program are tracked through the IRWM Grant Administrator. Once projects are complete, the project sponsor is required to provide a close-out report to the San Diego IRWM stakeholder group (the RAC) to inform other stakeholders about important lessons learned and outcomes of the project. After projects are completed, sponsors are also required to complete annual reporting to the DWR to track updates on project progress, and how well projects are performing with respect to their anticipated benefits.

ACRONYMS AND ABBREVIATIONS

ac-ft	Acre-feet
Act	Stormwater Resource Planning Act
ASBS	Areas of Special Biological Significance
Basin plans	Water Quality Control Plans
BIOL	Biological habitats of special significance beneficial use
BLM	Bureau of Land Management
BMP	Best management practice
COMM	Commercial, and sport fishing beneficial use
checklist	Three-step SWRP project checklist
CLRP	Comprehensive Load Reduction Plan
County	County of San Diego
CSD	Community Services District
DAC	Disadvantaged communities
EJ	Environmental justice
EST	Estuarine habitat beneficial use
FIB	Fecal Indicator Bacteria
GHG	Greenhouse gas
gpm	Gallons per minute
HA	Hydrologic area
HU	Hydrologic unit
ID	Irrigation District
IFMP	Integrated Flood Management Plan
IRWM	Integrated Regional Water Management
JRMP	Jurisdictional Runoff Management Program
LID	Low impact development
LTEA	Long Term Effectiveness Assessment
MAR	Marine habitat beneficial use
MGD	Million gallons per day
MHPA	Multi-Habitat Planning Area

MS4	Municipal separate storm sewer systems
MSCP	Multi-Species Conservation Plan
MWD	Municipal Water District
NCTD	North County Transit District
NOLF	Naval Outlying Field
NPDES	National Pollutant Discharge Elimination System
NWR	National Wildlife Refuge
OPTI	Online Project Tracking and Integration
PAEP	Project Assessment and Evaluation Plan
PAH	Polycyclic aromatic hydrocarbons
PCB	Polychlorinated biphenyls
PUD	Public Utilities District
RAC	Regional Advisory Committee
REC-1	Water contact recreational beneficial use
RWMG	San Diego Regional Water Management Group
SB	Senate Bill
SDRWQCB	San Diego Regional Water Quality Control Board
SHELL	Shellfish harvesting beneficial use
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
SWRP	San Diego Region Storm Water Resource Plan
TDS	Total dissolved solids
TMDL	Total maximum daily load
TSS	Total suspended sediement
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USMC	United States Marine Corps
WARM	Warm freshwater habitat beneficial use
WD	Water District
WMA	Water Management Area
WMAA	Watershed Management Area Analysis
WQE	Water Quality Equivalency
WQIP	Water Quality Improvement Plan
WURMP	Watershed Urban Runoff Management Plan

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APPENDIX A
SWRP Guidelines Checklist and Self-Certification

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**	Ruth de la Rosa (858) 694-2752 ruth.delarosa@sdcounty.ca.gov
Date Submitted to State Water Resource Control Board:	March 1, 2017
Regional Water Quality Control Board:	San Diego Region
Title of attached documents (expand list as needed):	Revised Draft Final San Diego Regional Storm Water Resource Plan

STORM WATER RESOURCE PLAN INFORMATION	
Storm Water Resource Plan Title:	San Diego Regional Storm Water Resource Plan
Date Plan Completed/Adopted:	Scheduled on March 30, 2017
Public Agency Preparer:	County of San Diego, Department of Public Works, Watershed Protection Program
IRWM Submission:	Scheduled on March 30, 2017, Adoption April 5, 2017
Plan Description:	The San Diego Regional Storm Water Resource Plan guides the quantification and prioritization of projects that most effectively address the regional and watershed-based storm water water quality and beneficial use goals for storm water and dry weather flows. The plan aids projects sponsors in the development and submission of multiple benefits projects in order to receive grants for stormwater and non-storm water runoff capture projects funded by voter-approved bonds.

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: The SWRP addresses nine WMAs within San Diego County (Figure 3-1). The WMAs are defined by the Municipal Storm Water Permit Order 2001-01. Table 3-1 shows the hydrologic units (HUs) and hydrologic areas (HAs) that comprise each WMA.		
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: Refer to Figure 3-1 for a map of the WMA's within San Diego County. The HUs and HAs within each WMA are shown in Figures 3-3, 3-9, 3-15, 3-21, 3-27, 3-33, 3-39, 3-45, and 3-51.		

[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: Refer to Page 3-1.	
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: Figures 3-2, 3-4, 3-5, 3-6, 3-8, 3-10, 3-11, 3-12, 3-14, 3-16, 3-17, 3-18, 3-20, 3-22, 3-23, 3-24, 3-26, 3-28, 3-29, 3-30, 3-32, 3-34, 3-35, 3-36, 3-38, 3-40, 3-41, 3-42, 3-44, 3-46, 3-47, 3-48, 3-50, 3-52, 3-53, 3-54, 3-55	
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: Sections 3.1.3, 3.2.3, 3.3.3, 3.4.3, 3.5.3, 3.6.3, 3.7.3, 3.8.3, 3.9.3	
Y	**6. Plan describes the general quality and identification of surface and ground water resources withinth e watershed (preferably provided in a geographic information system shape file);**
References: Sections 3.1.4, 3.2.4, 3.3.4, 3.4.4, 3.5.4, 3.6.4, 3.7.4, 3.8.4, 3.9.4 and Figures 3-4, 3-10, 3-16, 3-22, 3-28, 3-34, 3-40, 3-46, 3-52	
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: Refer to Figures 3-6, 3-12, 3-18, 3-24, 3-30, 3-36, 3-42, 3-48, and 3-54 Refer to http://www.sdcwa.org/member-agencies to find member agency websites that report volumes of potable water supplied	
Y	**8. Plan includes map(s) showing location of native habitats, creeks, lakes, rivers, parks, and other**
References: Refer to Figures 3-4, 3-7, 3-10, 3-12, 3-46, 3-18, 3-22, 3-24, 3-28, 3-30, 3-34, 3-36, 3-40, 3-42, 3-46, 3-48, 3-52, and 3-54	

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: Refer to sections 3.1.6, 3.2.6, 3.3.6, 3.4.6, 3.5.6, 3.6.6, 3.7.6, 3.8.6, 3.9.6		

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: Refer to sections 3.1.3, 3.2.3, 3.3.3, 3.4.3, 3.5.3, 3.6.3, 3.7.3, 3.8.3, 3.9.3		
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: Refer to sections 3.1.3.1, 3.2.3.1, 3.3.3.1, 3.4.3.1, 3.5.3.1, 3.6.3.1, 3.7.3.1, 3.8.3.1, and 3.9.3.1		
Y	**12. Plan identifies applicable permits and describes how it meets all applicable waste discharge permit requirements.**	**10562(b)(6)**
References: Refer to sections 3.1.3.2, 3.2.3.2, 3.3.3.2, 3.4.3.2, 3.5.3.2, 3.6.3.2, 3.7.3.2, 3.8.3.2, and 3.9.3.2		

ORGANIZATION, COORDINATION, COLLABORATION (GUIDELINES SECTION VI.B)		
Y	**13. Local agencies and nongovernmental organizations were consulted in Plan development.**	**10565(a)**
References: Refer to section 2.1		
Y	**14. Community participation was provided for in Plan development.**	**10562(b)(4)**
References: Refer to section 2.1		

Y	**15. Plan includes description of the existing integrated regional water management group(s) implementing an integrated regional water management plan.**
References: Refer to section 2.1	

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

Y	**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.**
References: Refer to section 2.1	
Y	**17. Plan includes identification of nonprofit organizations working on storm water and dry weather resource planning or management in the watershed.**
References: Refer to Table 2-2 and section 2.3	
Y	**18. Plan includes identification and discussion of public engagement efforts and community participation in Plan development.**
References: Refer to section 2.2 and Chapter 8	
Y	**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**
References: Refer to section 2.4	
Y	**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.**
References: Refer to section 2.1	
Y	**21. Plan describes the relationship of the Plan to other existing planning documents, ordinances, and programs established by local agencies.**
References: Refer to section 2.5	
	22. (If applicable) Plan explains why individual agency participation in various isolated efforts is appropriate.

References:

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: The integrated analysis of projects that have water quality and/or stormwater and urban runoff capture and benefial use (water supply) as key elements and main benefits is conducted through the online OPTI SWRP Criteria and Metrics Checklist that is provided in hard copy form in Appendix F of the SWRP. The Checklist prioritizes projects quantitatively and calculates an overall integrated score. The water quality projects are then rated based on the assessment and prioritization of proejcts/strategies in the applicable WQIPs and on the level of priority pollutant removal. For water supply projects, the projects are quantitatively compared to the parcel assessment conducted as part of this SWRP. and the quantitative level of capture and beneficial use achieved compared to the assessment parcels. This integrated analysis is presented in Section 5.4.	
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: Refer to section 5.1.1, which references the WQIPs and provides a summary of the watershed-based analyses that have been conducted in the development of the WQIPs. including modeling, calculations, pollutant mass balances, water volume balances, and/or other methods of analysis. The WQIPs have also been prepared in accordance with the current Storm Water MS4 NPDES Permit. The projects that are listed in the SWRP have undergone an assessment through the completion of the online OPTI SWRP Criteria and Metrics Checklist, which is provided in hard copy form in Appendix F. This checklist assesses and assigns a score to each project/program in how it contributes to the preservation, restoration, or enhancement of watershed processes. Quantification of these contributions are requested in the checklist and are used to score and rank the projects/program. Projects/programs with a water quality benefit receive additional points based on the assessment and prioritization conducted in the WQIPs.	
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: Refer to section 5.2, which presents the results of the public parcel assessment and stormwater and urban runoff capture and use opportunities. Projects that are listed in the SWRP are compared to the set of public parcels and opportunities on a quantitative basis and scored and ranked. The listed projects are compared collectively to the range of annual stormwater and runoff volume collected and used for the public parcels and other opportunities and ranked to provide the analysis under this checklist item.	
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: Refer to section 5.2 and refer to the response under #25. Flood management projects with a water supply key element and main benefit (in addition to the flood management benefit) will be analyzed as discussed in Section 5.2 and per the response under #25.	
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: Refer to section 5.4 for the integrated analysis of projects, including how environmental and community benefits are assessed and scored and then integrated into an overall proejct score.	
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: Refer to section 5.6	

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: Refer to sections 5.2 and 5.4.2.2. The SWRP provides an assessment of opportunities for local water supply through groundwater recharge or storage for beneficial use of storm water and dry weather runoff as part of the public parcel assessment and other opportunities for water supply.		
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: Refer to section 5.4.2.1. Opportunties for source control for both pollution and dry weather runoff volume, onsite and local infiltration, and use of storm water and dry weather runoff are indentified in the WQIPs as watershed strategies to meet interim and final goals for the highest priority water quality conditions. Listed projects in the SWRP are assessed with regard to whether the projects have been assessed and prioritized using the watershed-based quantitative methodology in the WQIP.		
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: Refer to section 5.4.2.1. Opportunties for projects that reestablish natural water drainage treatment and infiltration systems, or mimic natural system functions are indentified in the WQIPs as watershed strategies to meet interim and final goals for the highest priority water quality conditions. Listed projects in the SWRP are assessed with regard to whether the projects have been assessed and prioritized using the watershed-based quantitative methodology in the WQIP. The projects listed are assessed through the online checklist with regard to providing these benefits and arescored and ranked using the integrated assessment.		
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: Refer to section 5.1.4 and 5.4.2.4		
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: Refer to section 5.2 for the public parcel assessment for water supply benefits. Refer to Appendix E for the assessment of public parcels for habiat restoration opportunities. A public parcel analysis for water quality opportunities has been completed in the development of the WQIPs and summarized in these documents.		

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

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: Refer to Section 5.1.1, which references and summarizes the WQIPs. The WQIPs include an indentification, assessment, and prioritization of BMPs and other strategies to address water quality from new and re-development projects. These include non-structural BMP such as updates to BMP Manuals, additional inspections, and enforcement activities.	
Y	**35. Plan uses appropriate quantitative methods for prioritization of projects. 10562(b)(2) (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 benefits within the watershed.)**
References: Refer to section 5.4 for the integrated assessment. The integrated analysis of projects is conducted through the online OPTI SWRP Criteria and Metrics Checklist. The Checklist prioritizes projects quantitatively with an overall integrated score. The water quality projects are then rated based on the assessment and prioritization of projects/strategies in the applicable WQIPs and on the level of priority pollutant removal. For water supply projects, the projects are compared to the parcel assessment conducted as part of this SWRP and the quantitative level of capture and beneficial use achieved compared to the assessment parcels.. Projects that include additional flood management, environmental, and/or community benefit are assessed and scored using the online OPTI Checklist that then provides an overall integrated score and ranking.	
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: Refer to section 5.4. See response to previous checklist item. Projects are analyzed geo-spatially through the parcel assessments conducted in the WQIPs for water quality, in Section 5.2 for water supply, in Appendix E for habitat restoration, and for other benefits in the plans referenced in Section 5.1. All of these analyses are then integrated through the online OPTI Checklist, which assesses ansd scores projects/programs on whether they have been indentified and assessed through these geo-spatial analyses and on the combined benefits that are achieved. The tools provided in the SWRP encourage watershed collaboration of projects and the development and implementation of multi-benefit projects that have storm water, water quality, and /or water supply as main benefits.	
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: Refer to section 5.4 for the project eligibily requirements. This is step 1 in the integrated assessment.	

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: Refer to sections 6.1 and 6.4		
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: Refer to section 6.2		
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: Refer to section 6.3		
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: Refer to section 6.4		
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: Refer to sections 6.1 and 6.4		

IMPLEMENTATION STRATEGY AND SCHEDULE (GUIDELINES SECTION VI.E)	
Y	**43. Plan describes how implementation performance measures will be tracked.**
References: Refer to section 6.4	

EDUCATION, OUTREACH, PUBLIC PARTICIPATION (GUIDELINES SECTION VI.F)	
Y	**44. Outreach and Scoping:** **10562(b)(4)** **Community participation is provided for in Plan implementation.**
References: Refer to section 2.1 and 2.2	
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: Refer to section 2.1 and 2.2	
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: Refer to section 2.1 and 2.2	
Y	**47. Plan describes mechanisms to engage communities in project design and implementation.**
References: Refer to section 2.1 and 2.2	
Y	**48. Plan identifies specific audiences including local ratepayers, developers, locally regulated**
References: Refer to section 2.1 and 2.2	

EDUCATION, OUTREACH, PUBLIC PARTICIPATION (GUIDELINES SECTION VI.F)	
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: Refer to section 2.1 and 2.2	
Y	**50. Plan describes efforts to identify and address environmental injustice needs and issues within the watershed.**

References: Refer to section 2.1 and 2.2	
Y	**51. Plan includes a schedule for initial public engagement and education.**
References: Refer to section 2.1 and 2.2	

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.

Rill E. Crpt	Director, Public Works	2/27/17
Authorized Signature	Title	Date
Authorized Signature	Title	Date

County of San Diego, Department of Public Works

Public Agency

APPENDIX B
RAC Meeting Notes

Regional Advisory Committee (RAC) Meeting #64

October 5, 2016
9:00 am – 12:00 pm
San Diego County Water Authority Board Room
4677 Overland Avenue, San Diego, CA 92123

NOTES

Attendance

RAC Members

Lan Wiborg, City of San Diego (chair)
Amanda Loeper for Kimberly O'Connell, University of California – San Diego Clean Water
Ann Van Leer, Escondido Creek Conservancy
Arne Sandvik for Albert Lau, Padre Dam
Bill Hunter, Santa Fe Irrigation District
Bob Kennedy, Otay Water District
Brian Olney, Helix Water District
Chris Helmer, City of Imperial Beach
Chris Roesink for Patrick Crais, California Landscape Contractors Association
Crystal Najera, City of Encinitas (and alternate Ligeia Heagy, Carlsbad Municipal Water District)
Greg Thomas, Rincon del Diablo Municipal Water District
Jack Simes, U.S. Bureau of Reclamation
Jennifer Hazard, Alter Terra
Joey Randall for Kimberly Thorner, Olivenhain Municipal Water District
John Flores, San Pasqual Band of Mission Indians (and alternate Rob Roy, La Jolla Band of Indians)
Kristin Kuhn for Travis Pritchard, San Diego Coastkeeper
Lauma Willis, Department of Water Resources – Southern Region Office
Leigh Johnson, University of California Cooperative Extension
Mark Stadler for Toby Roy, San Diego County Water Authority
Marilyn Thoms, County of Orange
Michael McSweeney, Building Industry Association
Mike Thornton, SEJPA
Pablo Figueroa for Olga Morales, RCAC
Phil Pryde, San Diego River Park Foundation
Ramin Abidi, County of San Diego
Sarah Pierce, San Diego Association of Governments

RWMG Staff and Consultants
Andrew Funk, City of San Diego
Crystal Benham, RMC Water and Environment
Goldy Herbon, City of San Diego
Loisa Burton, San Diego County Water Authority
Mark Stephens, City of San Diego
Rosalyn Prickett, RMC Water and Environment
Sally Johnson, RMC Water and Environment
Stephanie Gaines, County of San Diego

Interested Parties to the RAC
Alex Heide, City of Poway
Amanda Sousa, San Diego Housing Commission
Antonia Estevez-Olea, LWA
Bryn Evans, Dudek
Boushra Salem, City of Chula Vista
Chiara Clemente, Regional Water Quality Control Board - Region 9
Doug Thomsen, City of San Diego
George Wilkins, San Luis Rey Watershed Council and La Jolla Tribe
Heidi Brow, Pala Tribe
Helen Davies, City of Escondido
Jana Vierola, San Diego County Water Authority
Janice Duvall, San Diego County Office of Education
Lisa Skutecki, Brown and Caldwell
Maria Margarita Borja, City of San Diego
Marsha Westropp, Orange County Water District
Martha Davis, City of San Diego
Mo Lahsaie, City of Oceanside
Nathan White, City of San Diego
Ray Teran, Viejas Band of Kumeyaay Indians
Ruth de la Rosa, County of San Diego

Welcome and Introductions

Ms. Lan Wiborg, City of San Diego, welcomed everyone to the meeting. Introductions were made around the room.

Regional Stormwater Resources Plan

Ms. Ruth de la Rosa and Mr. David Pohl, ESA, presented on the Regional Stormwater Resources Plan (Regional SWRP), which is being funded under a grant received by the County of San Diego through the IRWM Program under Proposition 1. The Regional SWRP's process includes public workshops, which are being held jointly with RAC meetings. This meeting served as the first public workshop for the Regional SWRP. Mr. Pohl explained the focus of this workshop was on the proposed project scoring process under the Regional SWRP. Inclusion in an SWRP is required for stormwater projects under Proposition 1 and SB 985, but the SWRP is not a compliance document. Instead, the Regional SWRP is intended to be a guide to help project sponsors determine potential competitiveness of stormwater projects for funding, as well as to help identify potential areas in which the projects could be strengthened.

Due to the timing of grant programs for stormwater projects, development of the Regional SWRP is on an aggressive schedule. Stormwater projects are required to be included on the SWRP's project list within 90 days of grant award. Project proposals under Round 1 have already been submitted, and awards are anticipated at the end of January 2017. The Regional SWRP will be a functional equivalent plan because the San Diego Region has already completed substantial stormwater planning efforts, including the Water Quality Improvement Plans (WQIPs). Any projects that are already included in stormwater-related planning documents will be included in the Regional SWRP.

Round 2 of stormwater funding is underway, and the current call for projects is now. This program funds individual projects, not regional applications, so each potential project sponsor must apply separately.

The project prioritization process under the Regional SWRP consists of three steps: 1) project eligibility, 2) project scoring, and 3) watershed analysis. The first step identifies whether a project is eligible based on the following project benefits: water quality, water supply, flood management, environmental, and community. Projects must have two or more benefits in order to qualify, along with additional eligibility requirements. Each claimed benefit is then assessed and assigned a score based on benefit-specific metrics (Step 2). Additional points are assigned to projects that have been identified in planning documents under the watershed analysis (Step 3). For a more in depth look at the prioritization process please refer to the presentation slides.

Once the Regional SWRP is complete, to get your project added to the list for the Regional SWRP, you will use the San Diego IRWM Program's online OPTI database, and check the box indicating it is a stormwater project. The IRWM Program is excited to work with the stormwater Copermittees to make this change.

Questions/Comments:

- How would the Regional SWRP intersect with the City of San Diego's Watershed Protection Technical Advisory Committee (TAC)?
    - Projects developed through other programs need to go through the project list and scoring process in the Regional SWRCP if it is a qualifying stormwater project
- Should I already know the vision for this plan? Is the vision for the Regional SWRP driving the projects or vice versa?
    - The Regional SWRP provides guidance for project development to help develop multi-benefit projects and to help develop metrics for multiple benefits.
- How much funding in Proposition 1 is available for stormwater? How much funding is available under Round 2 of the stormwater grants? Are these funds statewide funds?
    - Yes, the funds are statewide. There is $200 million available under Round 2. There are multiple pots of funding for stormwater in Proposition 1; the Regional SWRP applies to applicable funding streams under Proposition 1 (refer to presentation for additional information).

- If you can hit all five benefits, will you score better?
  - Yes. The purpose is to think about multi-benefit projects and to think holistically to help you better prepare for grants.
- How do you define implementation?
  - Most Proposition 1 programs require implementation projects with actual outcomes. Some grants allow some planning activities. The amount of funding available for implementation versus planning is up to the individual programs. If you need planning dollars, you will likely need to find matching funds.
- How do you define environmental benefit versus community benefit?
  - Environmental benefit relates to habitat enhancement and/or creation. Community benefit pertains to education, job creation, etc.
- Would design count as implementation?
  - The amount available for design depends on the solicitation. Typically funds are available for the physical work being completed.
- Do regions in the rest of the state have WQIPs? Do we have an advantage by referencing the WQIPs?
  - The San Diego region is ahead of the rest of the state with the WQIPs. The work completed under the WQIPs are why we are a developing a functional equivalent plan for the Regional SWRP. Other regions are completing an assessment of their issues as part of the SWRP.
- If the state is looking to compare across regions, San Diego is years ahead.
  - Yes, San Diego is ahead of the rest of the state.
- Do you need to have a certain level of watershed analysis completed for Step 3?
  - When you go through the steps, the guiding questions will help you. Questions may ask, "is the project part of a plan?" and the project sponsor will have to explain and reference those plans.
- Looking at the example project – we are at a disadvantage because of soil types in the region, which don't allow for infiltration. If infiltration gives you points, we are not able to claim those.
  - We are trying to make the Regional SWRP's scoring region-specific, and focusing on stormwater capture and direct use. We are trying to get the Region to think about potential opportunities. Though limited, restoring hydrologic cycles can create watershed benefits. Try to look for other benefits to get a high score.
- Where could the example project in your presentation score higher to max out points?
  - If it captured and reused stormwater for irrigation, it could have scored higher. You need to focus on benefits you can achieve and develop the project enough to actually quantify those benefits.
- What is the maximum score per category?
  - The maximum score per category is 40 points, except for water supply. There are bonus points for water supply for additional direct use because the State's guidance encourages it.
- When is the next round of funding for projects that can't make it in this timeframe?

  - Future solicitations will provide an opportunity to update the checklist and project list on database.
- How does the scoring in the Regional SWRP relate to the scoring on the actual project solicitation?
  - If you go through the checklist, it will prepare you for the solicitation because the goal is to align the checklist with scoring considerations of the solicitation. Completing the checklist will help you address the solicitation.
- Will new projects be added continuously or just at one time?
  - The list is not static. The current focus is on Round 2 because it is the next one, but the project list will be updated for future solicitations.
- The environmental checklist refers to "urban" greenspace. Is it only urban greenspace?
  - Urban greenspace is called out in the guidelines. Many solicitations focus on urban greening. Habitat restoration is also a focus of the environmental benefits.
- Would the San Luis Rey Watershed Management Plan (which is called a Guideline) be considered a plan?
  - Yes, it would meet the scoring criteria.
- Does the Regional SWRP include tribal water management plans?
  - Yes, tell Ruth de la Rosa about any tribal water management plans you would like to have included in the Regional SWRP.
- Can we define systems/elements that could be incorporated into multiple projects/plans or does it have to be site-specific?
  - Yes, you can describe systems or elements if they meet the eligible benefits.
- How does Regional SWRP fit into the Stormwater Capture and Use Feasibility Study (SWCFS)?
  - The SWCFS will help inform future Regional SWRP efforts. It will identify feasible locations for infiltration, etc. that can then be used to assist future Regional SWRP efforts and checklists.
- Have you prioritized projects at the watershed level?
  - Watershed priority project should move to the top, based on the scoring.

Supplemental Environmental Projects – Chiara Clemente, Regional Water Quality Control Board – Region 9

Ms. Chiara Clemente, San Diego Regional Water Quality Control Board (RWQCB), presented a potential alternative funding stream for local and regional projects – Supplemental Environmental Projects (SEPs) and Enhanced Compliance Actions (ECA). Penalties assessed by the RWQCB for permit violations currently go to a state funds, which is then distributed to fund projects that address statewide priorities, regardless of location in relation to the violation. Oftentimes, this means penalties assessed in the San Diego Region are used to fund projects outside of the Region. The RWQCB wants to redirect these funds to the region through the creation of a database of potential local projects that could be funded in lieu of a portion of the penalty. The RWQCB is currently soliciting projects for their new SEP-ECA project list. The deadline to submit projects is soon - October 20, 2016. Projects should further the Regional vision or statewide priorities. Getting on the list does not guarantee a project will be funded, nor does it mean funds will be available soon. Once a project is on the list, it must wait until a violator chooses to fund it as part of its settlement, and the settlement is approved.

Questions/Comments:

- Will a project earn more points if it is in the same watershed as where the fine was imposed?
  - Yes, we look for a nexus between project benefit and the violation. One way to do this is to be in the same watershed.
- Currently, an SEP can cover up to 50% of the fine; the rest of the fine goes to the state. Will more of the fine go to an SEP under this program?
  - No, the split is mandatory. We are trying to get more SEPs implemented and actually benefit region based on needs.
- What can we do to keep more money in the region?
  - Enforcement policies need to change. They are currently open for comments and will likely need legal action to make a change.

RAC Membership 2017-2020 Term – Mark Stadler, San Diego County Water Authority

Mr. Mark Stadler, SDCWA, presented the RAC member selection process for the 2017-2020 term. There are a total of 13 open seats. The RAC member selection process will include a RAC membership workgroup that will review the applications and select the new members. Applications will be open October 5th through November 10th. The RAC membership workgroup will convene on December 7th and the new RAC membership will be in effect January 2017. Mr. Stadler described desired attributes and general duties of future RAC members. Caucus break-out groups discussed RAC membership workgroup nominations. RAC applications are due on November 10 and are available online. For questions about the process of submittal process, please contact Mr. Stadler.

The RAC voted to accept the nominations of the RAC membership workgroup.

Questions/Comments:

- There are lots of opportunities for agencies and NGOs, but business groups are only listed in the “other” category. Are you looking for diversity of people or experiences?
  - Is your organization an NGO? It looks like there are other places where business people can fit well. The RAC is already a large group, so we would like to avoid growing it too much.
- Tribes would like not to be in the “other” category. There are 18 tribes in multiple watersheds, making it hard for one person to represent every tribe. Are there any opportunities to expand tribal representation and get in their own category? Tribes are increasing participation in the IRWM Program. Thank you for the outreach to tribes that the Program has been doing.
  - We can talk about expanding the group on a future RAC agenda.
- Can outgoing representatives be re-elected?
  - Yes.

IRWM Grant Program – Andrew Funk, City of San Diego

Mr. Andrew Funk, City of San Diego, presented an update about the Proposition 1 IRWM Planning Grant and DAC Planning Grant. A total of $250,000 in grant dollars was requested to update the 2013 San Diego IRWM Plan to incorporate new guidelines, policies, and regulations, including the development of a SWCFS. The Planning Grant was submitted on September 23, 2016, with anticipated draft and final awards in November 2016 and January 2017, respectively. The DAC Planning Grant application is currently being prepared and is an effort to work collaboratively to involve DACs in the Region. A kick-off meeting was hosted with the LPS and responses to the initial data request have been received. Anticipated grant award and grant contract dates are January 2017 and March 2017, respectively for the DAC Planning Grant.

Questions/Comments:

- Do you work for the City of San Diego? The City hired AECOM to do a stormwater capture feasibility study.
    - AECOM is doing a site-specific study, but it will feed into the County effort.

IRWM Grant Administration – Loisa Burton, SDCWA

Ms. Loisa Burton, SDCWA, presented a financial summary and progress report of all current and active projects that received Proposition 50 and Proposition 84 grants. All projects that received Proposition 50 funding are now complete and there are four projects that will be presenting at upcoming RAC meetings. A total of $37.4 million in grant funding (out of $89.6 million awarded) has been billed to DWR.

Questions/Comments:

None.

Summary and Next Steps

Next RAC Meeting:

- December 7, 2016 – 9-11:30am

2017 Meeting Schedule:

- February 1
- April 5
- June 7
- August 2
- October 4
- December 6

Regional Advisory Committee (RAC) Meeting #65

December 7, 2016
9:00 am – 11:30 pm
San Diego County Water Authority Board Room
4677 Overland Avenue, San Diego, CA 92123

NOTES

Attendance

RAC Members

George Adrian, City of San Diego (chair)
Alex Yescas for Mike Seits, Floodplain Management Association
Ann Van Leer, Escondido Creek Conservancy
Bob Kennedy, Otay Water District
Brian Olney, Helix Water District
Chris Helmer, City of Imperial Beach
Crystal Najera, City of Encinitas
Greg Thomas, Rincon del Diablo Municipal Water District
Jennifer Hazard for Olga Morales, RCAC
Jennifer Sabine, Sweetwater Authority
Jona Lee for Jack Simes, U.S. Bureau of Reclamation
Joey Randall for Kimberly Thorner, Olivenhain Municipal Water District
John Flores, San Pasqual Band of Mission Indians (and alternate Rob Roy, La Jolla Band of Indians)
Kelly Craig for Robyn Badger, Zoological Society of San Diego
Kimberly O'Connell, University of California – San Diego Clean Water
Leigh Johnson, University of California Cooperative Extension
Michael McSweeney (and alternate S. Wayne Rosenbaum), Building Industry Association
Mike Thornton, SEJPA
Oscar Romo for Jennifer Hazard, University of California – San Diego
Patrick Crais, California Landscape Contractors Association
Phil Pryde, San Diego River Park Foundation
Ronald Wootton, Buena Vista Lagoon Foundation
Sarah Pierce, San Diego Association of Governments
Stephanie Gaines for Ramin Abidi, County of San Diego
Toby Roy (and alternate Mark Stadler), San Diego County Water Authority
Travis Pritchard, San Diego Coastkeeper

RWMG Staff and Consultants
Andrew Funk, City of San Diego
Goldy Herbon, San Diego County Water Authority
Jen Sajor, RMC Water and Environment
Loisa Burton, San Diego County Water Authority
Mark Stephens, City of San Diego
Rosalyn Prickett, RMC Water and Environment
Ruth Kolb, City of San Diego
Sally Johnson, RMC Water and Environment

Interested Parties to the RAC
David Pohl, ESA
Michelle Berens, Helix Water District
Antonia Estevez-Olea, Larry Walker Associates
Boushra Salem, City of Chula Vista
Maria Margarita Borja, City of San Diego
Hengameh Maher, City of San Diego
Dawnn Jackson, City of San Diego
Michelle Huynh, City of San Diego
Roshan Christoph, Amec Foster Wheeler
Roberto Yano, JPA/SD Metro
Tony Hancock, Brown & Caldwell
Martha Davis, City of San Diego
Malik Tamimi, City of La Mesa
Cat Rom, City of San Diego
Jennifer Carroll, City of San Diego
Lindsey Sheehan, ESA
Ruth de la Rosa, County of San Diego
Amanda Sousa, San Diego Housing Commission
Matt Widelski, City of Encinitas
Anne Bamford, IEA
Lois Yum, City of San Diego
Kyrsten Rosenthal, City of San Diego

Welcome and Introductions

Mr. George Adrian, City of San Diego, welcomed everyone to the meeting. Introductions were made around the room.

Project Completion Reports

Three Proposition 50 Project Completion Reports were presented.

Project 6 Recycled Water Distribution System Expansion, Parklands Retrofit and IPR/Reservoir Augmentation – Ramil Arroyo and Joseph Quicho, City of San Diego

Mr. Ramil Arroyo and Mr. Joseph Quicho, City of San Diego, presented on the Proposition 50, Project 6 – Recycled Water Distribution System Expansion, Parklands Retrofit and IPR/Reservoir Augmentation project. The total project cost was $18.7 million, with $4.8 million received in grant funding. There were three components of the project – 6A (Recycled Water Distribution System Expansion), 6B (Parklands Retrofit), and 6C (Indirect Potable Reuse/Reservoir Augmentation.

Component 6A – Recycled Water Distribution System Expansion, was completed in 2013. The project constructed a five mile-long recycled water main along Camino Del Sur, which connected 80 new recycled water sites in western Carmel Valley. The project provided recycled water to schools, retail sites, home owners associations, commercial sites, parks, street medians, Caltrans, and golf courses. This component provides an estimated 1,100 AFY recycled water.

Component 6B – Parklands Retrofit was located in the Mira Mesa Community Planning Area at Westview Neighborhood Park. The retrofit included installing recycled water pipelines, upgrading electrical service and booster pump, and installing a recycled water meter. Since 2007, the number of City sites using recycled water have increased from 23 to 114. Project funds were also used to train park staff for use of recycled water.

Component 6C – Indirect Potable Reuse/Reservoir Augmentation (IPR/RA) Demonstration Project and Extended Testing, aimed to evaluate the feasibility of advanced treatment technology for IPR/RA. It was also used to evaluate the viability of a full-scale IPR/RA project and to perform extended testing on the additional treatment steps ozone and biological activated carbo (BAC). Key components of the project were the Independent Advisory Panel (IAP), San Vicente Reservoir Limnology and Conveyance Pipeline Studies, construction of the Advanced Treatment Plant (demonstration plant), public outreach and education, and extended testing at the demonstration plant. Upon completion of the demonstration plant in 2013, the project received an amendment for continued testing and a final report was developed in 2015. Extended testing showed that purified water met all federal and state drinking water standards and was comparable to Orange County’s Groundwater Replenishment System. The IAP provided expert peer review for all technical, scientific, and regulatory aspects of the demonstration plant and unanimously concluded that project satisfied all City Council directives. The project’s public outreach and education program was extensive and very successful. As of September 2016, a total of 431 community presentations, 143 community events, and 284 stakeholder interview had taken place, with more than 10,200 visitors to the demonstration plant.

Questions/Comments:

- I am a supporter of potable reuse, and am intrigued about people’s reaction to IPR.
    - In 2004, there was only a 24% acceptance rate for potable reuse. Now there is 73% acceptance. More people are on board with potable reuse.

- In terms of the pilot plant, what was the cost per acre-foot for conveyance from San Vicente Reservoir?
    - We are now looking at Miramar for reservoir augmentation instead of San Vicente Reservoir. We are still defining those costs, so we do not have a number on hand but it is comparable to imported water.
- Will the demonstration project going to continue to exist?
    - Yes, it will be operational for full-scale design.
- What was the grant award?
    - The total project cost was $18.7 million. $4.8 million of this was grant funding, so approximately 25% of the total project cost was funded with the grant.

Project 9: Northern San Diego County Invasive Non-Native Species Control Program – Karla Standridge, Mission Resource Conservation District

Ms. Karla Standridge, Mission Resource Conservation District, presented on the Proposition 50, Project 9 – Northern San Diego County Invasive Non-Native Species Control Program. The program successfully eradicated over 600 acres of invasive, non-native plants from four target watersheds: San Dieguito, San Luis Rey, Santa Margarita, and Carlsbad Hydrological Units (HU). The four target species were *Arundo donax* (giant reed), *Cortaderia selloana* (pampas grass), *Lepidium latifolium* (perennial pepperweed), and *Tamarisk ramosissimum* (salt cedar). Program work typically occurred from September 15th to March 15th each year, outside of bird nesting season. However, due to drought and earlier plant dormancy, the project received regulatory approval to begin in August. Program work consisted of obtaining permits, conducting outreach and coordination with landowners, administering herbicide treatments, reducing biomass, and re-vegetation with native species. Due to the drought, re-vegetation efforts in the Carlsbad HU resulted in only a 50% survival rate. Removal of invasive species resulted in an estimated net water savings of 5,738 AFY, which helps to develop and maintain a diverse mix of water resources (i.e., increased groundwater recharge). Other project benefits include reduction in sources of pollutants/environmental stressors, habitat protection, restoration, and maintenance, and optimization of water-based recreational opportunities. The project will continue to monitor and re-treat target invasive, non-native plants primarily using regional Natural Community Conservation Planning funds distributed through the SANDAG TransNet program. The watershed programs will also be supported by federal, state, and local sources.

Questions/Comments:

- Where were the pictures of the San Dieguito watershed taken?
    - An agricultural property near the Safari Park.
- Why did you expand the project to include eucalyptus removal?
    - We did eucalyptus removal in the San Dieguito watershed. This species was not in the original proposal, but when more money became available, we submitted an amendment to add it for that watershed.
- Was there a way to avoid using herbicides?
    - We would have loved to avoid using herbicides. Due to funding constraints, the most effective means of removing these species was with herbicides. We chose herbicides

that were EPA-approved for aquatic areas. At one site, we removed invasive species from an organic farm. At that site, we used a cut treatment in which we applied a smaller amount of herbicide directly on the trunk. Although we used less herbicide at that site, the treatment was also less effective. We eventually will need to retreat the area.

- Are you funding the monitoring treatment efforts? Or are the landowners?
  - Because we have the blanket permits, we are finding the funds and performing the monitoring treatment. It is not feasible for the private owners to do the monitoring treatment due to the required permits.
- What was the total project cost?
  - Including amendments, $1.2 million was provided through IRWM grant funds. The total project cost was over $3 million.
- How are you preventing the reintroduction of these species?
  - We will be monitoring sites extensively and there are retreatment funds available. We are trying to be cost-effective, especially with Arundo, and working upstream to downstream to reduce potential for re-establishment.

Project 12: San Diego Basin Water Supply Adaptation to Climate Change – Goldy Herbon, San Diego County Water Authority

Ms. Goldy Herbon, San Diego County Water Authority (SDCWA), presented on the Proposition 50, Project 12 – San Diego Basin Water Supply Adaptation to Climate Change. The original project, developed in 2008, aimed to provide initial design and work plan for a conveyance system between San Vicente, El Capitan, Loveland, Sweetwater, and Murray Reservoirs. Due to changes in circumstances, the study was removed and the City of San Diego Public Utilities Department (SDPUD) leveraged other funds to submit a San Diego Basin Infrastructure Study to U.S. Bureau of Reclamation (USBR) in 2013. Unlike the original project, the new study encompassed the entire San Diego IRWM Region and its infrastructure. The project was a response to a study confirming shortfalls between projected water supplies and demands in the Colorado River Basin. It was awarded $1 million from USBR with a cost share of $1,105,606 from Proposition 50 funding and SDPUD. The project title was changed to the San Diego Basin Water Supply Adaptation to Climate Change Project to reflect the portion of the scope that was completed by the end of the Prop 50 grant agreement in 2015.

The purpose of the revised project was to assess the potential effects of climate change impacts within the San Diego IRWM Region. This was done by evaluating water supply and demand conditions in the region under future climate change conditions. The work completed under this project included a Water Supply and Demand Projections Report, Climate Change and Hydrology Report, and an analysis of relevant data and measures of supply reliability from the Colorado River Basin Study and the Sacramento San Joaquin Basin Study. One major challenge for this project was successfully managing multiple funding sources – San Diego IRWM Program and the WaterSmart Program. Each funding program had different budget schedules, reporting requirements, timelines, and reimbursement processes.

The final project had a total budget cost reduction of about $900,000 and a grant funding reduction of $22,000 as compared to the original project. Three remaining tasks are outstanding, but are in progress. Task 2.3, which examines water supply and demand under current and future climate through modeling, is almost complete. Task 2.4 will evaluate structural and non-structural concepts for addressing supply-demand gaps. The staff technical team invited all members of the RAC and the public to participate in the next Basin Study Stakeholder Meeting on January 31, 2017 at 1 pm in the SDCWA Board Room. Concepts from Task 2.3 and Task 2.4 will be included in the final reports to Congress with an appraisal-level analysis in Spring 2018.

Questions/Comments:

- Where are the deliverables available?
  - The webpage will be provided to Rosalyn, and she will send it to the RAC.
- Were there any policy changes from this project?
  - No, but it may inform future policies and highlights priorities. The report is not meant to be a regulatory document. The Los Angeles Basin Study focuses on storm water capture because that was a priority in that basin. The San Diego Basin Study will focus on what the stakeholders choose to focus on.
- How does this study support SDCWA's urban studies?
  - The Basin Study builds on work by the SDCWA SIM Model used for the Water Master Facility Plan. The study will take it further to figure out what facilities need collaboration. It will also be used to figure out which projects are cost effective and best for the region.
- The Water Facilities Master Plan 2013 overestimated the supply-demand gap, and the 2015 Urban Water Master Plan dialed down from those calculations. Why would you use the same model as those plans?
  - We modified the model with 2015 data.
- There is currently no supply gap, so there is concern that SDCWA is planning to spend big dollars on projects that are not necessary. For example, the Camp Pendleton desalination facility is expensive but is not necessary to meet a known supply gap.
  - Camp Pendleton is a back-up facility, and will not be built if it is not necessary. Currently, there are no plans to build that facility.
- The Los Angeles Basin has different characteristic than the San Diego Basin. Will your plan take local geology for groundwater recharge potential into consideration?
  - Correct, every region is different and we are definitely aware of this.

San Diego Regional Stormwater Resource Plan (SWRP) – David Pohl, ESA and Ruth de la Rosa, County of San Diego

Mr. David Pohl, ESA, and Ms. Ruth de la Rosa, County of San Diego, presented on the Regional Stormwater Resource Plan (Regional SWRP), which is being funded under a grant received by the County of San Diego through the IRWM Program under Proposition 1. The SWRP was developed per State Water Resources Control Board (State Board) guidelines and was designed to create more competitive projects state-wide grant funding opportunities. The purpose of the plan was to identify and prioritize projects with multi-benefits, including storm water benefits, that best meet the identified priorities of individual watershed. The Regional SWRP needs to be completed within 90 days of grant award, which was announced on December 1, 2016. The Final Regional SWRP is expected to be submitted to the State Board and integrated into the IRWM Plan on February 28, 2017. The current list of projects in the Regional SWRP, which were submitted through the last call for projects, will be included in the Final Regional SWRP. However, because we will be officially tracking projects through the online OPTI database, projects can be added or updated at any time. An extensive analysis took place for each submitted project and the list of projects selected based on identified regional and watershed goals. The Draft Regional SWRP meets the State's Guidelines (Water Code §10560 et seq.) and provides tools for regional and watershed collaboration to develop integrated multi-benefit projects. A checklist is provided at the end of each chapter to ensure that projects included in the Regional SWRP address important issues identified within each chapter. Mr. Pohl provided a brief explanation of the SWRP checklist went through an example Green Street project to explain the level of analysis used in the project selection process.

The Draft Regional SWRP and a comment matrix is available on the IRWM website. Comments are due to Ms. de la Rosa by Friday, December 23, 2016.

Ms. de la Rosa described the 40 projects listed in the Draft Regional SWRP and the distribution of projects across seven of the nine watersheds within San Diego IRWM Region. It was reiterated that additional opportunities to submit or update projects will occur before future rounds of Proposition 1 funding through the IRWM OPTI database. Programmatic level projects will also be considered with the criteria that all subprojects have similar benefits and metrics. The Final Regional SWRP will have the current list of projects as an appendix.

- The Draft SWRP is available for Public Review here: http://sdirwmp.org/irwm-planning
- The SDIRWM OPTI Project Database is located here: http://irwm.rmcwater.com/sd/login.php
- Additional information on the State Board's Storm Water Grant Program can be found here: http://www.waterboards.ca.gov/water_issues/programs/grants_loans/swgp/prop1/

Questions/Comments:

- Were the projects submitted to OPTI hand scored or automatically scored?
  - Automatically scored.
- What is the intention of the Proposition 1 funding to use this as an eligibility requirement? How does this funding relate to general funding?
  - There is an eligibility requirement for projects that apply for Proposition 1 funding that all projects with stormwater capture or water quality elements need to be listed in the SWRP. Stormwater projects funded through the IRWM program also need to be on the list, along with projects that are conservation with water quality improvements. The OPTI database is used to help projects apply for IRWM funding, so it is also being used for the SWRP project list to assist with this process.
  - The SWRP must also be accepted into the IRWM Plan for projects to be eligible for funding.
- There is skepticism about the feasibility of stormwater projects in this county. Will projects score better if it includes some sort of technical feasibility study?
  - The SWRP is a good starting point; it starts the conversation of what is feasible in San Diego. Within the SWRP, there is a level playing field for projects in the region.
- What kind of comments are being requested for the Draft SWRP?

    - Because the SWRP follows State Board guidelines, a lot of it is not flexible. However, if any tools or explanations are recommended, they could be added. Or if more examples are need to help clarify the evaluation process for project sponsors, those could be added as well.
- Is there any sense of there being a threshold in the process that will determine whether or not a project is competitive state-wide based on points earned?
    - We want to look at the project on a watershed level first in order to make sure it is a multi-benefit project. It is not really meant to eliminate projects, but rather should be used to improve projects based on multiple benefits and quantification of benefits. A low score should encourage project sponsors to look at how to improve their project.
- Three stormwater projects were recently awarded about $1-3 million each.
- Is Federal Boulevard a tributary of Chollas Creek?
    - Yes, it is the headwaters of Chollas Creek.
- Will water from Green Streets project percolate without harm? Have you done a soil analysis?
    - Have not gotten that far in the soil analysis.
- With limited resources, there should be some screening for cost effectiveness or "bang for your buck" projects. We should fund the biggest issues first. We should focus on what really makes sense.
- Other stormwater plans are being prepared. How will scores be compared state-wide?
    - Funding awarded to projects with the most impact, which is why we focus on multi-benefit projects. Projects should be identified and prioritized in the SWRP. In San Diego, the SWRP is a regional plan, but is still focused on a watershed basis. The outcomes and project assessment will be similar across all plans because all of them are based on the same guidelines.
- Is there any discussion that Supplemental Environmental Project (SEP) money can be used here in San Diego?
    - Not sure, Regional Water Quality Control Board could look at a consolidated list, but I do not know.
    - Chiara Clemente's presentation at the last RAC meeting was about the SEP call for projects. The RWMG is in talks with her about how to add these projects to OPTI.
- The Draft SWRP document crashes on the website whenever I try to read through it. What version of Adobe is being used?
    - The document is pretty big. We can divide it by section so that is does not crash.
- Many of the projects on the Project List could benefit from the Floating Island.

IRWM Grant Program

RAC Membership Update

Mr. Mark Stadler, SDCWA, presented an update on the RAC member selection process for the 2017-2020 term. A total of 15 applications were submitted with at least one applicant for 12 of the 13 open positions. There were no applicants for the Agriculture seat. Six of the 15 applicants have previously served on the RAC, and the remaining nine applicants have never been RAC members. The RAC Membership Workgroup was scheduled to meet later that afternoon to select the new members. New members will begin their terms at the February RAC meeting with a new member orientation prior to that meeting. Certificates of appreciation for end-of-term RAC members were given out.

IRWM Planning Grant Award

An update was provided on the Proposition 1 IRWM Planning Grant. A draft award of $250,000 was recently announced to update the 2013 San Diego IRWM Plan. The IRWM Plan Update will incorporate new guidelines, policies, and regulations, including the development of a Storm Water Capture Feasibility Study (SWCFS). The anticipated final award is expected in January 2017 and a kick-off IRWM Plan Update meeting is planned for mid-2017.

DAC Planning Grant Status

Mr. Travis Pritchard, San Diego Coastkeeper presented an update on the DAC Planning Grant. The DAC Planning Grant application was postponed because one of the local project sponsors (LPS), San Luis Rey Watershed Council, decided not to pursue grant funding. The Project Selection Workgroup (PSW) held a reallocation meeting in November to consider three alternate projects from the "Alternate Project List" established in the last PSW meeting. The PSW recommended $325,000 of grand funding for The Escondido Creek Conservancy's (TECC) *Storm Water Quality for Grape Day Park DACs* project. The project includes restoration of a portion of the Escondido Creek that runs through Grape Day Park, a central park in the City of Escondido. With the help of a prominent non-profit organization, it also integrates a youth mentorship program as its outreach component to develop student stewards. An "Outreach Plus" task was also added for the development of a Funding Area-wide DAC Needs Assessment that builds on DAC involvement conducted by LPS. The needs assessment, requesting $120,000, will also involve DACs that were not previously engaged in IRWM Programs and will identify their water and wastewater issues. With the addition of the TECC project, DAC Outreach Plus, and an increased grant administration budget of $259,550, the total proposed grant request is $5,536,550.

The RAC was asked to discuss the proposed changes to the application package and vote on the PSW's recommendation. Mr. Mark Stadler asked the RAC to consider increasing the TECC project's grant funding by $30,000 for a total of $355,000, the initial amount requested by TECC. The RAC held a discussion and voted on the PSW's recommendation on the DAC Planning Grant.

Vote: 20 Yes. Passed.

It was also noted that Travis Pritchard will be moving and will leave his current position at San Diego Coastkeeper, and will be naming a replacement for his seat on the RAC.

<u>*Questions/Comments:*</u>

- I am concerned that there were no application for the Agriculture seat on the RAC. There were no previous RAC members applying?
  - No one from the Farm Bureau interested.
  - I can reach out to get some interest.
- In terms of increasing TECC funding, does the additional $30,000 come from Proposition 1 funds?
  - Yes.
- Why was funding reduced in the first place?

    - The project listed "indirect" costs, which might have hurt the project's chance of getting funded. The issue was discussed with SDCWA's grant administrator, and it was determined these costs were acceptable.
- Who was on the Project Selection Workgroup?
    - Mark Stadler, Cathy Peironi, Stephanie Gaines, Travis Pritchard, Roy Roy, and Olga Morales, along with alternates
- TECC is excited about the project and will be working closely with the City of Escondido on this.

IRWM Grant Administration

Ms. Loisa Burton, SDCWA, presented a financial summary and progress report of all current and active projects that received Proposition 50 and Proposition 84 grants. All projects that received Proposition 50 funding are now complete. Ten out of 38 projects that received Proposition 84 Rounds 1, 2, and 3 funding have been completed or are at least 80% complete. A total of $40.5 million in grant funding (out of $89.6 million awarded) has been billed to DWR. The LPS Kick-off Meeting for projects funded under Proposition 84, Round 4 was held on November 17, 2016.

SDCWA is developing a Funding Reallocation Policy which will provide guidance for reallocation of grant funding. RAC approval of the final policy will follow at a future RAC meeting. Melissa Sparks is no longer with DWR, and Erik Goodman has been named DWR's new Regional Area Representative for the San Diego IRWM Region. He is a water resources engineer from the IRWM Assistance Branch Section.

Questions/Comments:

- Will the Draft Funding Reallocation Policy be circulated before the next meeting?
    - Yes, we can do that.
- In reference to the Rincon Customer-Driven Demand Management Project (Proposition 84, Round 2), did the WaterSmart portal detect leaks in your (Rincon) system or the customer's system?
    - Leaks were found in customer systems. The software allows users to set benchmarks and we notify them of any anomalies. An estimated 3 million gallons are saved per year. We had a 3% system water loss.
- Who did you go through for the AMI?
    - It was a capital project and it took three and a half years to replace all the meters in the system. There are a lot of choices available, but we used Badger Meters.

Public Comments

None.

Summary and Next Steps

Next RAC Meeting:

- February 1, 2017 – 9-11:30am

2017 Meeting Schedule:

- April 5
- June 7
- August 2
- October 4
- December 6

APPENDIX C

Materials from RAC Meeting

OCTOBER 5, 2016 MEETING

San Diego Regional Storm Water Resource Plan

Project Checklist and Prioritization

Call for Projects

October 5, 2016

What will be covered today

- What is the San Diego Regional Storm Water Resource Plan (SWRP)?
- What is a "Functional Equivalent" SWRP?
- How are Projects Identified?
- When is the call for projects for the current round of funding?
- What is the process for getting projects on the SWRP list?
- How are projects scored and prioritized?
- How can you provide input on project scoring and prioritization?

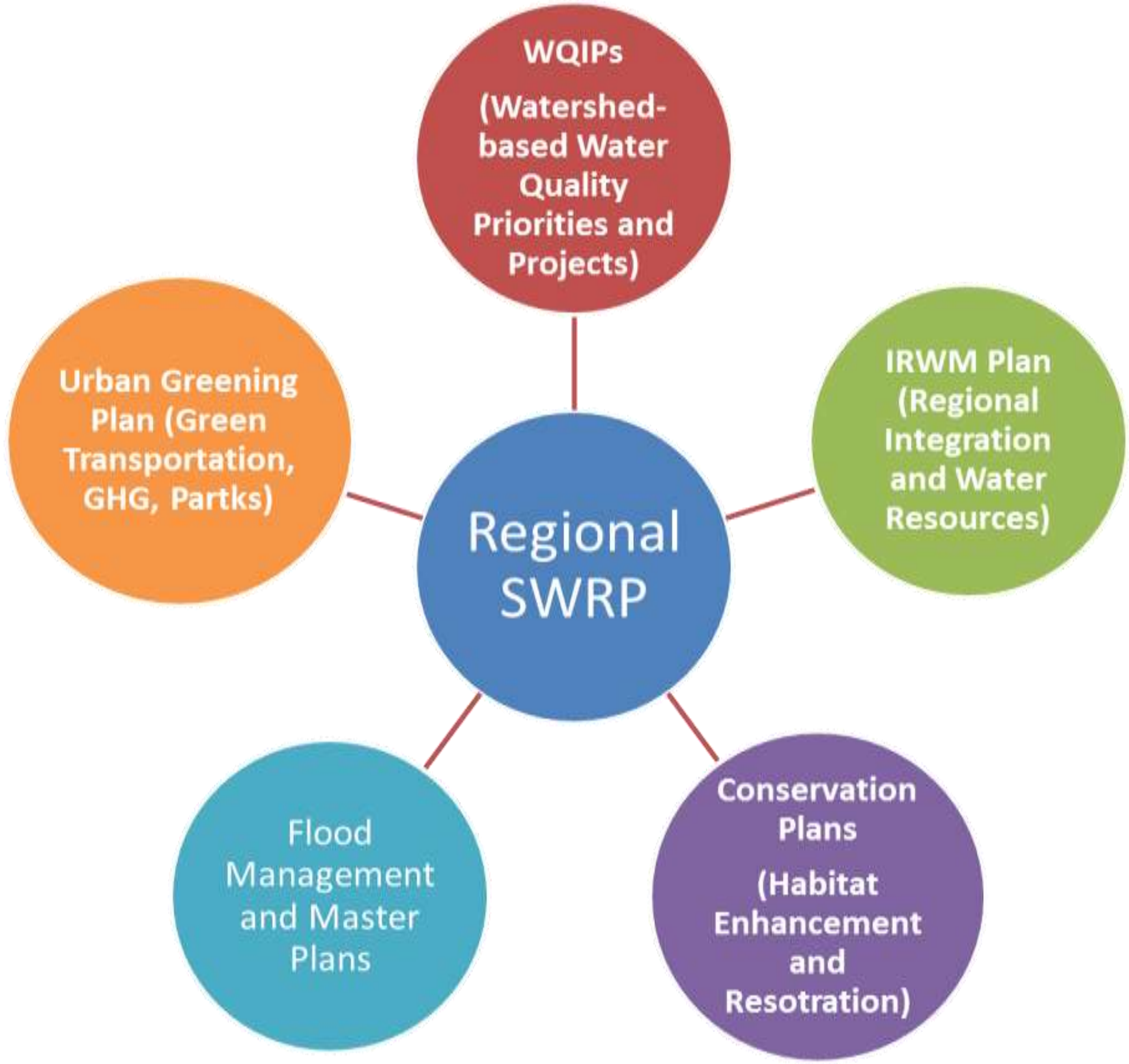
What is the San Diego Regional Storm Water Resource Plan (SWRP)?

- Required for projects requesting Proposition 1 funding that have storm water and dry weather runoff capture projects (SB985).
- Developed per State Water Resources Control Board guidelines.
- Not a compliance document.
- The purpose of the SWRP is to identify and prioritize projects to "bring to the top" those multi-benefit projects that can best meet the identified priorities on a watershed basis.
- Outcome of plan is to provide the guidance and tools to support the region in developing more competitive projects for state-wide grant funding opportunities to achieve watershed and regional planning goals

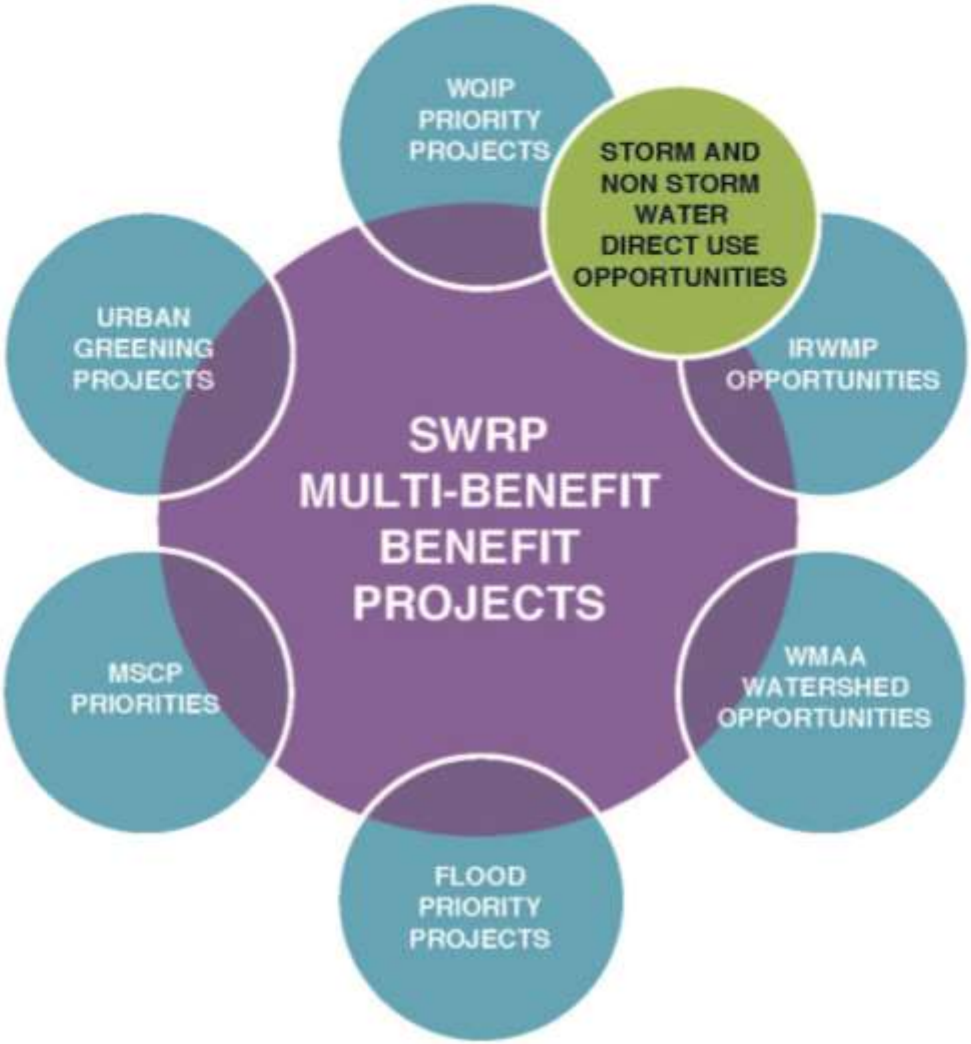
San Diego Regional SWRP Schedule

- Schedule driven by need to include Round 1 project in SWRP
- Plan needs to be completed within 90 days of grant award – Estimated end of January 2017
- Call for Round 2 projects needs to accommodate this schedule

What is a "Functional Equivalent" SWRP?



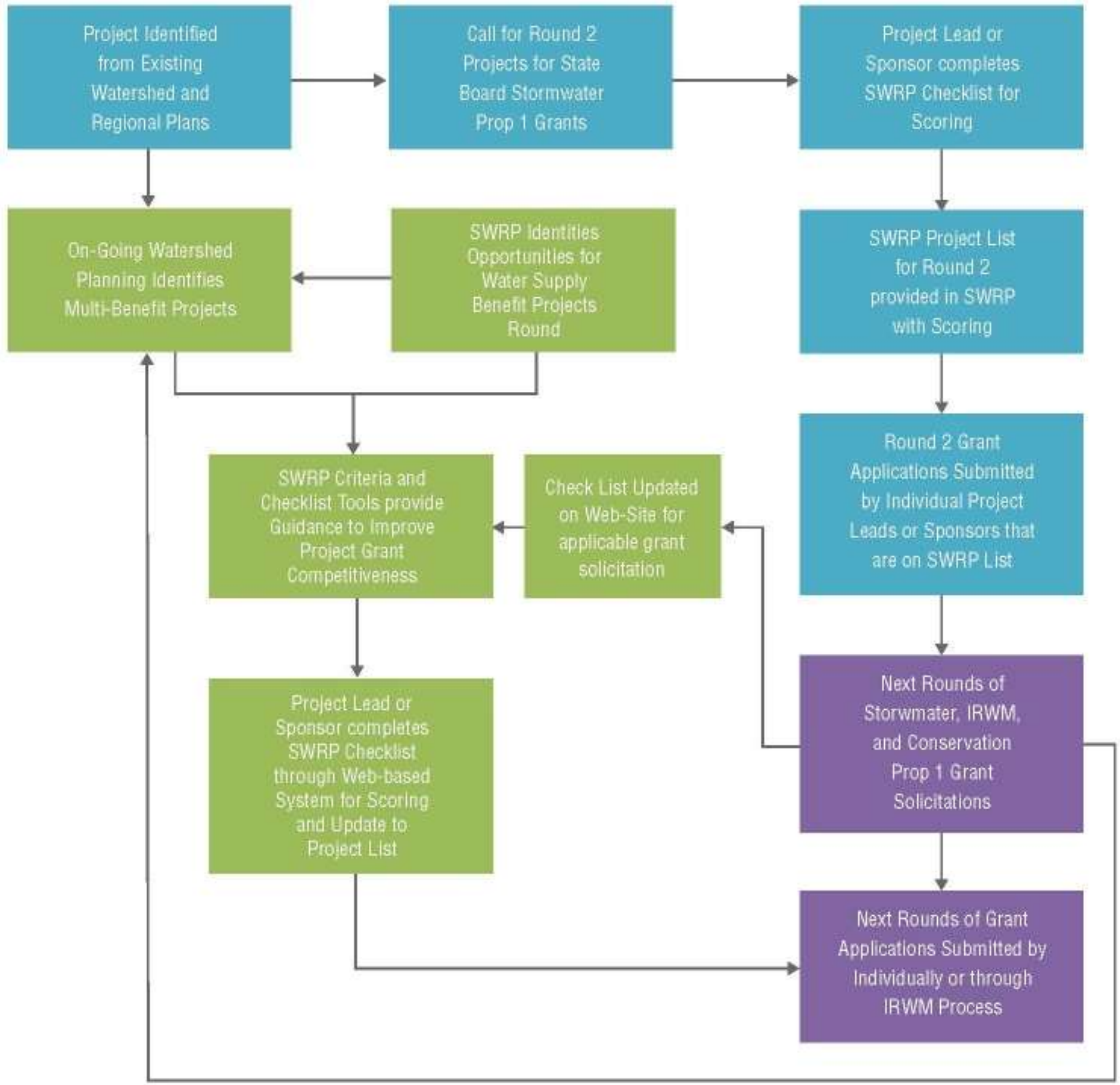
How are Projects Identified?



When is the call for projects for the current round of funding?

- Current Funding – Round 2 Storm Water Grants through State Water Resources Control Board (SWRCB)
- Call for Round 2 Storm Water projects – NOW!
  - Project Eligibility
  - Checklist
  - SWRP List
  - <u>Project Checklists Completed between Oct. 31-Nov 18, 2016</u>
- Future calls will depend on grant solicitation announcements
- SWRP list applies to 3 Funding "Buckets" under Prop. 1
  - Storm Water Projects (SWRCB)
  - IRWM
  - Conservation Funding (Project Captures Storm Water/Water Quality Elements)

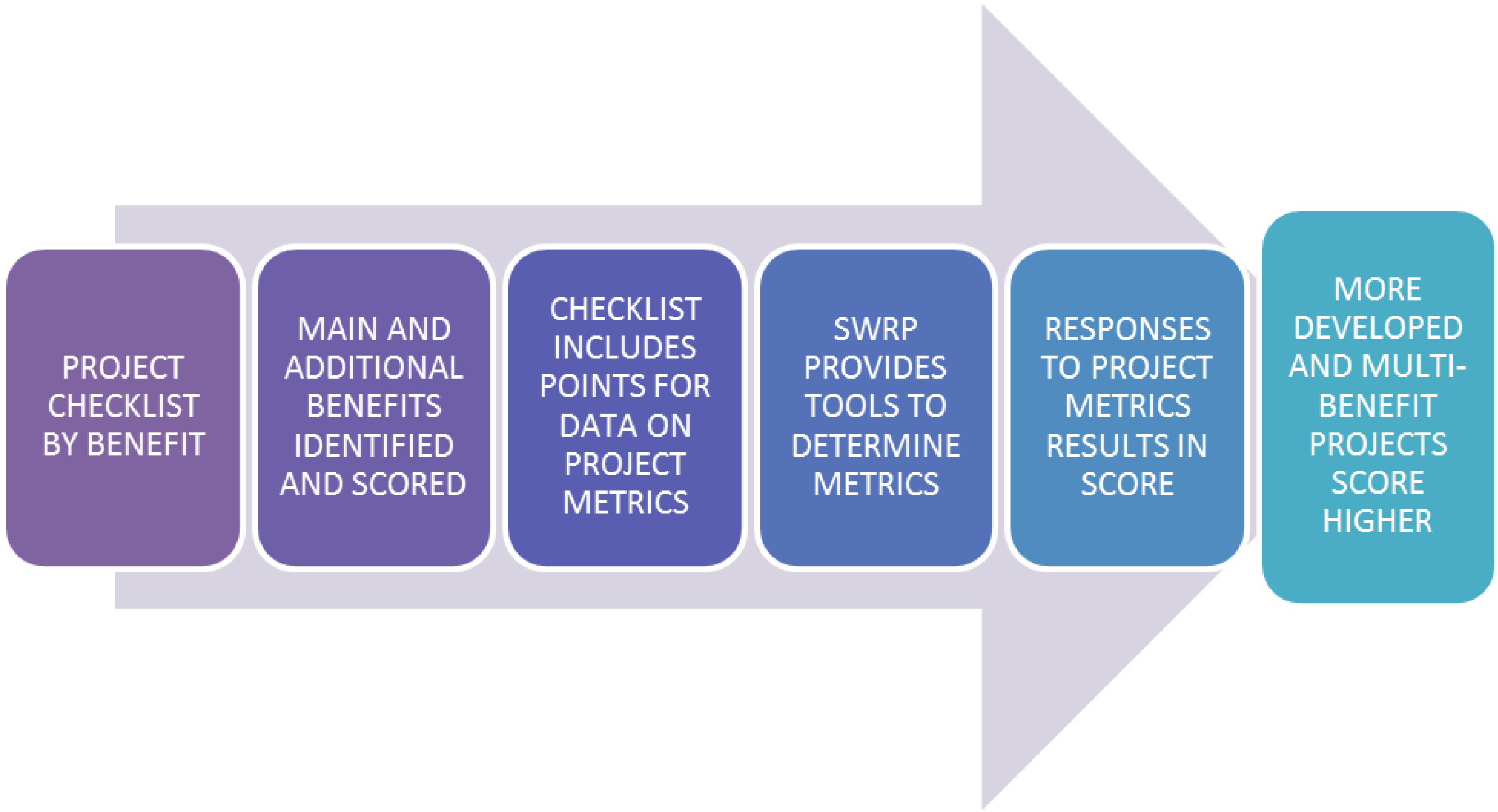
What is the process for getting projects on the SWRP list?



How are projects scored and prioritized?

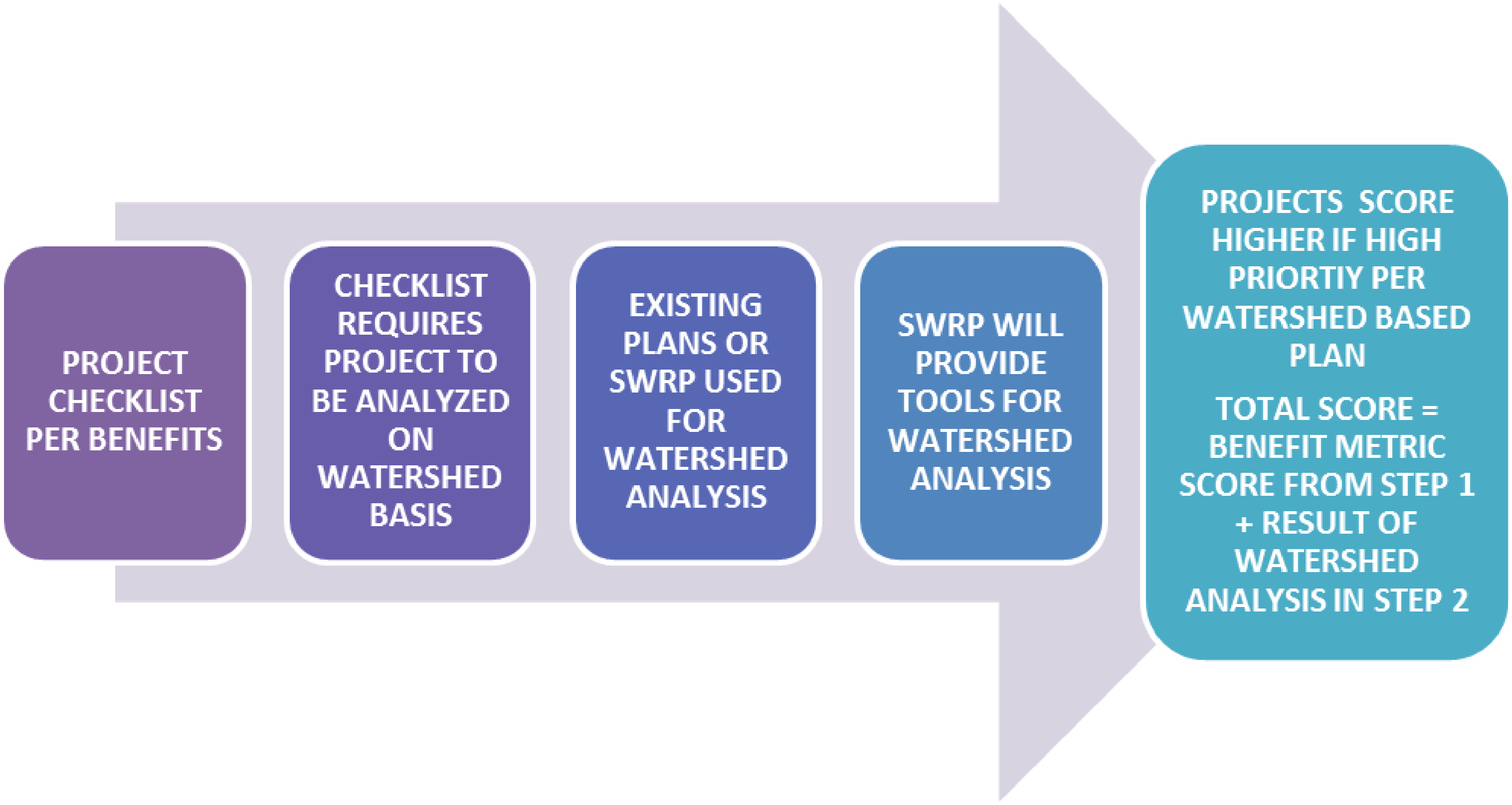
How are projects scored and prioritized?

- **STEP 2: PROJECT PRIORITZATION PROCESS – PROJECT BENEFIT METRIC SCORE**

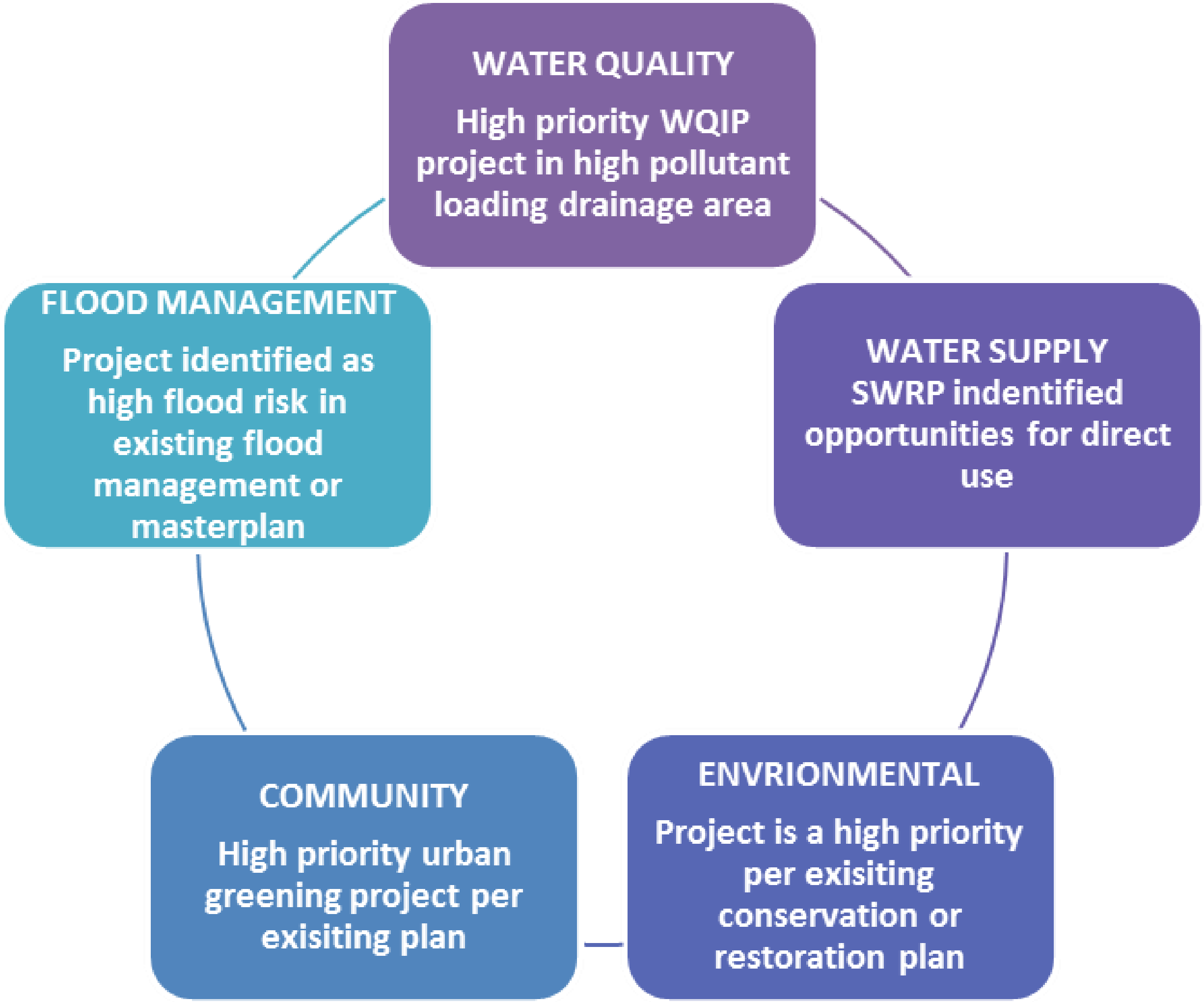


How are projects scored and prioritized?

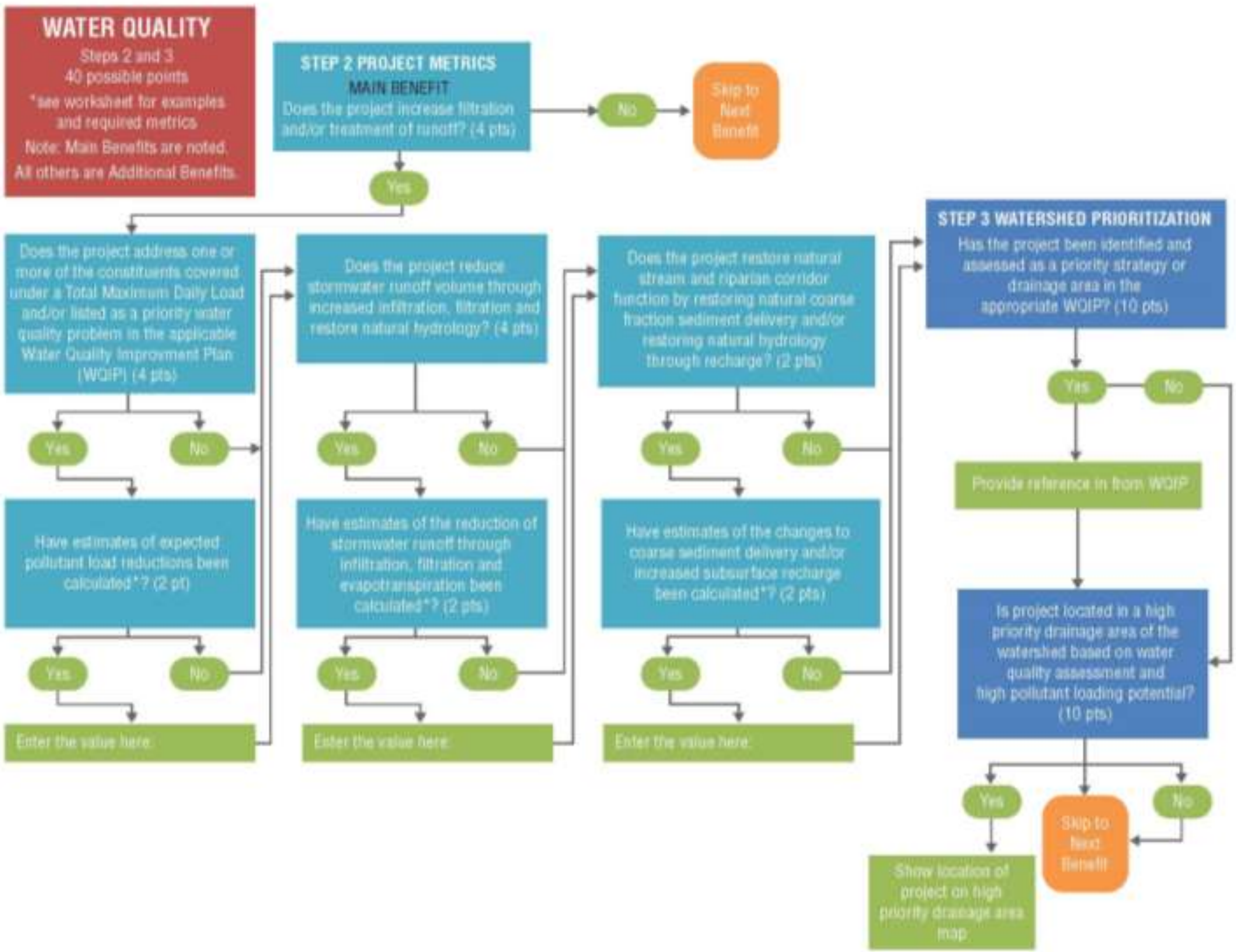
- **STEP 3: PROJECT PRIORITZATION PROCESS – WATERSHED ANALYSIS**



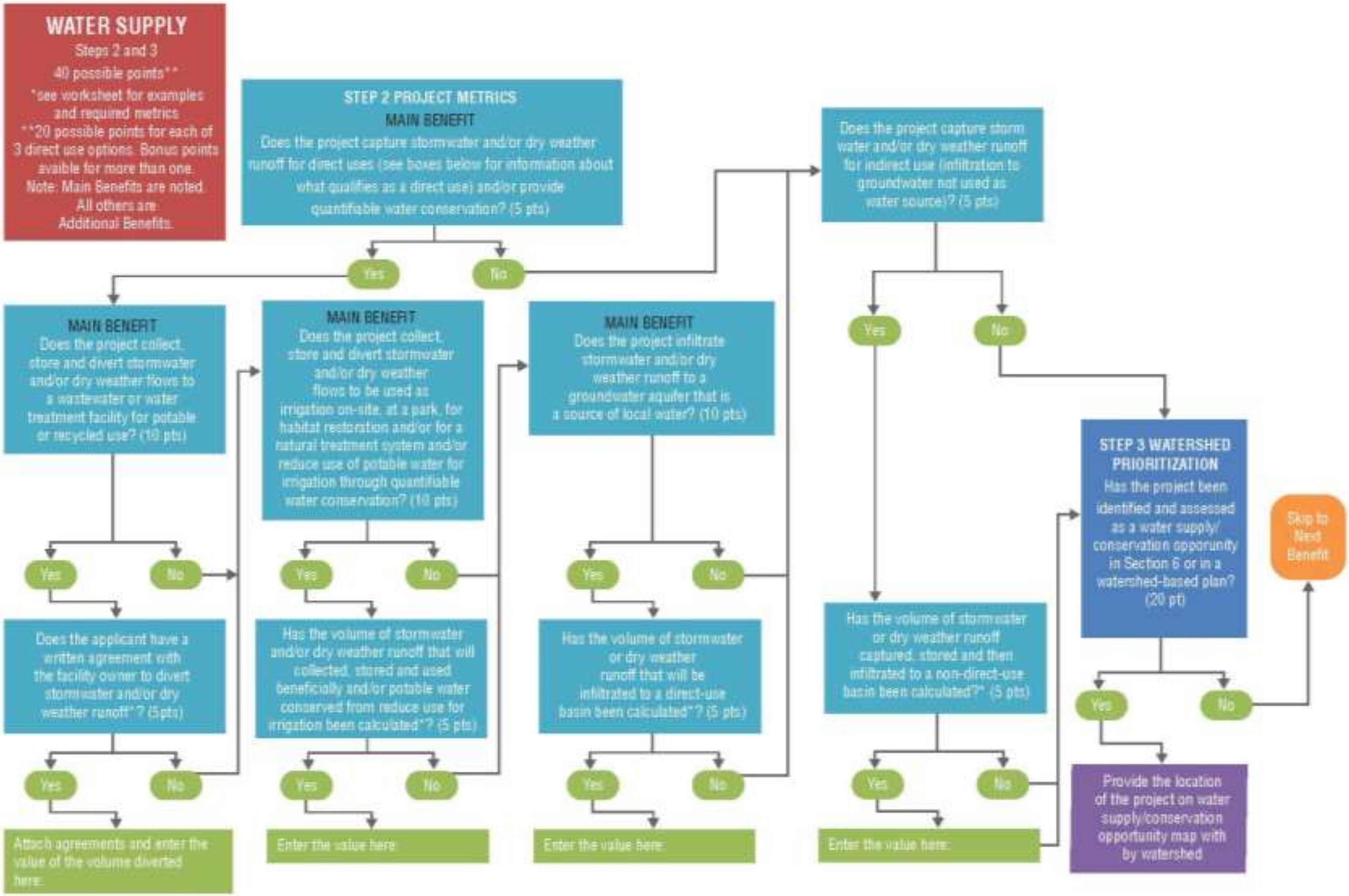
How are projects identified and prioritized on a watershed basis- Step 3?



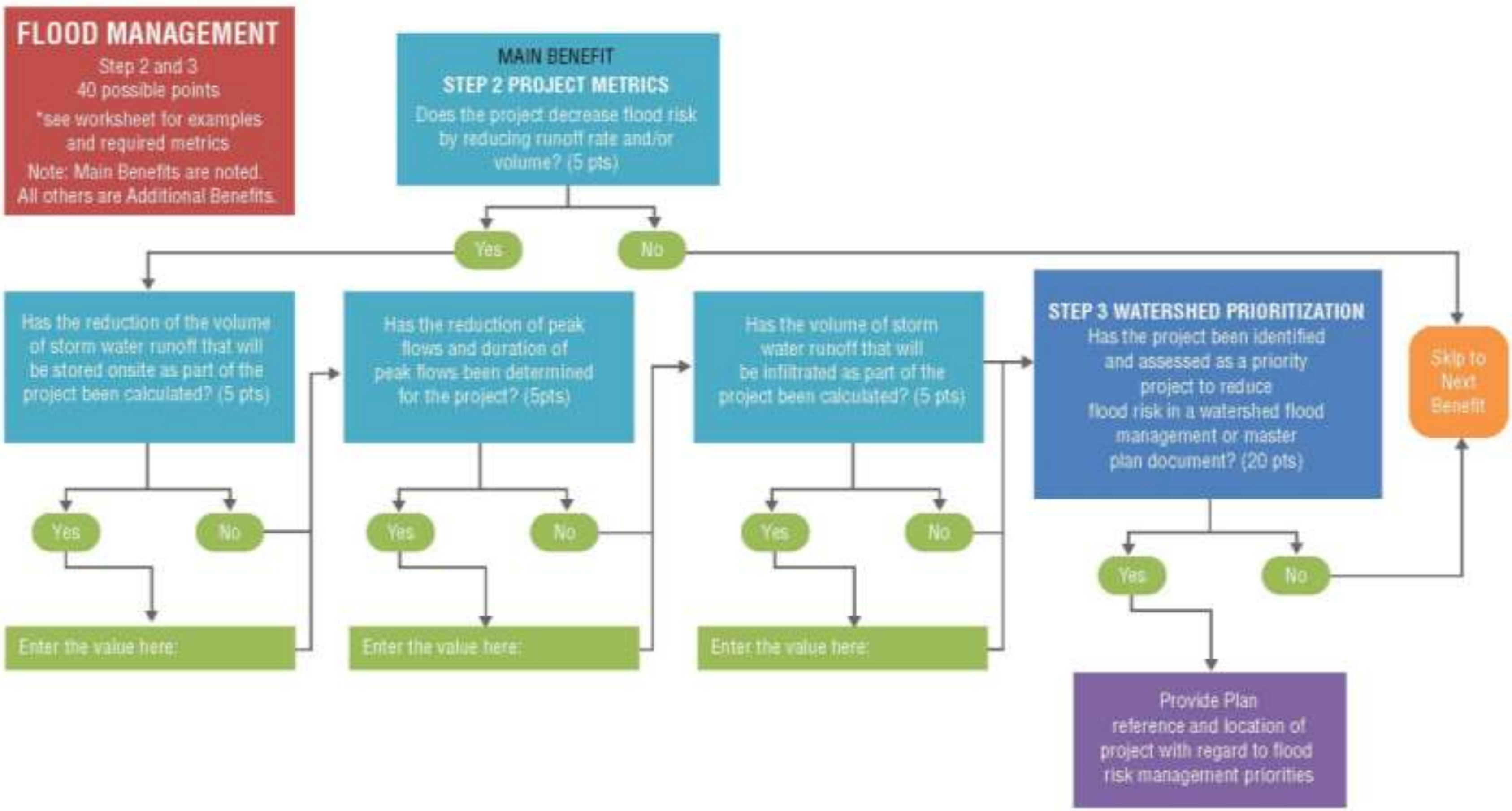
SWRP Checklist – Flow Charts



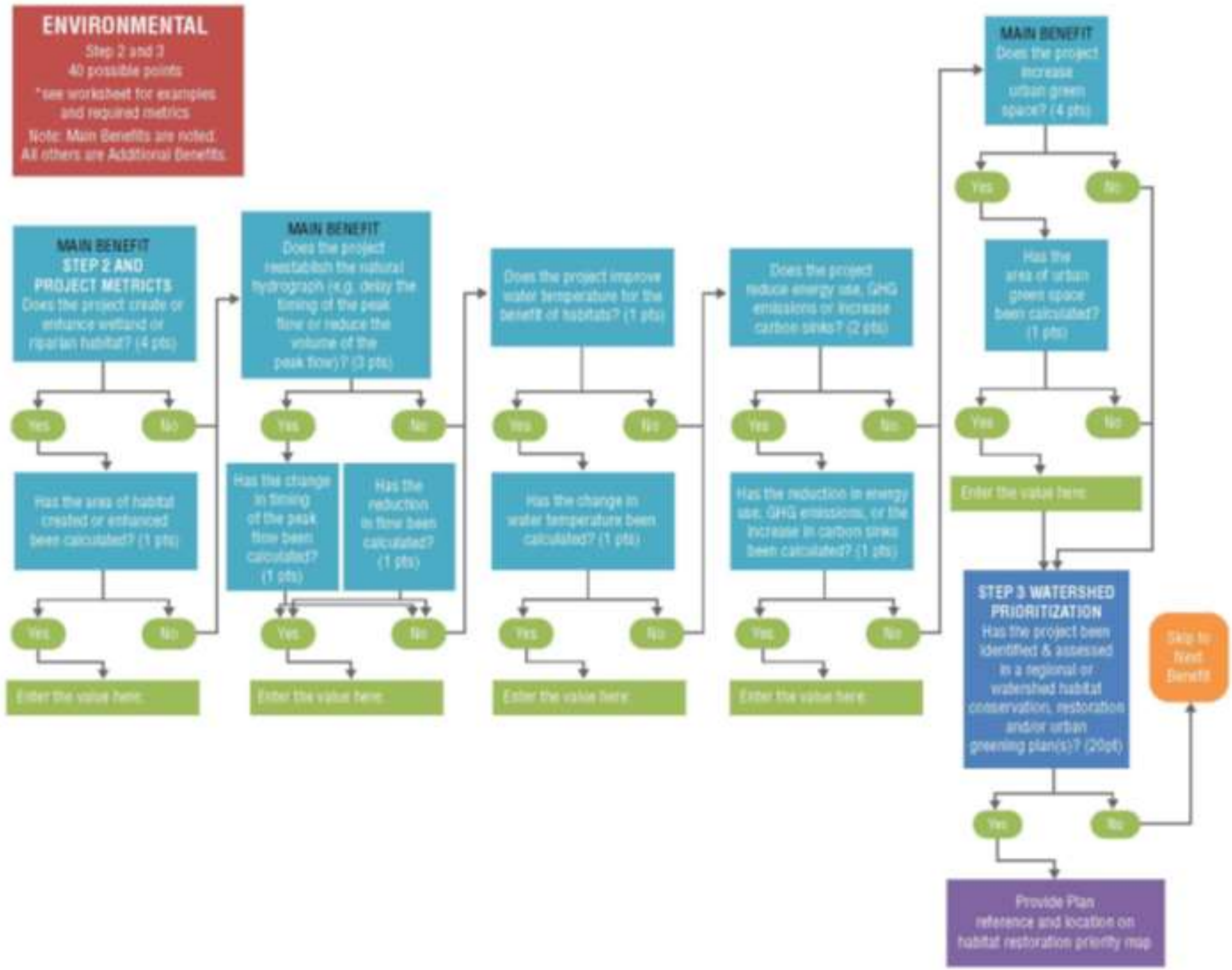
SWRP Checklist – Flow Charts



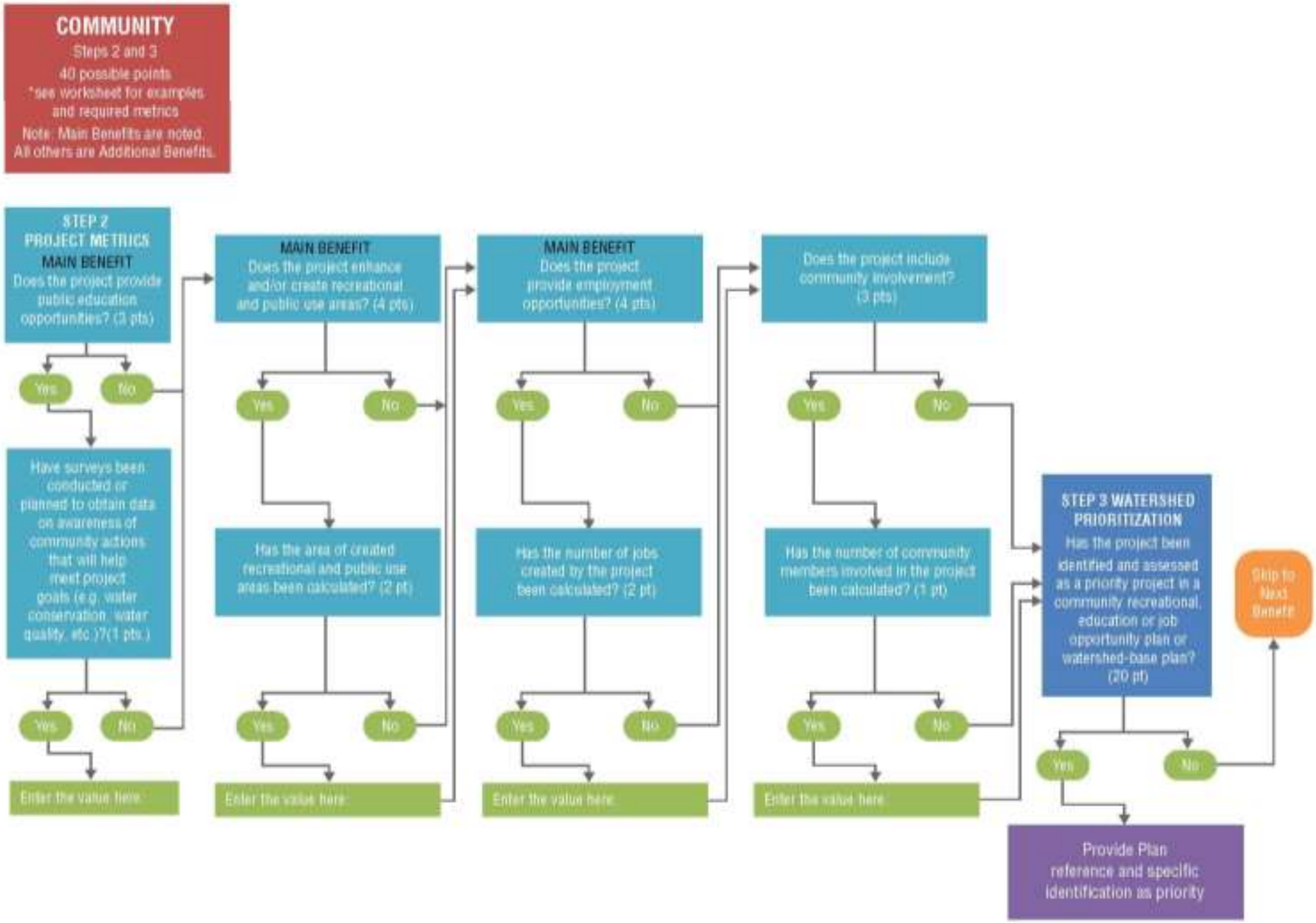
SWRP Checklist – Flow Charts



SWRP Checklist – Flow Charts



SWRP Checklist – Flow Charts



Example Project – Green Street

CHECKLIST STEP/ BENEFIT	STEP 1 ELIGIBILITY	STEP 2 PROJECT METRICS	STEP 3 WATERSHED ANALYSIS	TOTAL SCORE
WATER QUALITY	✓ Increase Runoff Treatment	16 - Reduces TMDL pollutants & runoff volumes	20 – Priority in WQIP & located in high loading area	36
WATER SUPPLY	✓ Increased Groundwater Recharge	10 – infiltrates to groundwater non-direct use	Not located in groundwater aquifer and recharge area	10
FLOODING	✓ Decrease In Flood Risk	20 – reduces flood risk & metrics calculated	20 – located in high risk flood area	40
ENVIRON-MENTAL	✓ Increase In Urban Green Space	5 – increases urban green space	20 – identified as high priority in watershed plan	25
COMMUNITY	✓ Provides Public Education	4 – signage and outreach for public education	20 – identified as high priority in outreach opportunity	24
RESULT/ SCORE	Meets 2 Or More Benefits	55	80	135 out of 200

What are we asking for input?

- Comments on Checklist / Flow Charts
  - Are there any additional benefits that should be considered that is consistent with the SWRP guidelines?
  - Is the scoring providing a fair approach that helps applicants develop more competitive projects?
  - Other comments?

How can you provide input on project scoring and prioritization?

- Provide comments at meeting on available comment sheets
- Provide comments by e-mail to County Project Manager:
  - Ruth de la Rosa

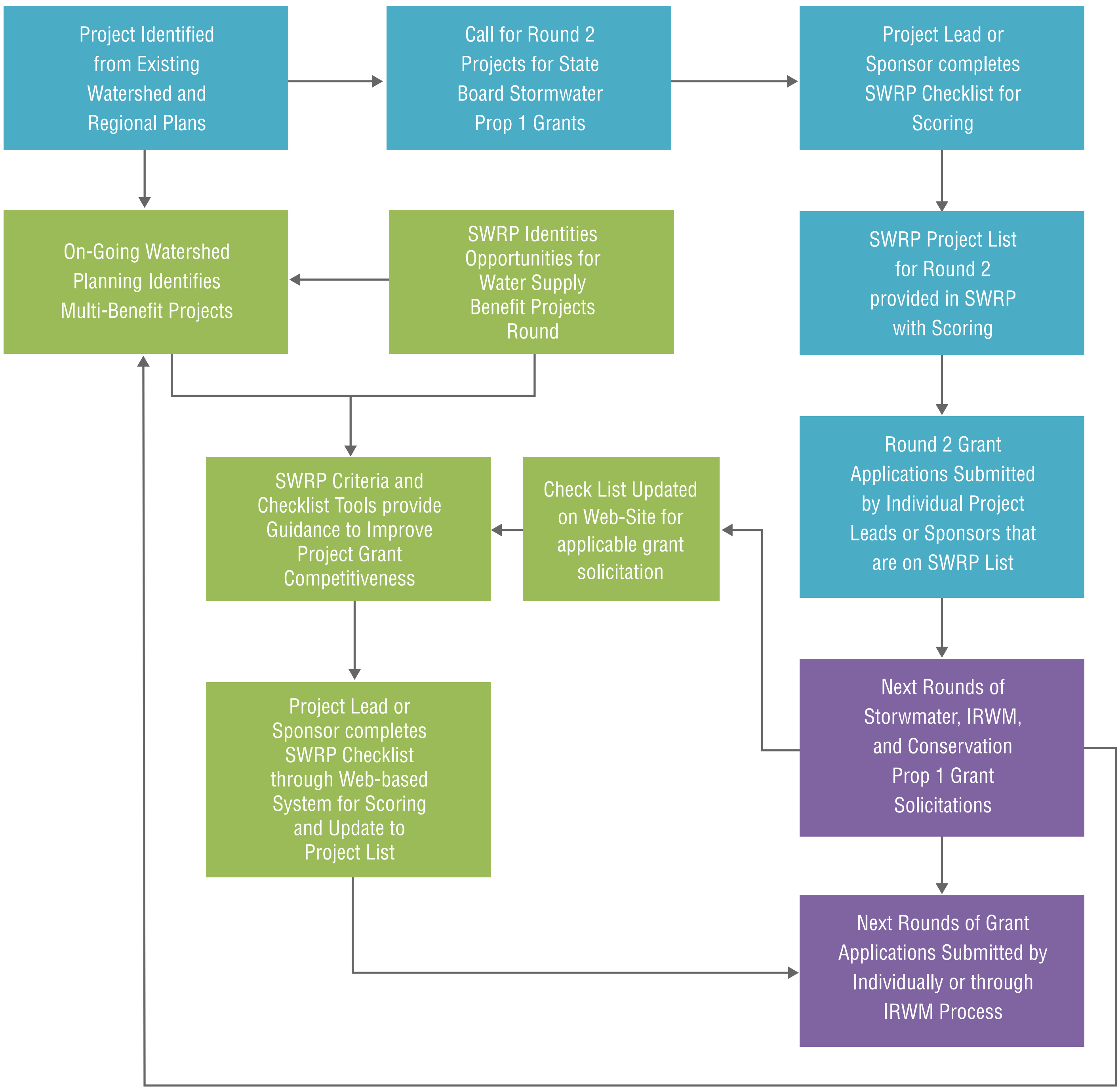
    Watershed Protection Program

    County of San Diego

    ruth.delarosa@sdcounty.ca.gov
- Comments requested by October 19th
- Revised Checklist provided October 31st
- Completed Checklist for Round 2 Call for Projects Due November 18th
- SWRP Project List with Scoring – December

SWRP Development Schedule

Tasks	Date
SWRP Stakeholder Workshop #1 • Present Draft Project Scoring and Prioritization	October 5
Input on Draft Project Scoring and Prioritization Due	October 19
Revised Checklist Provided	October 31
Completed Checklist for Round 2 Call for Projects Due	November 18
SWRP Stakeholder Workshop #2 • Present Draft SWRP and Project List with Scoring	December 7
Input on Draft SWRP Due	December 21
Submit Final SWRP to IRWM for Incorporation into IRWMP	January 30
Submit Final SWRP to State Board	February 1


Project Identified from Existing Watershed and Regional Plans
Call for Round 2 Projects for State Board Stormwater Prop 1 Grants
Project Lead or Sponsor completes SWRP Checklist for Scoring
On-Going Watershed Planning Identifies Multi-Benefit Projects
SWRP Identities Opportunities for Water Supply Benefit Projects Round
SWRP Project List for Round 2 provided in SWRP with Scoring
SWRP Criteria and Checklist Tools provide Guidance to Improve Project Grant Competitiveness
Check List Updated on Web-Site for applicable grant solicitation
Round 2 Grant Applications Submitted by Individual Project Leads or Sponsors that are on SWRP List
Project Lead or Sponsor completes SWRP Checklist through Web-based System for Scoring and Update to Project List
Next Rounds of Stormwater, IRWM, and Conservation Prop 1 Grant Solicitations
Next Rounds of Grant Applications Submitted by Individually or through IRWM Process

STEP 1 - PROJECT ELIGIBILITY

MUST ACHIEVE TWO OR MORE SWRP MAIN BENEFITS

1. Water Quality
2. Water Supply
3. Flood Management
4. Environmental
5. Community

MUST BE AN IMPLEMENTATION PROJECT

MUST HAVE A PROJECT SPONSOR THAT HAS FUNDS FOR O&M

MUST MEET APPLICABLE GRANT APPLICATION REQUIREMENTS

↓

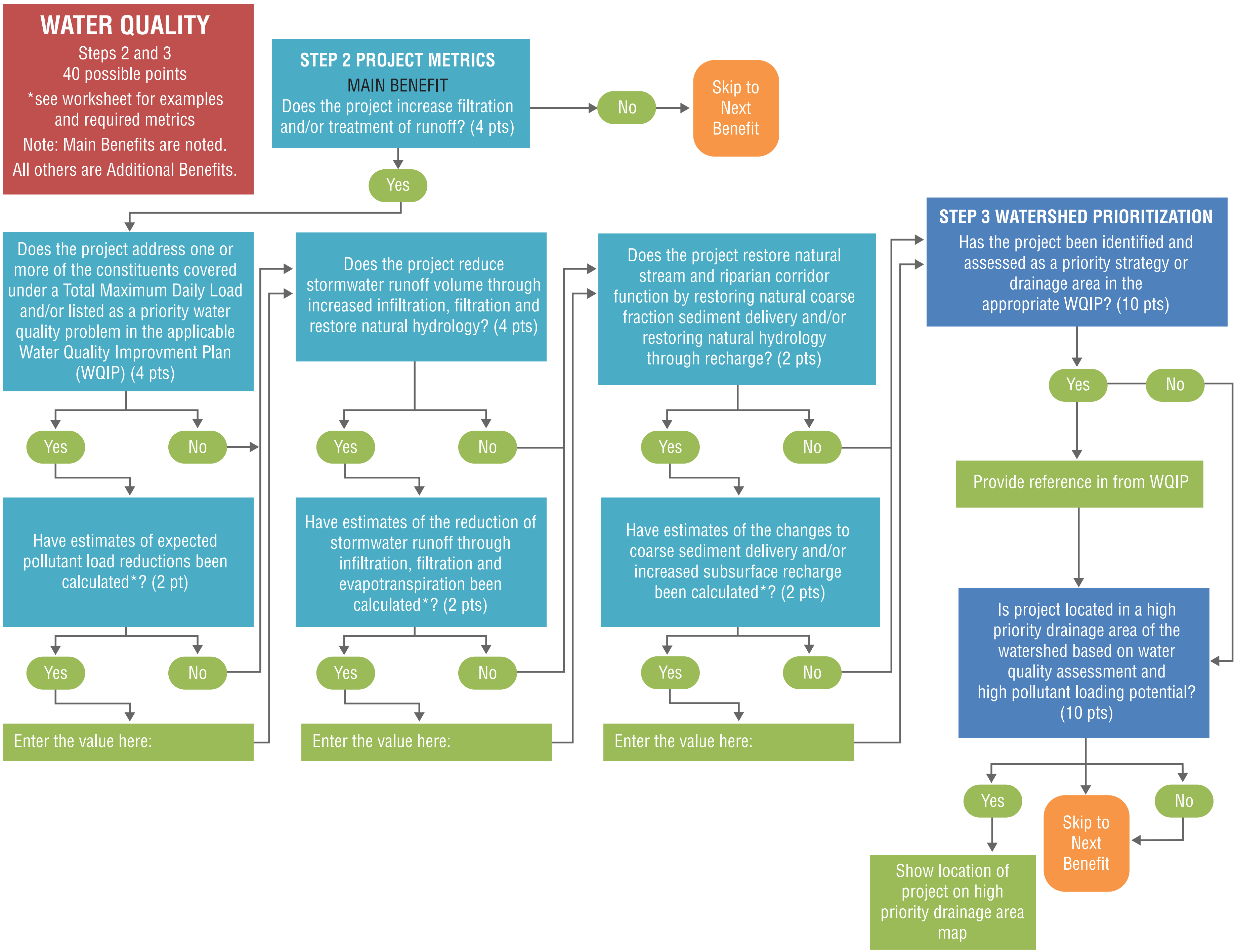
STEP 2

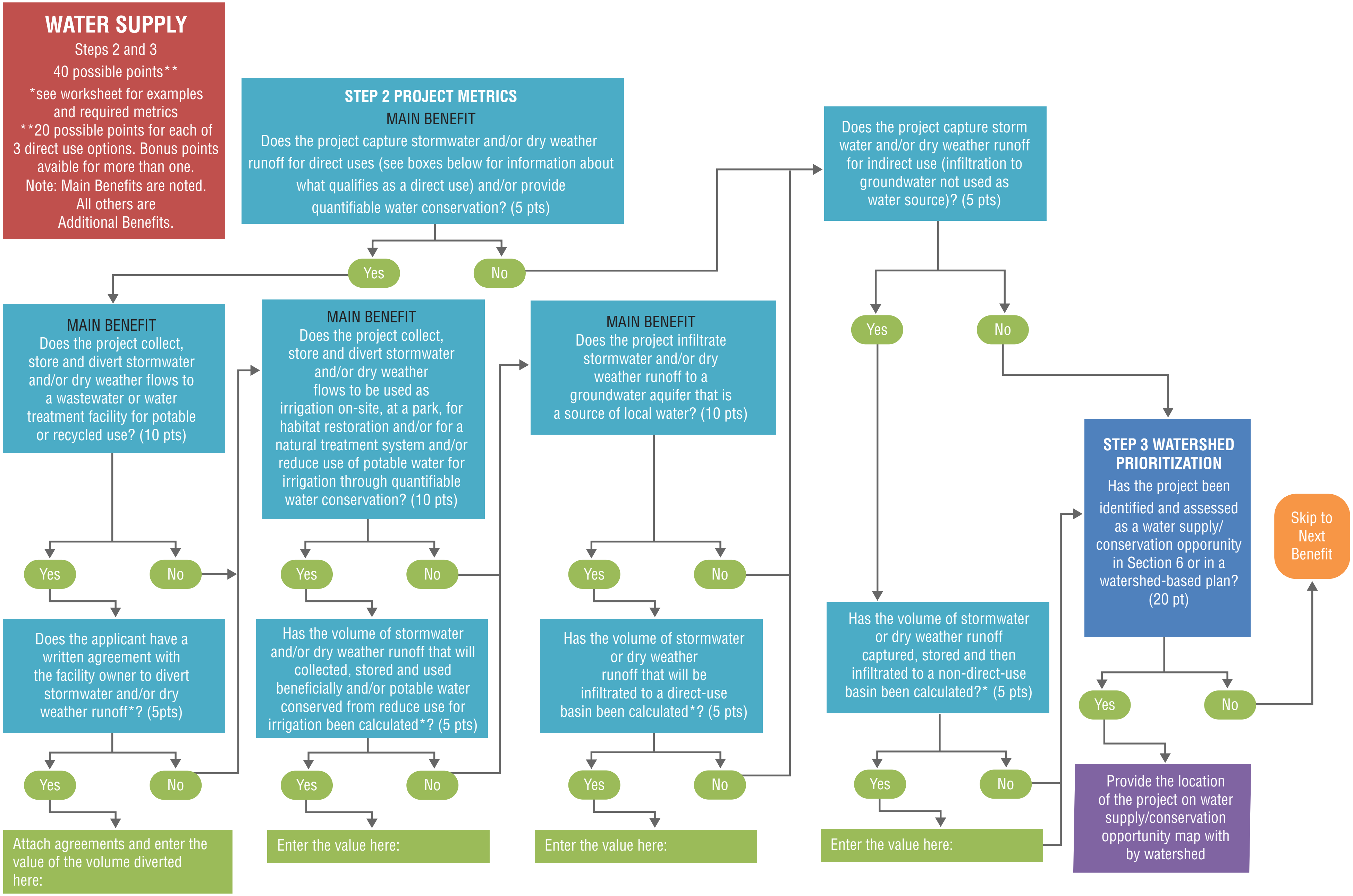
More Developed Multi-Benefits Projects Score Higher

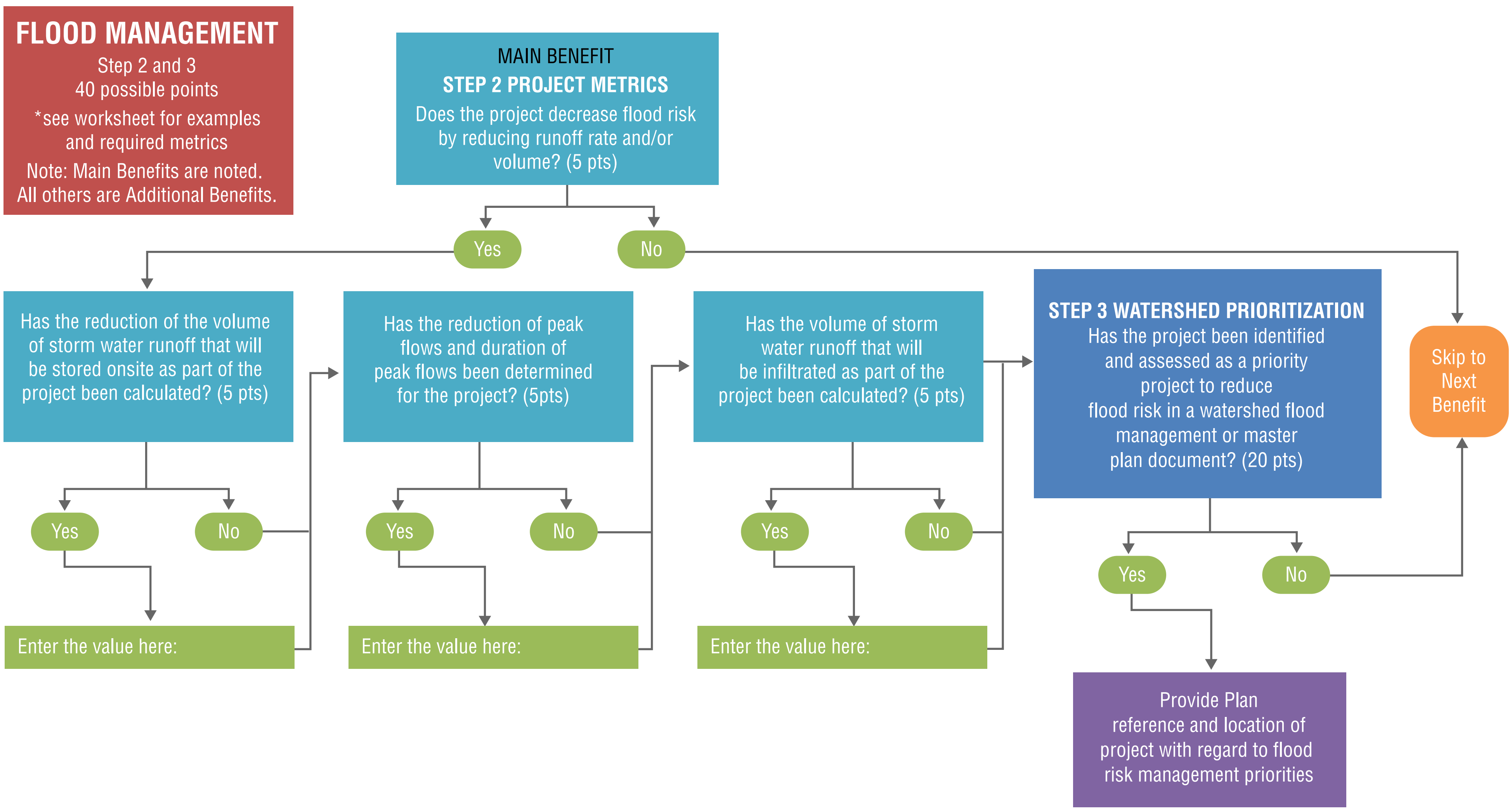
↓

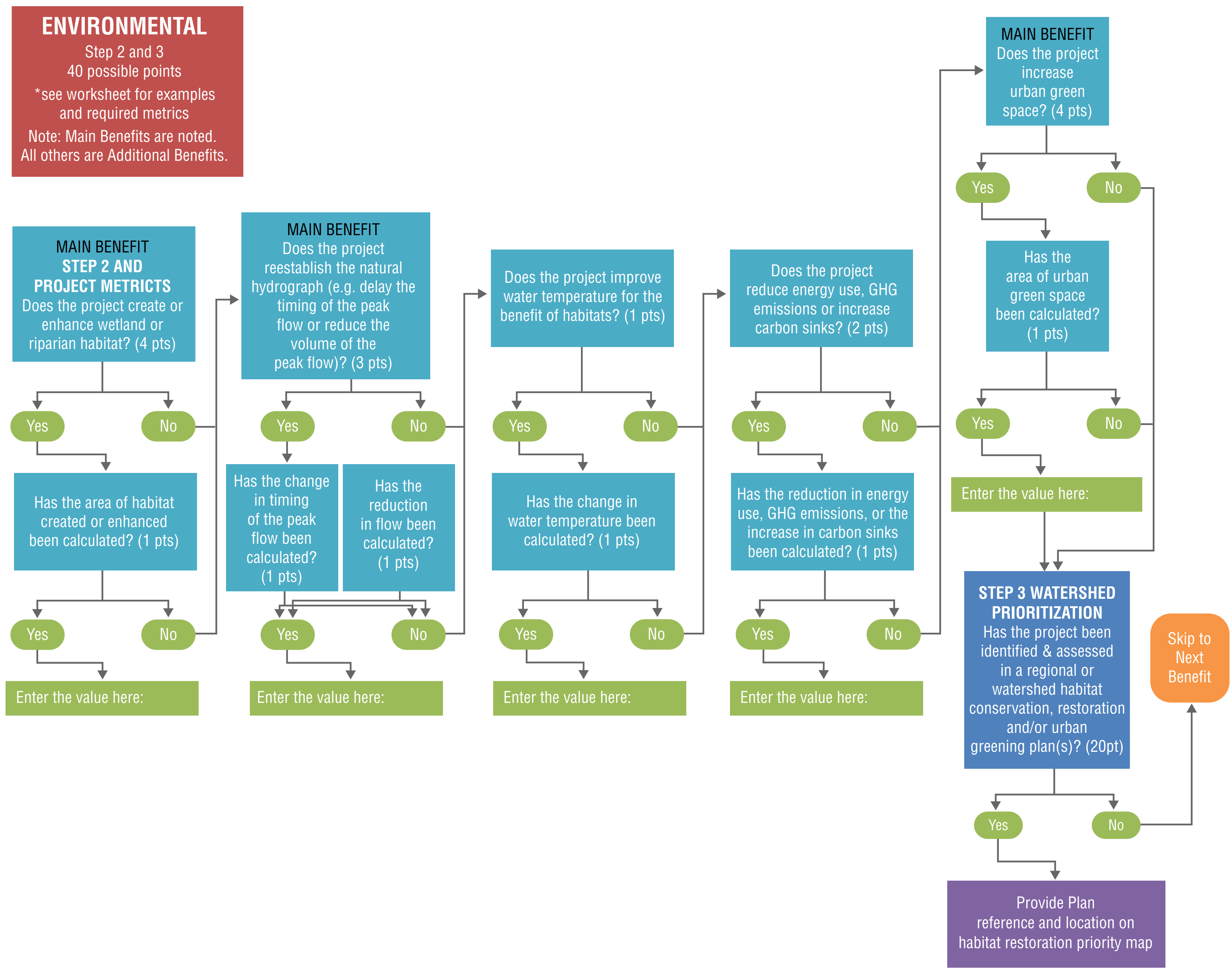
STEP 3 - WATERSHED ANALYSIS

Project Prioritized Identified in Existing Watershed-Based Plans Score Higher

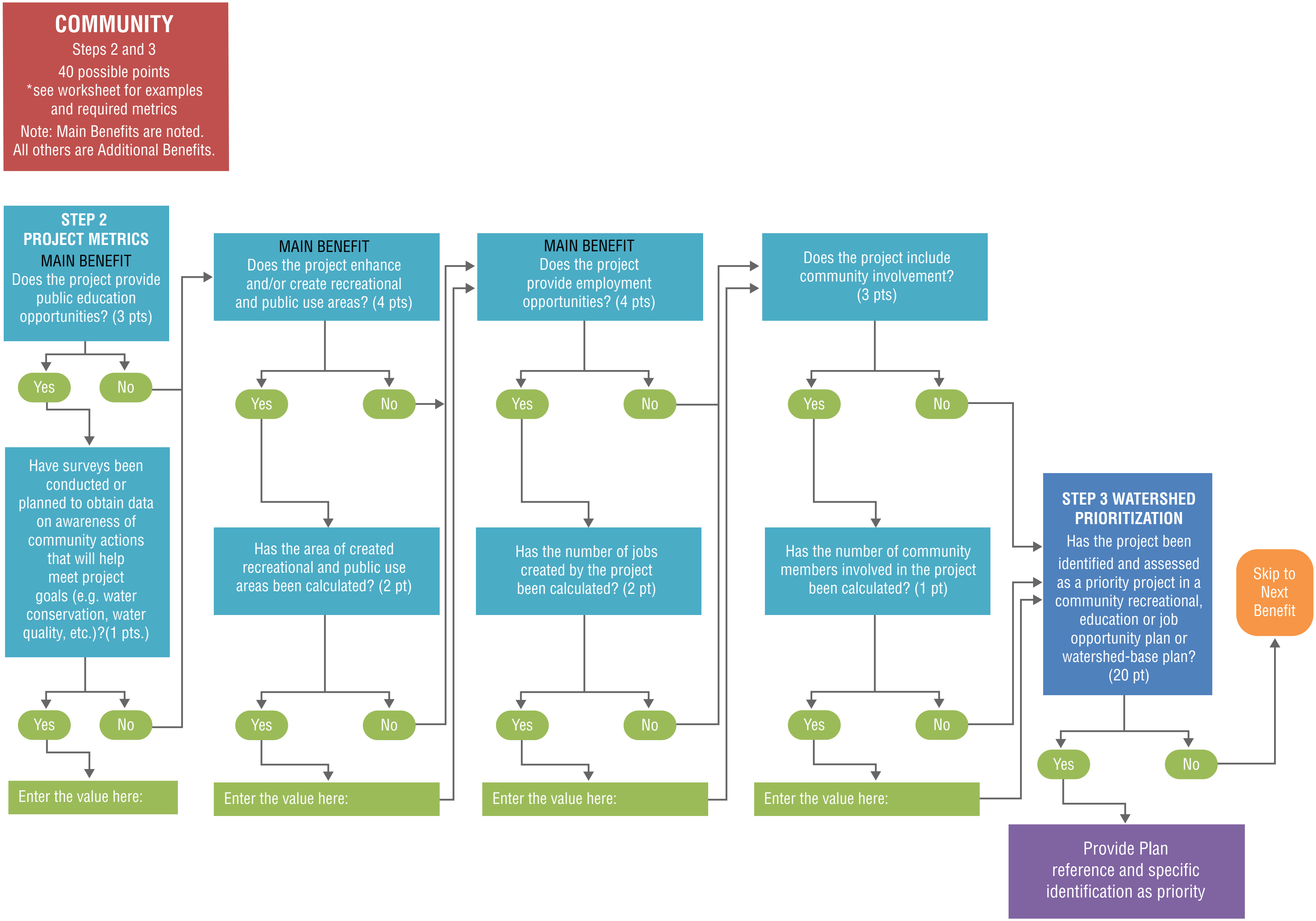

WATER QUALITY
Steps 2 and 3
40 possible points
*see worksheet for examples and required metrics
Note: Main Benefits are noted.
All others are Additional Benefits.
STEP 2 PROJECT METRICS
MAIN BENEFIT
Does the project increase filtration and/or treatment of runoff? (4 pts)
No
Skip to Next Benefit
Yes
Does the project address one or more of the constituents covered under a Total Maximum Daily Load and/or listed as a priority water quality problem in the applicable Water Quality Improvment Plan (WQIP) (4 pts)
Yes
No
Have estimates of expected pollutant load reductions been calculated*? (2 pt)
Yes
No
Enter the value here:
Does the project reduce stormwater runoff volume through increased infiltration, filtration and restore natural hydrology? (4 pts)
Yes
No
Have estimates of the reduction of stormwater runoff through infiltration, filtration and evapotranspiration been calculated*? (2 pts)
Yes
No
Enter the value here:
Does the project restore natural stream and riparian corridor function by restoring natural coarse fraction sediment delivery and/or restoring natural hydrology through recharge? (2 pts)
Yes
No
Have estimates of the changes to coarse sediment delivery and/or increased subsurface recharge been calculated*? (2 pts)
Yes
No
Enter the value here:
STEP 3 WATERSHED PRIORITIZATION
Has the project been identified and assessed as a priority strategy or drainage area in the appropriate WQIP? (10 pts)
Yes
No
Provide reference in from WQIP
Is project located in a high priority drainage area of the watershed based on water quality assessment and high pollutant loading potential? (10 pts)
Yes
No
Show location of project on high priority drainage area map
Skip to Next Benefit


WATER SUPPLY
Steps 2 and 3
40 possible points**
*see worksheet for examples and required metrics
**20 possible points for each of 3 direct use options. Bonus points avaible for more than one.
Note: Main Benefits are noted. All others are Additional Benefits.
STEP 2 PROJECT METRICS
MAIN BENEFIT
Does the project capture stormwater and/or dry weather runoff for direct uses (see boxes below for information about what qualifies as a direct use) and/or provide quantifiable water conservation? (5 pts)
Yes
No
Does the project capture storm water and/or dry weather runoff for indirect use (infiltration to groundwater not used as water source)? (5 pts)
MAIN BENEFIT
Does the project collect, store and divert stormwater and/or dry weather flows to a wastewater or water treatment facility for potable or recycled use? (10 pts)
MAIN BENEFIT
Does the project collect, store and divert stormwater and/or dry weather flows to be used as irrigation on-site, at a park, for habitat restoration and/or for a natural treatment system and/or reduce use of potable water for irrigation through quantifiable water conservation? (10 pts)
MAIN BENEFIT
Does the project infiltrate stormwater and/or dry weather runoff to a groundwater aquifer that is a source of local water? (10 pts)
Yes
No
STEP 3 WATERSHED PRIORITIZATION
Has the project been identified and assessed as a water supply/ conservation opporunity in Section 6 or in a watershed-based plan? (20 pt)
Skip to Next Benefit
Yes
No
Yes
No
Yes
No
Does the applicant have a written agreement with the facility owner to divert stormwater and/or dry weather runoff*? (5pts)
Has the volume of stormwater and/or dry weather runoff that will collected, stored and used beneficially and/or potable water conserved from reduce use for irrigation been calculated*? (5 pts)
Has the volume of stormwater or dry weather runoff that will be infiltrated to a direct-use basin been calculated*? (5 pts)
Has the volume of stormwater or dry weather runoff captured, stored and then infiltrated to a non-direct-use basin been calculated?* (5 pts)
Yes
No
Provide the location of the project on water supply/conservation opportunity map with by watershed
Yes
No
Yes
No
Yes
No
Yes
No
Attach agreements and enter the value of the volume diverted here:
Enter the value here:
Enter the value here:
Enter the value here:


FLOOD MANAGEMENT
Step 2 and 3
40 possible points
*see worksheet for examples and required metrics
Note: Main Benefits are noted. All others are Additional Benefits.
MAIN BENEFIT
STEP 2 PROJECT METRICS
Does the project decrease flood risk by reducing runoff rate and/or volume? (5 pts)
Yes
No
Has the reduction of the volume of storm water runoff that will be stored onsite as part of the project been calculated? (5 pts)
Yes
No
Enter the value here:
Has the reduction of peak flows and duration of peak flows been determined for the project? (5pts)
Yes
No
Enter the value here:
Has the volume of storm water runoff that will be infiltrated as part of the project been calculated? (5 pts)
Yes
No
Enter the value here:
STEP 3 WATERSHED PRIORITIZATION
Has the project been identified and assessed as a priority project to reduce flood risk in a watershed flood management or master plan document? (20 pts)
Yes
No
Provide Plan reference and location of project with regard to flood risk management priorities
Skip to Next Benefit



ENVIRONMENTAL
Step 2 and 3
40 possible points
*see worksheet for examples and required metrics
Note: Main Benefits are noted. All others are Additional Benefits.
MAIN BENEFIT
STEP 2 AND PROJECT METRICS
Does the project create or enhance wetland or riparian habitat? (4 pts)
Yes
No
Has the area of habitat created or enhanced been calculated? (1 pts)
Yes
No
Enter the value here:
MAIN BENEFIT
Does the project reestablish the natural hydrograph (e.g. delay the timing of the peak flow or reduce the volume of the peak flow)? (3 pts)
Yes
No
Has the change in timing of the peak flow been calculated? (1 pts)
Has the reduction in flow been calculated? (1 pts)
Yes
No
Enter the value here:
Does the project improve water temperature for the benefit of habitats? (1 pts)
Yes
No
Has the change in water temperature been calculated? (1 pts)
Yes
No
Enter the value here:
Does the project reduce energy use, GHG emissions or increase carbon sinks? (2 pts)
Yes
No
Has the reduction in energy use, GHG emissions, or the increase in carbon sinks been calculated? (1 pts)
Yes
No
Enter the value here:
MAIN BENEFIT
Does the project increase urban green space? (4 pts)
Yes
No
Has the area of urban green space been calculated? (1 pts)
Yes
No
Enter the value here:
STEP 3 WATERSHED PRIORITIZATION
Has the project been identified & assessed in a regional or watershed habitat conservation, restoration and/or urban greening plan(s)? (20pt)
Yes
No
Skip to Next Benefit
Provide Plan reference and location on habitat restoration priority map


COMMUNITY
Steps 2 and 3
40 possible points
*see worksheet for examples and required metrics
Note: Main Benefits are noted. All others are Additional Benefits.
STEP 2
PROJECT METRICS
MAIN BENEFIT
Does the project provide public education opportunities? (3 pts)
Yes
No
Have surveys been conducted or planned to obtain data on awareness of community actions that will help meet project goals (e.g. water conservation, water quality, etc.)?(1 pts.)
Yes
No
Enter the value here:
MAIN BENEFIT
Does the project enhance and/or create recreational and public use areas? (4 pts)
Yes
No
Has the area of created recreational and public use areas been calculated? (2 pt)
Yes
No
Enter the value here:
MAIN BENEFIT
Does the project provide employment opportunities? (4 pts)
Yes
No
Has the number of jobs created by the project been calculated? (2 pt)
Yes
No
Enter the value here:
Does the project include community involvement? (3 pts)
Yes
No
Has the number of community members involved in the project been calculated? (1 pt)
Yes
No
Enter the value here:
STEP 3 WATERSHED PRIORITIZATION
Has the project been identified and assessed as a priority project in a community recreational, education or job opportunity plan or watershed-base plan? (20 pt)
Yes
No
Provide Plan reference and specific identification as priority
Skip to Next Benefit

San Diego County
Regional Storm Water Resource Plan
Checklist Steps 1-3

Section 1. Project Eligibility – Step 1

Complete the following Step 1 Checklist questions to determine project eligibility prior to completing Step 2 and Step 3.

	Yes (Y)	No (N)	Not Applicable (n/a)	
1.	☐	☐	☐	Is the project an implementation project?
1a.	☐	☐	☐	If project includes planning activities (CEQA, permitting and design) does the percentage of planning funds being requested of the total project costs meet the grant application requirements (see applicable grant application requirements)?
2.	☐	☐	☐	Does the project meet at least 2 or more Main Benefits and as many as feasible Additional Benefits (listed below)? Check all benefits that apply
2a.	☐	☐	☐	**Water Quality Benefit**– while contributing to compliance with applicable permit and/or Total Maximum Daily Loads requirements. ***Main Benefit:*** increased filtration and/or treatment of runoff; ***Additional Benefits:*** nonpoint source control, re-establish natural water drainage and treatment
2b.	☐	☐	☐	**Water Supply Benefit** – through groundwater management and/or runoff capture and use. ***Main Benefits:*** <u>direct water supply and conjunctive use</u> through stormwater and runoff capture and groundwater infiltration to an aquifer that is a source of water supply; dry weather flow diversion to wastewater treatment plant or recycled water treatment plant to augment water supply; capture and delivery to water treatment for irrigation, ***Additional Benefits:*** or <u>indirect use</u> through capture and infiltration to groundwater that is not designated as a groundwater aquifer used for water supply and/or water conservation.
2c.	☐	☐	☐	**Flood Management Benefit** ***Main Benefit:*** decrease flood risk by reducing runoff rate and/or volume.

2d. ☐ ☐ ☐ **Environmental Benefit**

Main Benefit: habitat restoration or enhancement, including wetland enhancement/creation and/or riparian enhancement, instream flow improvements and/or increased urban green space; ***Additional Benefits:*** reduced energy use, reduced greenhouse gas emissions, or providing a carbon sink; reestablishment of the natural hydrograph; and water temperature improvements to improve habitat.

2e. ☐ ☐ ☐ **Community Benefit**

Main Benefits: Employment opportunities and/or public education provided. ***Additional Benefits:*** enhanced and/or created recreational and public use areas and/or; community involvement.

3. ☐ ☐ ☐ Does the project sponsor have an available funding source for its operations and maintenance?

4. ☐ ☐ ☐ Does the project meet the minimum eligibility requirements per the specific grant application under Proposition 1 (see grant-specific application guidelines and requirements)?

If you answered no to questions #1, 2, 3, or 4 the project is not eligible. If all responses are yes, proceed to Steps 2 and 3.

Section 2. Project Metrics and Watershed Prioritization Steps 2 and 3

For the following sections, only respond to questions in the corresponding benefit areas identified in question #2.

Scores shown are awarded with a “yes” answer or, where applicable, provision of the requested data or information. A “no” answer results in no points awarded.

Section 2.1 Water Quality Benefit

Section 2.1.1 Project Metrics – Step 2 (20 Possible Points)

	Y	N	n/a		Scoring
1.	☐	☐	☐	Does the project increase filtration and/or treatment of runoff (Main Benefit)?	4

If you answered no to #1, skip to the Section 2.2.

2.	☐	☐	☐	Does the project address one or more of the constituents covered under a Total Maximum Daily Load (TMDL) and/or listed as a priority water quality condition in the	4

				WQIP?	
				See Section 5 for further details.	
3.	☐	☐	☐	Have estimates of expected pollutant load reductions been calculated?	2

If you answered yes to #3, enter the estimated load reduction for each constituent as either a concentration-based or mass-based value (see worksheet in Appendix X):

4.	☐	☐	☐	Does the project reduce stormwater runoff volume through increased infiltration, filtration and evapotranspiration in order to restore natural hydrology?	4

If you answered no to #4, skip to #6

5.	☐	☐	☐	Have estimates of the reduction of stormwater runoff through infiltration, filtration, and evapotranspiration been calculated?	2

If you answered yes to #5, enter the estimated change to overland flow, groundwater recharge and infiltration, interflow, and/or evapotranspiration here (see worksheet in Appendix X)::

6.	☐	☐	☐	Does the project restore natural stream and riparian corridor function by restoring natural coarse fraction sediment delivery and/or restoring natural hydrology through increased subsurface residence time in subsurface soils?	2

If you answered no to #6, skip to Section 2.1.2.

7.	☐	☐	☐	Have estimates of the changes to coarse sediment delivery and/or increased subsurface soil residence time been calculated?	2

If you answered yes to #7, enter the estimated change here (see worksheet in Appendix X):

Subtotal Score _____

Section 2.1.2 Watershed Prioritization – Step 3 (20 Possible Points)

	Y	N	n/a		
8.	☐	☐	☐	Has the project been identified and assessed as a priority strategy or drainage area in the applicable WQIP?	
				See Section 5 for further details. Provide location of Project and reference to applicable WQIP section.	10
9.	☐	☐	☐	Is the project located in a high priority drainage area of the watershed based on priority water quality assessment and high potential?	

				Provide location of project on high priority water quality drainage areas. (Maps provided in Appendix X)	10

Subtotal Score _____

Section 2.2 Water Supply Benefit

Section 2.2.1 Project Metrics – Step 2 (20 Possible Points) (Bonus Points available under this Benefit)

	Y	N	n/a		Scoring
10.	☐	☐	☐	Does the project capture storm water and/or dry weather runoff for direct uses (Main Benefit)?	5

If you answered no to #10, skip to #17

The following direct use options under #11, #13 and #15 each provide a total of 20 points including #10. Bonus points are available if the project provides for more than one direct-use option.

11.	☐	☐	☐	Does the project collect, store, and divert stormwater and/or dry weather flows to a wastewater or water treatment facility for potable or recycled use (Main Benefit)?	10

If you answered no to #11, skip to #13.

12.	☐	☐	☐	Does the applicant have a written agreement with the appropriate agency to divert stormwater and/or dry weather runoff to a facility and have flows been estimated?	5

If you answered yes to #12, enter the volume diverted here and attach the agreements (see worksheet in Appendix X):

13.	☐	☐	☐	Does the project collect, store, and divert stormwater and/or dry weather flows to be used as irrigation on-site, at a park, for habitat restoration, and/or for a natural treatment system ***(Main Benefit)*** and/or reduce the use of potable water for irrigation through quantifiable water conservation measures?	10

If you answered no to #13, skip to #15

14.	☐	☐	☐	Has the volume of storm water and/or dry weather runoff that will collected, stored, and used beneficially and/or the amount of potable water conserved from reduced irrigation use been calculated?	5

See Section 5 for additional information.

If you answered yes to #14, enter the volume here (see worksheet in Appendix X):

15.	☐	☐	☐	Does the project infiltrate storm water and/or dry weather runoff to a groundwater aquifer that is a source of local water (***Main Benefit***)?	10

If you answered no to #15, skip to #17

16.	☐	☐	☐	Has the volume of storm water and/or dry weather runoff that will be infiltrated to a direct-use basin been calculated?	5

If you answered yes to #16, enter the volume here (see worksheet in Appendix X):

17.	☐	☐	☐	Does the project capture storm water and/or dry weather runoff for indirect use (infiltration to groundwater not used as water source)?	5

If you answered no to #17, skip to Section 2.2.2.

18.	☐	☐	☐	Has the volume of storm water or dry weather runoff captured, stored and then infiltrated to a non-direct-use basin been calculated?	5

If you answered yes to #18, enter the infiltration volume here (see worksheet in Appendix X):

Subtotal Score _____

2.2.2 Watershed Prioritization– Step 3 (20 Possible Points)

	Y	N	n/a		Scoring
19.	☐	☐	☐	Has the project been identified and assessed as a water supply/conservation project opportunity on a watershed basis in Section 6 or in a watershed-based plan?	20

Subtotal Score _____

Section 2.3 Flood Management Benefit

Section 2.3.1 Project Metrics – Step 2 (20 Possible Points)

	Y	N	n/a		Scoring
20.	☐	☐	☐	Does the project decrease flood risk by reducing runoff rate and/or volume (***Main Benefit***)?	5

If you answered no to #20, skip to Section 2.4.

21.	☐	☐	☐	Has the reduction of peak flows and duration of peak flows been determined for the project?	5

If you answered yes to #21, enter the volume and duration here (see worksheet in Appendix X):

22.	☐	☐	☐	Has the volume of storm water runoff that will be infiltrated as part of the project been calculated?	5

If you answered yes to #22, enter the volume here (see worksheet in Appendix X):

23.	☐	☐	☐	Has the volume of storm water runoff that will be stored onsite as part of the project been calculated?	5

If you answered yes to #23, enter the maximum stored volume here (see worksheet in Appendix X):

Subtotal Score _____

Section 2.3.2 Watershed Prioritization – Step 3 (20 Possible Points)

	Y	N	n/a		
24.	☐	☐	☐	Has the project been identified and assessed as a priority project to reduce flood risk in a watershed flood management or master plan document? See Section 6 for further details.	20

If yes, provide plan reference and location of project with regard to flood risk management priority.

Subtotal Score _____

Section 2.4 Environmental Benefit

Section 2.4.1 Project Metrics – Step 2 (20 Possible Points)

	Y	N	n/a		Scoring
25.	☐	☐	☐	Does the project create or enhance wetland and/or riparian habitat (***Main Benefit***)?	4

If you answered no to #25, skip to #27.

26.	☐	☐	☐	Has the area of habitat created or protected been calculated for the project?	1

If you answered yes to #26, enter the area here (see worksheet in Appendix X):

27.	☐	☐	☐	Does the project reestablish the natural hydrograph (e.g. delay the timing of the peak flow or reduce the volume of the peak flow) (***Main Benefit***)?	3

If you answered no to #27, skip to #30.

28.	☐	☐	☐	Has the change in timing of the peak flow been calculated?	1

If you answered yes to #28, enter the change in time here (see worksheet in Appendix X):

29.	☐	☐	☐	Has the reduction in flow been calculated?	1

If you answered yes to #29, enter the reduction in flow here (see worksheet in Appendix X):

30.	☐	☐	☐	Does the project improve water temperatures for the benefit of habitats?	1

If you answered no to #30, skip to #31.

31.	☐	☐	☐	Has the change in water temperature been calculated?	1

If you answered yes to #31, enter the change in temperature here:

32.	☐	☐	☐	Does the project reduce energy use, reduce GHG emissions, or increase carbon sinks?	2

If you answered no to #32, skip to #34.

33.	☐	☐	☐	Has the reduction in energy use or GHG emissions or the increase in carbon sinks been calculated?	1

If you answered yes to #33, enter the value for each change here (see worksheet in Appendix X):

34.	☐	☐	☐	Does the project increase urban green space (***Main Benefit***)?	4

If you answered no to #34, skip to Section 2.4.2.

35.	☐	☐	☐	Has the area of urban green space been calculated for the project?	1

If you answered yes to #35, enter the area here (see worksheet in Appendix X):

Subtotal Score _____

2.4.2 Watershed Prioritization – Step 3 (20 Possible Points)

	Y	N	n/a		Scoring
36.	☐	☐	☐	Has the project been identified and assessed in a regional or watershed habitat conservation, restoration, and/or urban greening plan? See Section 6 for further details.	20

If yes, provide plan reference and location of project with regard to habitat restoration and enhancement priorities

Subtotal Score _____

Section 2.5 Community Benefit

Section 2.5.1 Project Metrics – Step 2 (20 Possible Points)

	Y	N	n/a		Scoring
37.	☐	☐	☐	Does the project enhance and/or create recreational and public use areas (***Main Benefit***)?	4

If you answered no to #37, skip to #39.

38.	☐	☐	☐	Has the area of created recreational and public use areas been calculated?	2

If you answered yes to #38, enter the area here:

39.	☐	☐	☐	Does the project include community involvement?	3

If you answered no to #39, skip to #41.

40.	☐	☐	☐	Has the number of community members involved in the project been calculated?	1

If you answered yes to #40, enter the number of community members here:

41.	☐	☐	☐	Does the project provide employment opportunities (***Main Benefit***)?	4

If you answered no to #41, skip to #43.

42.	☐	☐	☐	Has the number of jobs created by the project been calculated?	2

If you answered yes to #42, enter the number of jobs here:

43.	☐	☐	☐	Does the project provide public education opportunities (***Main Benefit***)?	3

If your answer is no, skip to Section 2.5.2.

44.	☐	☐	☐	Have surveys been conducted or planned to obtain data on awareness of community actions that will help meet project goals (e.g. water conservation, water quality, etc.)?	1

Subtotal Score _____

2.5.2 Watershed Prioritization – Step 3 (20 Possible Points)

	Y	N	n/a		Scoring
45.	☐	☐	☐	Has the project been identified and assessed as a priority project in a community,	20

recreational, education, development, and/or job opportunity plan?

See Section 6 for further details.

If yes, provide reference to the plan and specific identification of the project in a priority assessment

Subtotal Score _____

TOTAL SCORE _____

COMMENTS

DECEMBER 7, 2016 MEETING

San Diego Region
Storm Water Resource Plan

Draft SWRP

Project List from Call for Projects

December 7, 2016

What will be covered today

- What is the SD Region Storm Water Resource Plan (SWRP)?
- What is the SWRP Schedule?
- What is a "Functional Equivalent" SWRP?
- What is contained in the Draft SWRP?
- How do I access the Draft SWRP for review?
- How do I provide comments on the Draft SWRP and when are they due?
- What projects are listed on the current SWRP Project List?
- Will there be a chance to submit projects or update projects before Round 2 and future rounds of Prop 1 funding?

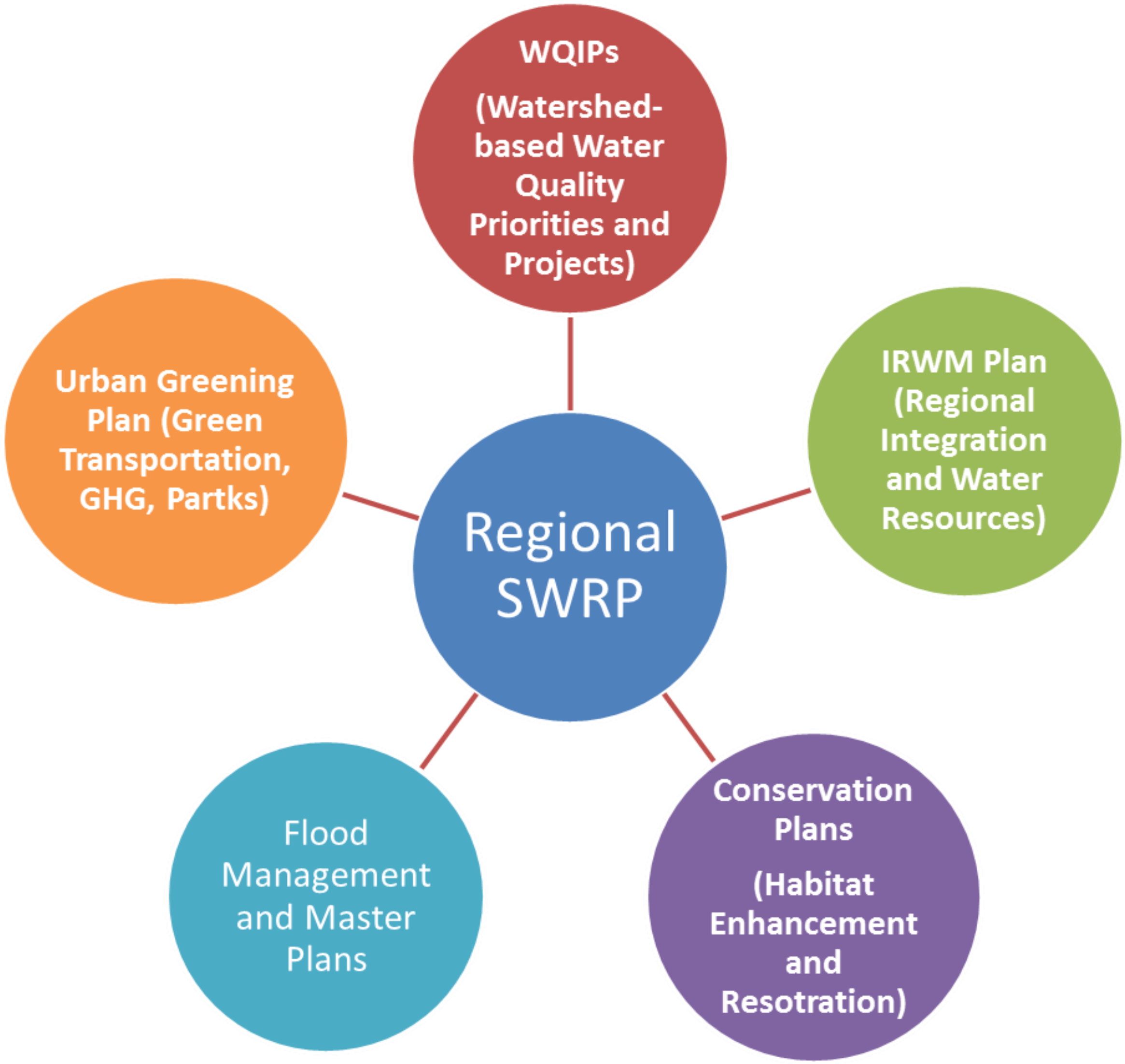
What is the SWRP?

- Required for projects requesting Proposition 1 funding that have storm water and dry weather runoff capture projects (SB985).
- Developed per State Water Resources Control Board guidelines.
- Not a compliance document.
- <u>Purpose</u>: To identify and prioritize projects to “bring to the top” those multi-benefit projects that can best meet the identified priorities on a watershed basis.
- <u>Outcome</u>: To provide the guidance and tools to support the region in developing more competitive projects for state-wide grant funding opportunities to achieve watershed and regional planning goals.

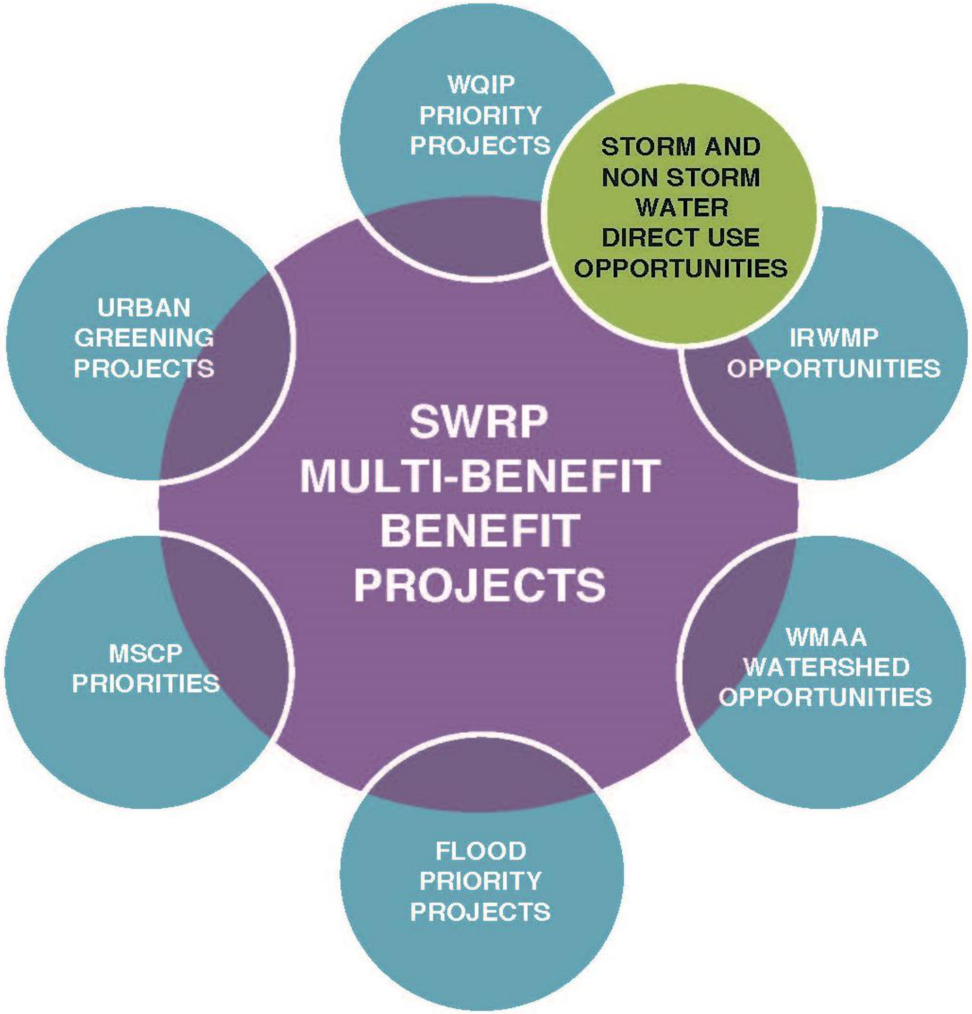
SWRP Schedule

- SWRP needs to be completed within 90 days of grant award – Round 1 project announcement provided December 1, 2016
- Final SWRP - submitted to the State Water Resources Control Board and integrated into IRWMP - February 28, 2017
- Draft SWRP posted on IRWM website on December 5, 2016
- Comments due by December 23, 2016
- Current project list will be included in Final SWRP
- Projects can be added/updated through OPTI SWRP database

What is a “Functional Equivalent” SWRP?



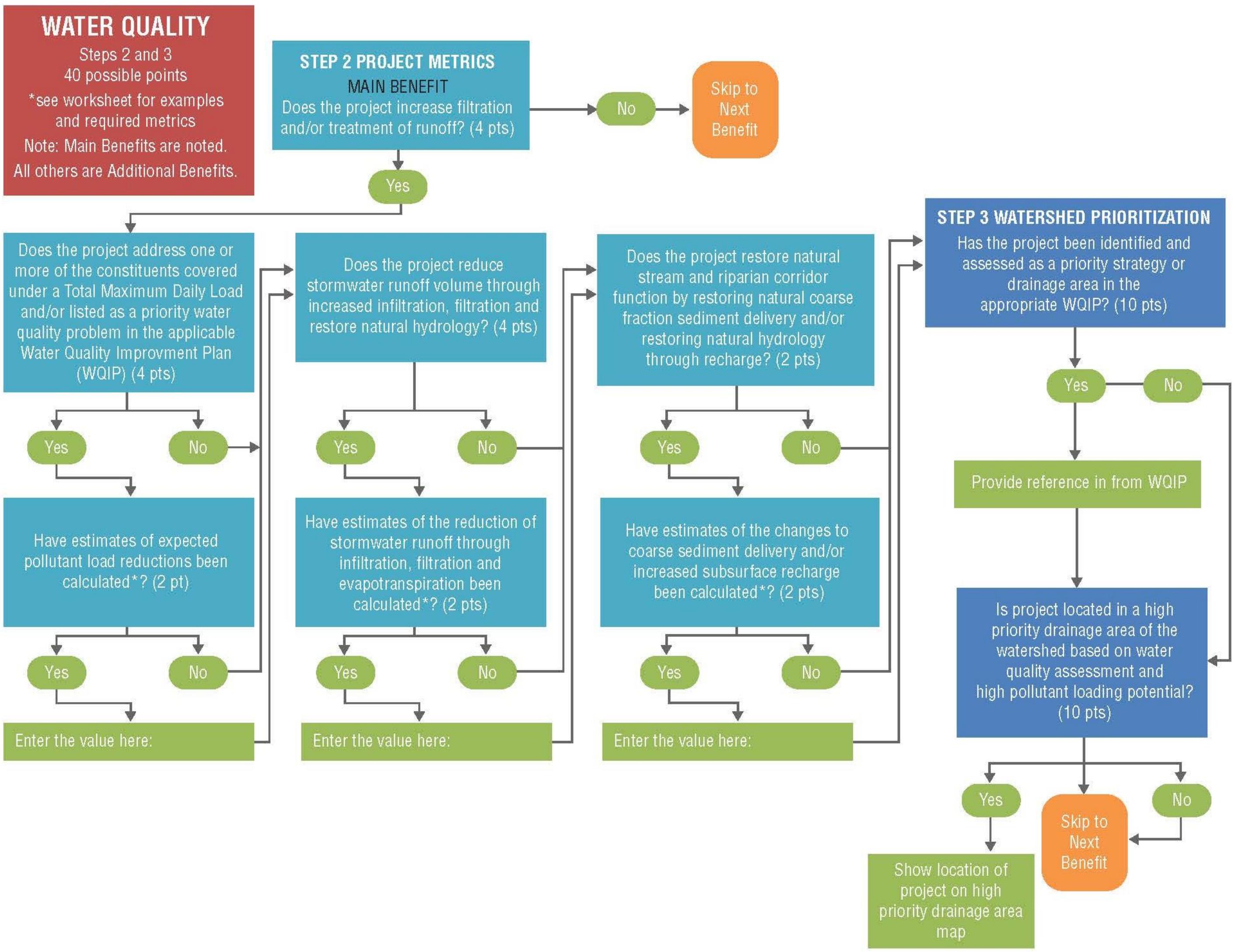
How are Projects Identified and Submitted for the SWRP List?



What is contained in the Draft SWRP?

- Meets State's Guidelines (Water Code section 10560 et seq.)
- Watershed Characteristics and Water Quality Priorities use WQIPs
- Plan provides tools for regionally and watershed collaboration to develop integrated multi-benefit projects
- Checklist - integrated analysis and prioritization tools for project listing.
- Prioritization process accessed through IRWM OPTI database
- Additional tools – storm water capture and beneficial use and restoration opportunities parcel assessment and maps

SWRP Checklist – Flow Charts



Example Project – Green Street

CHECKLIST STEP/ BENEFIT	STEP 1 ELIGIBILITY	STEP 2 PROJECT METRICS	STEP 3 WATERSHED ANALYSIS	TOTAL SCORE
WATER QUALITY	✓ Increase Runoff Treatment	16 - Reduces TMDL pollutants & runoff volumes	20 – Priority in WQIP & located in high loading area	36
WATER SUPPLY	✓ Increased Groundwater Recharge	10 – infiltrates to groundwater non-direct use	Not located in groundwater aquifer and recharge area	10
FLOODING	✓ Decrease In Flood Risk	20 – reduces flood risk & metrics calculated	20 – located in high risk flood area	40
ENVIRON-MENTAL	✓ Increase In Urban Green Space	5 – increases urban green space	20 – identified as high priority in watershed plan	25
COMMUNITY	✓ Provides Public Education	4 – signage and outreach for public education	20 – identified as high priority in outreach opportunity	24
RESULT/ SCORE	Meets 2 Or More Benefits	55	80	135 out of 200

Draft SWRP Review Process

- Draft SWRP and comments matrix are available on IRWM website http://sdirwmp.org/irwm-planning
- Comments are requested by Friday, December 23

Ruth de la Rosa

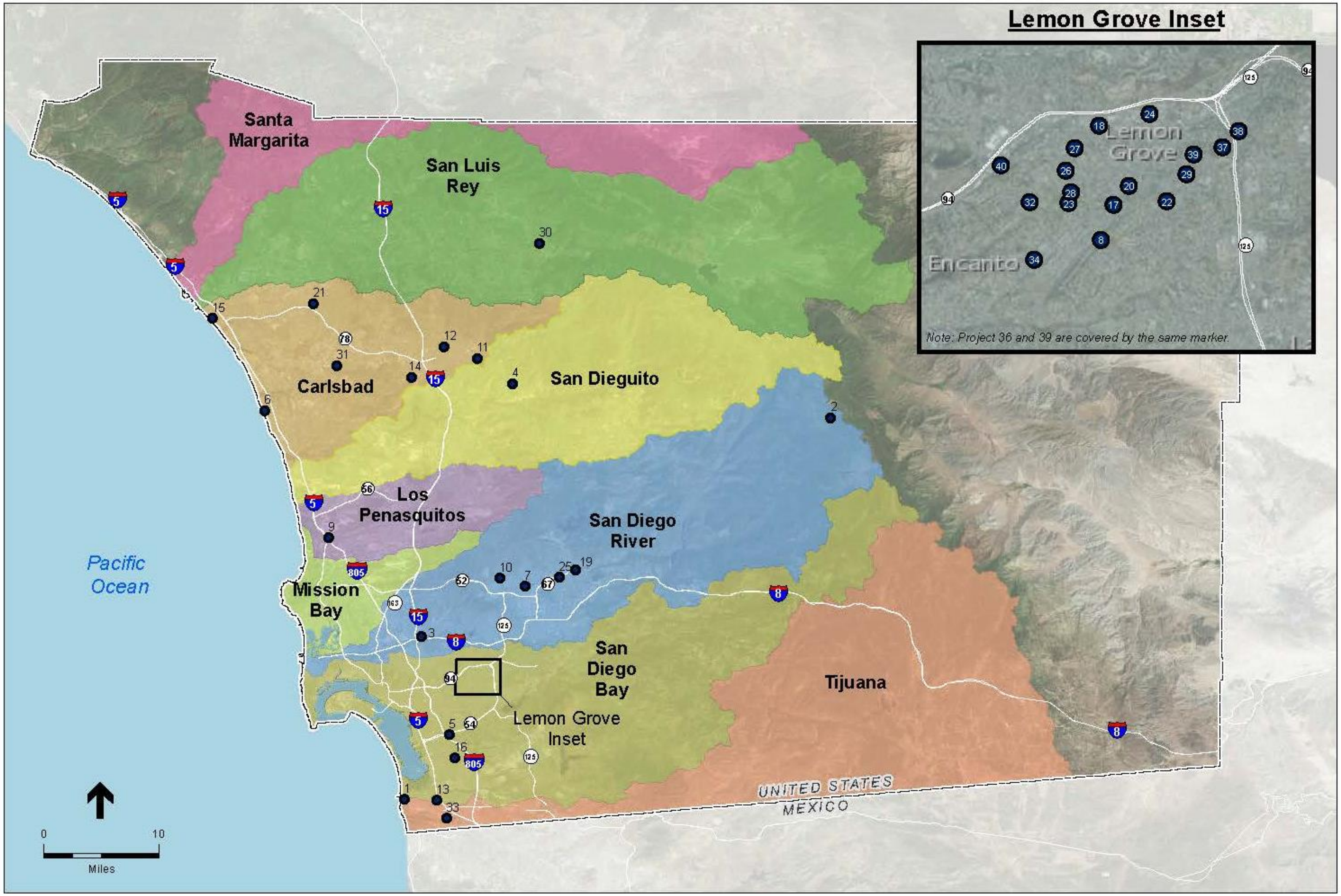
ruth.delarosa@sdcounty.ca.gov

(858) 694-2752

What projects are listed on the current SWRP Project List?

- 40 Projects are listed in the Draft SWRP
- Project List – See Handout
- Projects Submitted for 7 Watershed Management Areas

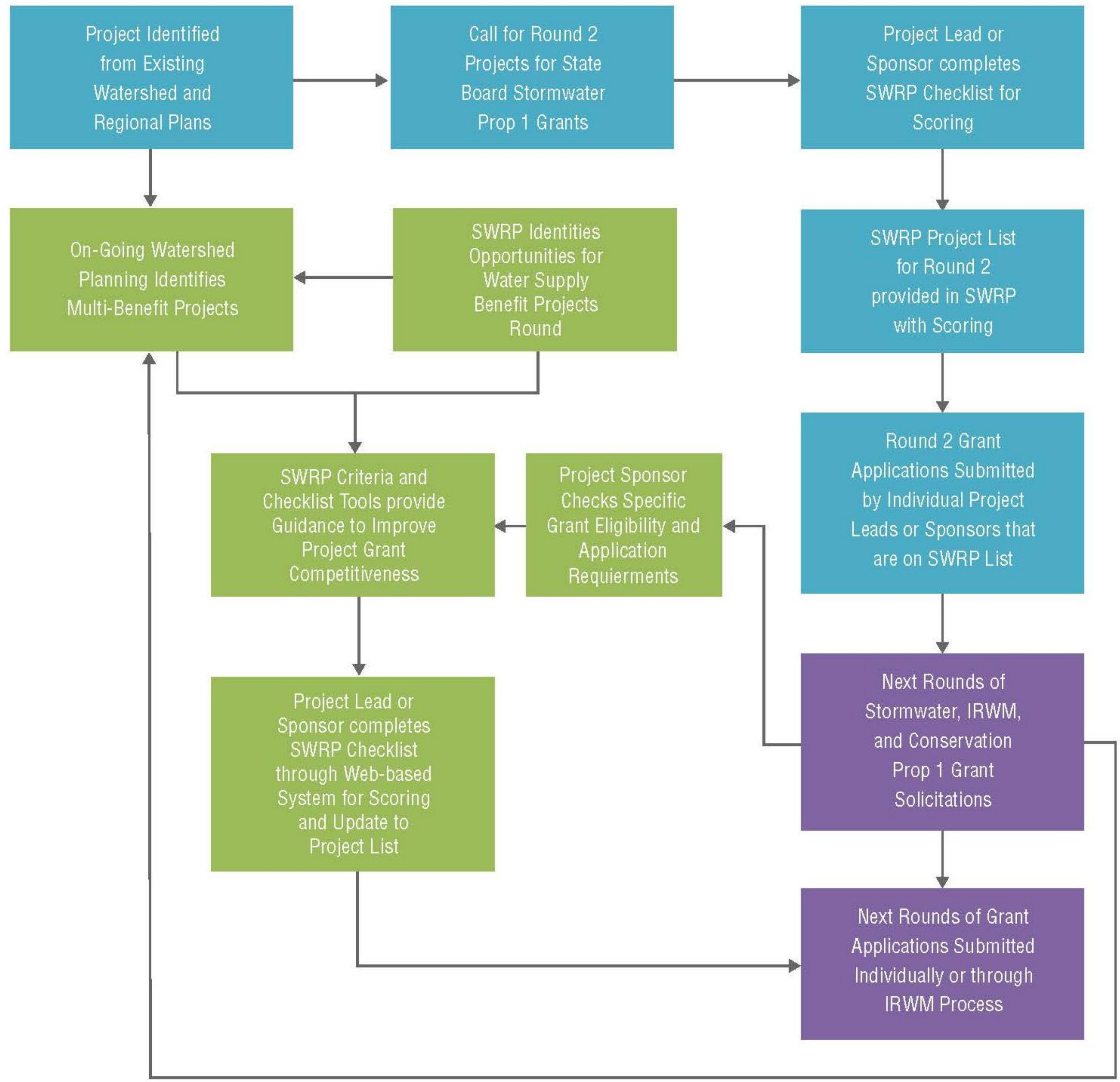
What projects are listed on the current SWRP Project List?



Will there be a chance to submit projects or update projects before Round 2 and future rounds of Prop 1 funding?

- Yes, Projects can be added and updated through on-line SWRP Checklist through IRWM OPTI database
- Final SWRP will have current list from recent Project Call as an appendix
- County and Copermittees are not responsible for grant applications or project selection (unless project sponsor)

What is the process for getting projects on the SWRP list?



Links

Draft SWRP for Public Review

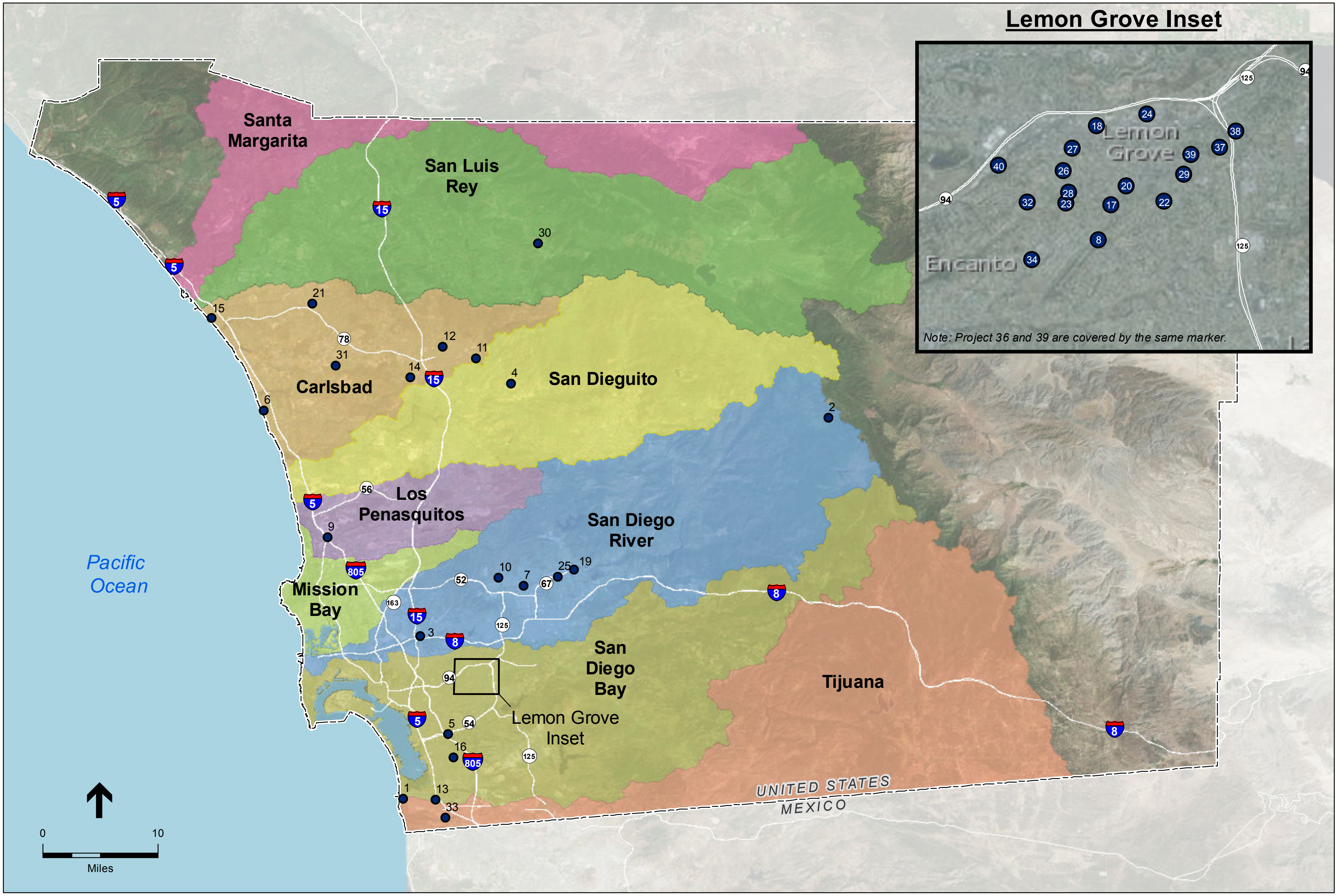
http://sdirwmp.org/irwm-planning

SDIRWM Opti Project Database

http://irwm.rmcwater.com/sd/login.php

SWRCB's Storm Water Grant Program

http://www.waterboards.ca.gov/water_issues/programs/grants_loans/swgp/prop1/



SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

Figure F-1

San Diego Region SWRP Project Locations

San Diego Region SWRP Project List

Watershed	Project Title	Sponsor Organization	Is Project Eligible?	Water Quality Score	Water Supply Score	Flood Management Score	Environmental Score	Community Score	Total Score
Carlsbad	South Santa Fe Green Street Project	City of Vista	Yes	36	40	30	28	32	166
Carlsbad	San Marino Drive Green Street and Dry Weather Flow Management	County of San Diego	Yes	32	5	10	14	25	86
Carlsbad	City of Oceanside Loma Alta Slough Restoration Project	City of Oceanside	Yes	34	0	0	16	17	67
Carlsbad	Leucadia Roadside Park Stormwater Capture/Reuse Project	City of Encinitas	Yes	0	15	5	2	6	28
Otay	Nestor Creek Channel Restoration	Earth Island Institute/Alter Terra	Yes	26	40	15	23	32	136
Penasquitos	Pure Water -Los Peñasquitos Creek Urban Dry-Weather Water Harvesting	City of San Diego Public Utilities Department	Yes	18	40	10	7	7	82
Pueblo	Paradise Creek Restoration Phase II	City of National City	Yes	34	0	15	23	32	104
Pueblo	Federal Blvd Channel	City of Lemon Grove	Yes	36	20	5	12	28	101
Pueblo	Golden Ave Green Street	City of Lemon Grove	Yes	36	5	5	14	34	94
Pueblo	Main Street Promenade Extension	City of Lemon Grove	Yes	36	5	0	15	34	90
Pueblo	Broadway/Federal Blvd Green Street	City of Lemon Grove	Yes	36	5	5	9	34	89
Pueblo	Lemon Grove Avenue Green Streets	City of Lemon Grove	Yes	36	5	5	9	34	89
Pueblo	North Ave and Grove Green Street	City of Lemon Grove	Yes	36	5	5	9	34	89
Pueblo	San Miguel Green Street	City of Lemon Grove	Yes	36	5	5	9	34	89
Pueblo	Central Avenue Green Street	City of Lemon Grove	Yes	36	5	5	9	34	89
Pueblo	Mt. Vernon St Green Street	City of Lemon Grove	Yes	36	5	5	9	34	89
Pueblo	Palm St Green Street	City of Lemon Grove	Yes	36	5	5	9	34	89
Pueblo	69th St Green Street	City of Lemon Grove	Yes	36	5	5	9	34	89
Pueblo	Madera St Green Street	City of Lemon Grove	Yes	36	5	5	9	34	89
Pueblo	Canton Dr Green Street	City of Lemon Grove	Yes	36	5	5	9	34	89
Pueblo	Lincoln St Green Street	City of Lemon Grove	Yes	36	5	5	9	34	89
Pueblo	Massachusetts Blvd Green Street	City of Lemon Grove	Yes	36	5	5	9	31	86
Pueblo	Skyline Dr and Kempt St Green Streets	City of Lemon Grove	Yes	36	5	0	9	34	84
Pueblo	Sweetwater Rd Green Street	City of Lemon Grove	Yes	32	5	0	9	34	80

Watershed	Project Title	Sponsor Organization	Is Project Eligible?	Water Quality Score	Water Supply Score	Flood Management Score	Environmental Score	Community Score	Total Score
Pueblo	Bakersfield Street and San Altos Channel Restoration	City of Lemon Grove	Yes	36	5	0	8	28	77
San Diego River	Mapleview Street - Green Infrastructure and Stormwater Quality Improvement Project	County of San Diego	Yes	32	5	5	17	23	82
San Diego River	Woodside Avenue Complete Green Street	County of San Diego	Yes	32	0	5	17	26	80
San Diego River	Storm water Capture off San Diego River along Alvarado Canyon and Fairmont Canyon to Fish and Wildlife site	City of San Diego Public Utilities Department	Yes	8	25	5	4	7	49
San Diego River	Las Colinas Channel Improvements	City of Santee	Yes	10	5	5	14	12	46
San Diego River	Sycamore Creek Restoration	City of Santee	Yes	10	5	5	14	0	34
San Dieguito	Safari Park Storm Water Capture and Reuse Project	Zoological Society of San Diego	Yes	36	70	30	21	31	188
San Dieguito	Safari Park Water Reuse Sustainability and Watershed Protection Project	Zoological Society of San Diego	Yes	30	70	30	18	27	175
San Dieguito	Alternative Compliance Retrofit Project Mountain View Park, Escondido	City of Escondido	Yes	26	40	25	0	15	106
San Dieguito	Alternative Compliance Retrofit Project El Norte Parkway and Rincon Villa Drive, Escondido	City of Escondido	Yes	10	0	0	0	5	15
San Dieguito	Alternative Compliance Retrofit Project Avenida Del Diablo Park, Escondido	City of Escondido	Yes	0	0	0	0	0	0
San Luis Rey	Storm Water Management Phase I: Feasibility Study and Conceptual Design for the Capture and Beneficial Use of Storm Water on the Rincon Band of Luiseno Indians Reservation	Rincon Band of Luiseno Indians	Yes	24	25	5	7	10	71
Sweetwater	Telegraph Canyon Channel Improvement Project	City of Chula Vista	Yes	34	5	20	24	27	110
Sweetwater	Sweetwater River Park Bioretention	City of National City	Yes	24	20	10	15	30	99
Tijuana	Low Impact Development Urban Runoff Control Projects for the Tijuana Estuary	City of Imperial Beach	Yes	36	30	10	12	29	117
Tijuana	Tijuana River Floating Trash Capture System	Earth Island Institute/Alter Terra	Yes	20	5	5	9	14	53

APPENDIX D

Response to Comments

APPENDIX D

Response to Comments

ESA

550 West C Street
Suite 750
San Diego, CA 92101
619.719.4200 phone
619.719.4201 fax

www.esassoc.com

memorandum

date October 21, 2016

to Ruth Dela Rosa, County of San Diego

cc

from David Pohl PhD, PE and Lindsey Sheehan PE

subject Response to Comments on Stormwater Resources Plan Checklist

This memo summarizes ESA's response to comments provided on the Stormwater Resources Plan (SWRP) checklist and the updates that were made to the checklist.

Comments from Helen Davies in an email to Ruth Dela Rosa on October 10, 2016:

1. My main comment is that it is overly complicated to get a project in the SWRP using these criteria. Some of the requirements are impracticable, refer inappropriately to our water quality improvement plans, or relate to items that may not exist.

   ESA response: All projects that satisfy the eligibility requirements would be included in the SWRP. The criteria simply provide a method for ranking the projects.

2. Example 1:

   For a project to be considered to be addressing a flood plain issue, it needs to be in a Watershed Flood Management Plan.

   Do documents exist for each watershed? At what resolution (detail) do they work? When were they last updated? Not every flooding issue would be entered in such a plan. It would be typical for a municipality to take steps to address the issue, not place it in a plan. The flooding issue could more readily be documented through customer complaints and work order requests.

   This comment can also be applied to requirements to refer to plans, including but not limited to urban greening plans and habitat plans.

   ESA response: A project could still be included in the SWRP even if it was not in a Watershed Flood Management Plan (or any other plans). Inclusion in one of these plans gives a project additional points, but it is not required. The SWRP guidelines require consideration of a geospatial analysis of benefits, and these plans provide those analyses. Additionally, a project that has been prioritized in one of these plans has a better chance of receiving funding.

3. Example 2:

   It seems that each project needs to have a whole host of complex calculations completed before it can be listed as a project. I noted the following: pollutant load reductions, infiltration volumes (across several flow charts), filtration volumes, and evaporation volumes, estimates of coarse sediment delivery, subsurface recharge, volumes that are diverted to irrigation and ground water recharge, indirect infiltration, non-direct use (how's that different from the others?), reductions in volumes of storm water flow, reduction of peak flows and duration, change in water temperatures, reductions in energy use, additional urban green space. I could not read the environment and community flow charts, but I am sure additional examples can be found on those charts.

   No-one will have that kind of information at the time that they are wanting to put the project into the SWRP (during conceptual design). In fact it would be unreasonable to expect municipal inhouse staff to be able to provide all that data, which means that they need to hire a consultant to make those calculations – with funding from what source? If estimates are provided, how reliable will they be? It is not typical to design a project, have it at 100 percent design (when this data can be reasonably be estimated) and have it sitting around on a shelf while funds are being sought for construction. Typically a municipality would need to have some reasonable expectation of funding before investing in a high level of engineering design to provide that data.

   ESA response: A project could still be included in the SWRP even if it does not have all of the calculations (or any) complete. We agree that having these calculations completed may not be feasible, so the scoring for having these values is lower than for the other questions. The SWRP guidelines require a quantitative analysis, so these criteria have been included to account for that. Additionally, projects that have completed this level of analysis will have a better chance of receiving funding, so the criteria was developed with this in mind.

4. Example 3:

   Our water quality improvement plans do not have "high priority strategies" or necessarily "high priority drainage areas."

   High priority water quality condition (HPWQC) is used to focus copermittee efforts and is the most appropriate guide to whether a project should be prioritized. It would be helpful if the project is listed as a "strategy" or "optional strategy," but it is not critical as SWRP updates may not match up with WQIP updates (typically during annual reporting).

   ESA response: The wording of the question has been changed to say, "Has the project been identified and assessed as a strategy associated with high priority water quality conditions in the applicable WQIP?" The SWRP checklist and criteria is intended to be a living document, and questions will change as new funding opportunities and related documents arise. If the WQIPs are replaced with updates, the criteria would be updated to reflect this.

5. Overall I am concerned that it will be very challenging to get a project listed in a SWRP, resulting in even less access to funding opportunities, particularly for municipalities that are not able to hire consultants for speculative work. It's not critical for a project to be listed to have all that detail worked out. If a funding opportunity comes up for the project and if the grant application needs the level of detail shown here, then the municipality can make the cost benefit decision to do the work then. The ability of projects to get onto the SWRP project list is critical not just for funds provided through this mechanism, but in other grant applications (which I have already seen) that ask if the project is presented in a SWRP. At present this process does not allow for the full complement of available projects to be included which I think is detrimental to the goal.

   ESA response: All projects that satisfy the eligibility requirements would be included in the SWRP. The criteria simply provide a method for ranking the projects. Additionally, since the checklist and criteria will be a living document, it is expected that project proponents could return to the checklist as more data on their projects becomes available (or after a cost benefit decision to do work has been made).

Comments from Sheri McPherson to Ruth Dela Rosa on October 10, 2016:

6. Be sure to include language in the plan that allows for the use of plans that are not currently listed or don't exist at this time.

   ESA response: Agreed. This will be covered in Chapter 5 and 9.

7. Consider adding "watershed management plans". Many of the regions watersheds had watershed management plans developed as part of Prop 13 grant funds back in the 2000s. These plans are still used to some degree within the watersheds. These plans are very holistic addressing water resources (both surface and groundwater) as well as biological and habitat priorities. This should be a consideration for questions 8, 19, 24 and 36 or added as a new question (especially in Section 2.1.2).

   ESA response: We will add Watershed Management Plans to the document

8. Question 24: Broaden the question by removing "Priority" and allow for partial points. For example, an issue/facility that is addressed by a project might be identified in a drainage master plan but does rank as priority (for County Flood Control, priority is considered the top ten projects but there are hundreds of other needs that don't rank in the top ten). The points could be assigned based on where the issue/project falls in the master plan ranking. For example: 20 pts. for project identified as the highest priority; 15 pts. for projects in the top 25% of the ranked project list; 10 pts. for projects ranked in the top 50% of the project list; and 5 pts for projects ranked in the top 75% of the project lists.

   ESA response: We like this idea, but to keep it simpler, we propose giving priority projects the full 20 points and any other projects that are listed and ranked 10 points.

9. Section 2.5, question 45. Some of our community input gets reflected in the County's 5-year operational plan for capital improvement plans (for DPW and DPR). It would be good to include these plans in the list of plans for consideration. You may wish to consider the addition of Active Transportation Plans as well. These plans receive community input to rank transportation improvement needs that can be used to

inform project locations for green streets and other project types (such as using Right-of-Way to infiltrate flows).

ESA response: We will include these plans.

Checklist Updates

- Added DCA to watershed prioritization section of Community Benefit
- Added "and/or other watershed-based plans" to the watershed prioritization section
- Rewording of WQIP watershed prioritization question based on Helen's comment #4 above
- Added watershed management plans in the watershed prioritization question for Environment per Sheri's comment #7 above
- Adjusted watershed prioritization scoring based on a simplified version of Sheri's comment #8 above
- Added County's 5-year operational plan and active transportation plans based on Sheri's comment #9 above

Comment #	Commenter	Affiliation	Section No.	Page No.	Paragraph	Comment	Response to Comments	Additional Plan Changes in February 28 Final Draft Plan Noted Here
1	Beth Payne	SWRCB	1 (and throughout)	1-1	2	Throughout the document, it is stated or implied that the the Storm Water Resource Plan Guidelines are regulations. To clarify, the State Water Board's Storm Water Resource Plan Guidelines are NOT a regulation or regulatory. SB985 requires the State Water Board to provide guidance for public agencies for the development of Storm Water Resource Plans (SWRPs) consistent with Water Code sections 10560 *et seq* . Water Code section 10563, subdivision (c)(1), requires a SWRP as a condition of receiving funds for storm water and dry weather runoff capture projects from any bond approved by voters after January 2014.	The text in Section 1 has been revised to reflect that SWRP guidelines are to guide public agencies in the development of SWRPs.	Addressed in Draft Final Submitted 1/31.
2	Beth Payne	SWRCB	1.8	1-11	1	*"The Appendix A checklist has been certified by the County of San Diego for the San Diego Copermittees."* Explain what the "certification" signifies for this completed Checklist.	Certification indicates that the checklist is complete, accurate and addresses the elements of the SWRP checklist. This has been clarified in this paragraph.	Addressed in Draft Final Submitted 1/31
3	Beth Payne	SWRCB	3	various		Why was the 2010 303(d) list used to describe waterbody impairments, rather than the more recent **2012** 303(d) list?	The 2010 303d list is referenced as it was the basis for a number of TMDL references, and used in the development of the prioritization of water quality conditions in the WQIPs. The WQIPs will be updated to reflect current 303d listing in future updates to these plans per the Permit. Updates to the WQIPs may include updates to highest priority conditions that will then be reflected in the goals and priority strategies. The SWRP is therefore an adaptive plan that will reflect these updates and new project priorities and listings.	Addressed in Draft Final Submitted 1/31
4	Beth Payne	SWRCB	4	4-2	Fig 4-1	The term "Stormwater Resource Planning Act" is not explained in the text. Is this referring to SB985? If so, then it should be replaced with "SB985" or the appropriate Water Code sections.	SB985 has been added to the figure. The Act is explained in Ch 1.	Addressed in Draft Final Submitted 1/31
5	Beth Payne	SWRCB	5.3	5-21		Water Code section 10563, subdivision (c)(1), requires a SWRP as a condition of receiving funds for storm water and dry weather runoff capture projects from any bond approved by voters after January 2014. Accordingly, **Step 1 Project Eligibility** should include a condition that only storm water management projects are eligible, assuming that this prioritization schematic is for Prop 1 funding as described throughout the SWRP.	The project eligibility criteria has been changed throughout the document to state that projects must have an element of storm water and dry weather runoff capture and water quality improvements or beneficial use benefits. This SWRP is not exclusive to Prop. 1 Stormwater funding and per the Guidelines encourages multi-benefit projects that may have habitat restoration, flooding and/or water conservation as a primary benefit, but also have a water quality and/or stormwater capture and beneficial use element. Funding under conservation type grants under Prop 1, such as through the Ocean Protection Council, require listing in a SWRP, but encourage habitat restoration with ocean water quality as an important element. This SWRP has been prepared to cover these funding sources as well.	Addressed in Draft Final Submitted 1/31
6	Beth Payne	SWRCB	5			Overall, the scoring flowcharts are hard to follow and confusing, especially Figures 5-8 and 5-9. It would be helpful to simplify the flowcharts and use an example project to fill out the flowchart graphically, from Stage 1 through Stage 3.	The scoring process is illustrated in the flow charts, but also presented in project examples in each section of Section 5.3.2, the checklist in Appendix D, and in the OPTI online system.	No edits made.
7	Beth Payne	SWRCB	5.3.2.5	5-34		The project described does not appear to be a storm water and/or dry weather runoff capture project and, as written, does not appear to be eligible for Prop 1 funding. How does this project fit into a SWRP?	We have replaced this project with a new one that includes storm water capture	Addressed in Draft Final Submitted 1/31
8	Beth Payne	SWRCB	5.5	5-39		Section **5.5 Data Management** is not very clear or detailed. What does the MS4 Permit require for data management? It may be better for this SWRP to describe the Permit's data management requirements, and then outline a suggested process for project managers to input data into OPTI and describe the kind of data that is expected to be submitted. Is OPTI publicly accessible? For projects that are not in WQIPs, what are the expectations for project sponsors/managers for data management and submittal to OPTI?	Text has been revised to incorporate the MS4 permit requirements that relate to project data. OPTI is publicly accessible but only includes project data prior to implementation (projected benefits). Post-implementation data would be collected and reported by the project applicants and used in the various plans as described in those plans (e.g. Copermittees would collect data for WQIPs)	Addressed in Draft Final Submitted 1/31
9	Beth Payne	SWRCB	7			Community outreach plan is comprehensive and well described.	Excellent, thank you	No edits made.
10	Beth Payne	SWRCB	App A	A-7		Water Code section 10562, subdivision (d)(6), requirement for new development and redevelopments is not filled out. Are there any sections in the MS4 Permit, WQIPs, or IRWM Plan that addresses this requirement? This includes LID or Green Street Ordinances.	Text added in Section 5.1.1 and referenced in Appendix A	Addressed in Draft Final Submitted 1/31 - Additional discussion of watershed measures and strategies provided in Section 5.3
11	*Harish Bagha*	*SWRCB*	ES	1	1	Last sentence says that "project applying for Proposition 1 grant funding must be listed in the SWRP". This is true for storm water management projects only, prop 1 may be funding other projects that are not listed SWRP.	Text revised	Addressed in Draft Final Submitted 1/31
12	*Harish Bagha*	*SWRCB*	5.5/OPTI			Are all of the projects listed in the OPTI database storm water management projects? How does the public access the projects that are listed in the SWRP on OPTI? How are the SWRP projects differentiated from other IRWM Projects?	Projects listed in the OPTI system under the SWRP have at least one benefit as stormwater water quality and/or stormwater and urban runoff capture and beneficial use. The text has been revised and the checklist used for the OPTI system will be revised. The public can access the projects in OPTI through the link provided in footnote 1. The SWRP projects are identified as SWRP projects (rather than IRWM projects) in the OPTI system- project applicants must choose to enter their projects in as for SWRP, for IRWM, or for both. Text revised to clarify this.	Addressed in Draft Final Submitted 1/31. Text has been further revised to include the list of IRWM projects. The reference to the IRWM projects is in 5.5.4 and the listed projects provided in Appendix I.

Comment #	Commenter	Affiliation	Section No.	Page No.	Paragraph	Comment	Response to Comments	Additional Plan Changes in February 28 Final Draft Plan Noted Here
13	*Harish Bagha*	*SWRCB*	5.2			For projects that maximize water supply, how does a project sponsor use the water supply project opportunities analysis done in section 5.2 for developing their projects? Are the parcel maps provided and easily accessible in a useful format?	Text added to clarify how project sponsors can use the analysis. The parcel maps are provided both in this document and through the OPTI online system.	Additional analysis to quantify the volume captured and used beneficially was determined for the parcels analyzed and the diversion opportunities identified. The results of this analysis are incorporated into the revised Draft Final Plan to be submitted in February 28th. Text has been added in the revised plan in Section 5.2 that includes the results and how applicants will use the results. The quantifications are also used for the project quantification analysis and ranking as presented in Section 5.5.
14	*Harish Bagha*	*SWRCB*	5.2			For projects that are claiming to maximize water supply, do they get any points for being located on a parcel that was identified for potential opportunities in this plan?	Yes. Projects would receive points in Step 3, Watershed Analysis for being located on a parcel identified in Section 5.2.	The parcel assessment was also used to provide regional quantification of water supply benefits and used to compare listed projects to provide an additional quantification assessment of listed projects as presented in Section 5.4.
15	*Harish Bagha*	*SWRCB*	Chapter 3 and Checklist item 6			Reference section does not provide general description of groundwater conditions.	General description added	Addressed in Draft Final Submitted 1/31
16	*Harish Bagha*	*SWRCB*	Chapter 3 and Checklist item 7			Checklist Item 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" The referenced section do not provide an estimate of the volume of potable water provided by the water suppliers.	Estimates have been added to Section 3 with citations.	Addressed in Draft Final Submitted 1/31
17	*Harish Bagha*	*SWRCB*	Chapter 5 and Checklist item 25			Checklist item 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." Did not see an analysis on how the proposed projects are collectivity achieving capture and use of any proposed amount of storm water and dry weather runoff. Is OPTI capable of providing a summary of the benefits claimed by all of the SWRP projects?	The project table now includes metrics entered by the project applicants.	The Project Team has revised the OPTI checklist and requested project applicants to re-submit their projects with more consistent quantification of the benefits under the specified project metrics. The OPTI system was updated to require consistent units in order to summarize the collective benefit with regard to capture and water quality improvement and/or beneficial use of storm water and dry weather runoff. This additional information was provided and is included in the SWRP Project List. To specifically address this comment, an additional quantification analysis was developed and will be incorporated into the OPTI system that compares these project quantities with the quantities of stormwater and dry weather flow captured, stored and used beneficially. This is presented in Section 5.5. This quantitative analysis results in the further scoring and ranking of projects that have water supply as a main benefit (projects can have multiple benefits). The results of this additional analysis that assessing the listed projects with the larger set of water supply projects identified through the parcel assessment (Section 5.2 and Appendix H) is presented in Appendix I. This additional analysis, project ranking and description of the methods have been added to Section 5 in the February 28th Final Draft SWRP.
18	*Harish Bagha*	*SWRCB*	Section 7.1.1.1 Checklist item 48			"Checklist item 48. Plan identifies specific audiences including local ratepayers, developers, locally regulated commercial and industrial stakeholders, nonprofit organizations, and the general public." The referenced section did not list local ratepayers, developers, and local regulated commercial and industrial stakeholders. Some of the information is included in the Table 2-2, checklist reference may need to be updated.	Table 2-2 reference added in Section 7.1	Addressed in Draft Final Submitted 1/31
19	*Harish Bagha*	*SWRCB*	Section 6.1, 6.4 Checklist item 38			Are there any other funding sources for implementation of the plan besides SWRCB SWGP R1 or R2 funding? Should also consider local revenue/funding sources, DWR IRWM funding, prop 1 through conservancies, urban greening program or any other funding sources. We suggest adding an additional section.	Text added	Addressed in Draft Final Submitted 1/31
20	*Harish Bagha*	*SWRCB*	Chapter 3 and 8			What happens when the WQIPs get updated and the new 2012 303(d) list adopted? Since majority of the plan references the WQIP, should an update to the WQIP trigger an update to the SWRP?	The SWRP is an adaptive plan. Updates to the water quality conditions, priorities, and goals will be documented in the WQIPs which the SWRP references. Future projects that have a water quality benefit are required to answer in the OPTI system whether they are a priority strategy in the most current version of the WQIP, which collectively meet the interim and final water quality goals. Therefore, the SWRP does not need to be updated as the OPTI system prioritizes projects based on the most current version of the WQIPS and other applicable planning documents referenced in the SWRP.	The OPTI system and checklist have been updated to specify that the current version of the WQIP or applicable plan is to be used to determine if the project has been identified as a priority in the watershed to address the stated goals for the plan. For water quality projects, the most recent version of the WQIP needs to be used to confirm that the listed project is a priority strategy listed in the WQIP for meeting the interim and final water quality goals. See Questions 8 and 9 on the OPTI checklist - Appendix D. The additional quantification analysis of listed projects presented in Section 5.5 includes an assessment of an individual projects quantities with a larger set of regional listed projects for water quality.
21	*Sean Maguire*	*SWRCB*	Cover Page			Suggest renaming the document to San Diego County Regional Storm Water Resource Plan or similar and noting that the document was perpared for San Diego County Department of Public Works and San Diego Region MS4 Copermittees	Change accepted	Addressed in Draft Final Submitted 1/31
22	*Sean Maguire*	*SWRCB*	Cover Page			Suggest deleting the Regional SWRP diagram and replacing with a different graphic or photo. The diagram relies on information embedded in the SWRP and does not stand on its own merit.	Figure updated	Addressed in Draft Final Submitted 1/31
23	*Sean Maguire*	*SWRCB*	General			The SWRP should give credit to State Water Board Prop 1 Storm Water Planning funding as a major funding source.	Text added on cover	Addressed in Draft Final Submitted 1/31
24	*Sean Maguire*	*SWRCB*	General			There is a lot of interplay between the SWRP And IRWMP but this is not fully described, or is attempted to be described at different places throught the SWRP. Suggest clarifying. It would be good to highlight early that the SWRP serves to actually fill a void in the IRWMP as it pertains to storm water management. For example, the call for projects is indicated will be done through the IRWM process.	The relationship between the SWRP and IRWMP is described in Section 2.5. Additional text has been added to clarify.	Addressed in Draft Final Submitted 1/31. Text has also been added in the February 28th SWRP to Section 2.5 that stated that the SWRP listed projects are included in the OPTI system that is part of the IRWM. Separate tabs are used for the SWRP and IRWM projects. IRWM projects may become a SWRP listed project when the project sponsor completes the on-line SWRP checklist that scores and ranks projects per the SWRP guidance.

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25	*Sean Maguire*	*SWRCB*	General			The document appears to be almost entirely written for the purposes of obtaining Proposition 1 funding. While we agree this is an important factor in preparing a SWRP - we anticipate much more to be accomplished through the SWRP process.	Text has been revised to shift the focus throughout the document.	Addressed in Draft Final Submitted 1/31. Text has been added to Section 1.2 in the February 28th Final Draft to clarify that this is a regional stormwater planning document and de-emphasize the focus on grants.
26	*Sean Maguire*	*SWRCB*	General			Read through the entire plan for redundancy and repetitiveness and eliminate where possible for clarity. Some sections may also be presented out of optimal order. Read for consistency as to references to the "SWRP", "Plan" Functional Equivalent SWRP", "region", etc. Make sure key terms are defined.	Completed	Addressed in Draft Final Submitted 1/31. Additional revisions completed in February 28th version to reduce redundancy. The SWRP follows the Guidance and is formatted to follow the self-checklist. Section 2 was consolidated with Section 7 to reduce redundancy.
27	*Sean Maguire*	*SWRCB*	ES			The Executive Summary seems to focus largely on process and does not summarize the features over the SWRP overall. Some background/context as to storm water challenges in the region would benefit an uninformed reader.	Text added and revised	Addressed in Draft Final Submitted 1/31
28	*Sean Maguire*	*SWRCB*	ES-1		1	Storm water resource plans are required to obtain funding from any voter-approved bond after Jan 1, 2014. Not just Prop 1. This is incorrectly stated here, but correctly stated elsewhere in the SWRP.	Text revised	Addressed in Draft Final Submitted 1/31
29	*Sean Maguire*	*SWRCB*	ES-1		3	Define MS4.	Spelled out	Addressed in Draft Final Submitted 1/31
30	*Sean Maguire*	*SWRCB*	Section 1	1-2	3	The objective of the SWRP to priortize projects does not truly get at the intent of the SWRP, to identify opportunities to enhance utlization of storm water as a resource. Section 1.2 should be reconsidered in this light. The scoring and ranking process should be saved for the appropriate section.	Section revised	Addressed in Draft Final Submitted 1/31
31	*Sean Maguire*	*SWRCB*		1-3	3	Its not clear how all of the regional plans really fit together. The WQIPS are introduced but more detailed discussion is not provided until later in the document, this should be corrected.	Section 4.1 and 5.1 describe the different plans and their relationships. To avoid repetition, references were added to this section to refer the reader to later sections.	The overall approach is to provide an adaptable SWRP. Existing, updated, and new plans developed to address benefit specific goals are the basis for identification, assessment, and prioritization of projects. Only the water supply benefit is addressed directly in the SWRP and this assessment was expanded to provide quantification and prioritization of parcels and diversion opportunities. The results of this additional effort is presented in Section 5.2 and Appendix H in the revised draft final SWRP submitted on February 28th. In addition, more discussion on the WQIPs and what is contained in these heavily referenced documents has been added to Section 5.3. I Section 5.3, the goal setting, identification of projects, prioritization and timelines are summarized and content from one of the WQIPs presented to provide clearer context.
32	*Sean Maguire*	*SWRCB*	1.4	1-5		Identification of projects a duplicate section with chapter 5? Consider consolidating for clarity.	Text has been revised to consolidate	Addressed in Draft Final Submitted 1/31
33	*Sean Maguire*	*SWRCB*		1-6	fig 1-3	Its not clear that all projects shown are related to storm water, nor if they all belong in the SWRP, or how they are screened. Where does the integrated analysis step happen to optimize opportunities?	Text has been revised to clarify projects must be related to storm water. The integrated analysis is covered in Ch 5	Addressed in Draft Final Submitted 1/31
34	*Sean Maguire*	*SWRCB*	1.5	1-7	2	All programmatic projects are not necessarily germaine to the SWRP. For example, many water conservation programmatic projects should not be included.	Agreed. Text revised to clarify must be storm water related	Addressed in Draft Final Submitted 1/31
35	*Sean Maguire*	*SWRCB*	1.8	1-8	5	Last paragraph seems repetitive; consolidate or delete.	Paragraph deleted	Addressed in Draft Final Submitted 1/31
36	*Sean Maguire*	*SWRCB*	1.6	1-9	Fig 1-4	Consider generalizing for all funding opporunities, not just Prop 1. There is too much focus on grant funding only, versus storm water planning. See previous comments.	The purple boxes cover the general funding sources other than Prop 1. Text has been revised throughout to shift the focus away from funding only.	Addressed in Draft Final Submitted 1/31
37	*Sean Maguire*	*SWRCB*	1.8	1-11	1	The SWRP needs to address all of the SWRP Guidelines. This paragraph seems to allude to the "Mandatory elements" of the Water Code.	Text revised	Addressed in Draft Final Submitted 1/31
38	*Sean Maguire*	*SWRCB*	2.3	2-7	1	Are phase II permittees included in the WQIPS? If not, how are these addressed. This section 2.3 does not have any actual objectives included. Please revise and include quantifiable objectives for the SWRP. Reference the SWRP guidelines for additional guidance on the types of objectives.	Yes, Phase II permittees are included in the WQIPs. The objectives and strategies are described in Section 5.3 and the WQIPs. A reference has been added.	Addressed in Draft Final Submitted 1/31
39	*Sean Maguire*	*SWRCB*	2.4	2-9		Clarify "accept" vs. "adopting" of the SWRP. What is the intent? Also clarify on whether the IRWM will be "accepting" the SWRP or incorporating it into the IRWM.	Text changed to "adopt". IRWM will adopt as well (text edited in following paragraph)	Text has been add and updated in Section 2.4.2 to clarify the adoption of the SWRP into the IRWMP.
40	*Sean Maguire*	*SWRCB*	5.1.4			Its not clear how all the environmental plans would result in eligible storm water projects, necessarily.	Text added to clarify	Addressed in Draft Final Submitted 1/31
41	*Sean Maguire*	*SWRCB*	5.1.5			It is not clear how the community plans fit into the quantative methods section. What is quantitative about this process?	The community plans identify the priorities for the watershed analysis-this is Step 3 of the quantification process. Text has been added to clarify. Actual quantified metrics are discussed in Section 5.4.2.4.	Addressed in Draft Final Submitted 1/31

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42	*Sean Maguire*	*SWRCB*	5.2			Water supply opportunities. We appreciate the effort but it does not seem to be complete as there is no identification of projects nor reconcilitation with existing projects, which we would expect as a tangible outcome from this effort. There is also no quantification of the benefits.	Text has been added to clarify how the analysis can be used. A more detailed assessment is planned by the County through the IRWM. Additional effort is also planned that will be incorporated into the February revised draft final SWRP.	Additional analysis to quantify the volume captured and used beneficially has been determined for the parcels analyzed and the diversion opportunities identified. The results of this analysis have been incorporated into the revised Draft Final Plan submitted on February 28th. Appendix H provides the results of this assessment including the quantification of the volumes of stormwater that could be captured and used for the beneficial use options discussed. These quantities are then used to provide additional analysis of SWRP listed projects that have water supply as a main benefit. Project sponsors are asked to provide project metric quantities such as volume per year of stormwater and/or dry weather flows captured and used beneficially. These quantities are compared to the larger set of water supply opportunties and prioritized using an additional color score (this is an additional to the number score that determines overall scoring for all benefits. Section 5.5 provides more detail on the scoring process.
43	*Sean Maguire*	*SWRCB*				Priortization of public lands - seems to be incomplete. How does public lands priortization completed in the WQIP factor into this process ?	The prioritization of public lands for water quality focused storm water projects was conducted in the WQIPs. This is explained throughout the document that the assessment and prioritization of projects that have a water quality focus have been completed in each WQIP per WMA. Project listed in the SWRP are prioritized by scoring higher if they have been assessed and prioritized on a watershed basis in the WQIP. See Section 5.4.3 for further discussion.	Additional quantification and prioritization of projects with water quality and/or water supply benefits has been completed and is included in the February 28th final Draft SWRP. The additional analysis and prioritization of water quality projects compares the quantitative metrics provided to the overall set of projects. Additional analysis to quantify the volume captured and used beneficially has been determined for the public parcels analyzed and the diversion opportunities identified. The results of this analysis are presented in Appendix H of the revised Draft Final Plan submitted on February 28th. This set of water supply projects is then used to compare with the SWRP listed projects to develop an additional color coded score. This is presented in Section 5.5.
44	*Sean Maguire*	*SWRCB*	5.3		fig 5-6	It seems like the very first question should be "is this a storm water management project"?	This question has been added	Addressed in Draft Final Submitted 1/31
45	*Sean Maguire*	*SWRCB*			fig 5-7	Why is it that a project can kicked out for not having O&M secure but there is no question about security of capital project funding? I suggest this not be a pass/fail question for eligibility, but both elements need to be addressed.	Most grants (such as Prop 1) will cover funding of construction, but not O&M. Prop 1 eligibility requires O&M funding to be secured, which is why it is included here.	Addressed in Draft Final Submitted 1/31
46	*Sean Maguire*	*SWRCB*	5.3.1			This process should not be written around only improving chances to compete for funding, but rather as a means to prioritize storm water management efforts in the region.	The project eligibility section is largely focused on grant requirements. The remaining steps of the process are to encourage collaboration with agencies and stakeholders within each watershed and regionally to develop and implement multi-benefit projects that provide water quality benefits that meet the goals stated in the WQIPs and/or provide water supply benefits through stormwater and/or urban runoff capture and beneficial use to the maximum feasible level.	Addressed in Draft Final Submitted 1/31
47	*Sean Maguire*	*SWRCB*			fig 5-9	How is the quantified scale and benefit of the project considered in the priortization process?	A project receives more points when additional benefits are provided in addition to water quality and/or water supply. Projects are also scored higher when the project has already been prioritized in a watershed or regional plan such as the WQIPs. The WQIPs have developed goals and watershed strategies to address the highest priority water quality conditions. Projects that are consistent with the prioritized strategies in the applicable WQIP will score higher.	See previous responses regarding the additional quantification analysis and prioritization that is presented in Section 5.5.
48	*Sean Maguire*	*SWRCB*			fig 5-10	Consider whether a flood management project should have equal weight with a WQIP project when it may not be storm water resource focused. Similar comments apply to Figure 5-12 re: community benefits.	We've added a project eligibility question to ensure all projects are storm water resources focused. Additionally, if a project is included in a WQIP, it receives additional points in Step 3- Watershed Analysis.	Addressed in Draft Final Submitted 1/31
49	*Sean Maguire*	*SWRCB*	5.3.3			See previous comments regarding how the quantified analysis of project benefits is conducted and incorporated.	The quantification of projects occurs in Step 2- Project Benefit Metrics. Step 3 is a spatial prioritization based on quantification done at the watershed level in different documents (WQIP, IRWM, etc).	See previous responses regarding the additional quantification analysis and pirtization that is presented in Section 5.5.
50	*Sean Maguire*	*SWRCB*	5.4	5-39		The list of projects seems incomplete and does not represent a complete analysis or compilation of storm water management opportunities, either known or projected in the county. Projects cannot be priortized when the only represent a small fraction of the actual projects that exist. What do the project benefits attain relative to the plan goals, once established? If the project list is "living" as proposed, how will plan success be measured? No time schedule is provided for plan implementation.	Projects are submitted by project applicants- the plan does not develop projects, but prioritizes efforts throughout the region. The proposed projects can still be prioritized against each other to help the region/state choose the best projects to implement. Project metric results have been added to the project table to track progress toward goals. The overall projects are contained in each of the watershed and regional plans which have specific goals per benefit type. For the SWRP, projects must have as a element either storm water / dry weather runoff water quality and/or water resource benefits. The SWRP has listed the priority strategies that are presented in the WQIPs and the SWRP prioritizes projects if they are consistent with these priorities that have already been assessed to meet the water quality goals. For storm water as a resource projects, the SWRP includes project opportunities as a basis to develop and assess and prioritize these type of projects. The tools provided for water resource benefit can be by project sponsors to either develop or augment their water quality or other benefit area project.	Please refer to previous responses on the planned additional analysis of listed project quantification presented in Section 5.5, updates to the OPTI system, and quantification of the water supply projects in Appendix H that have been incorporated into the revised draft final SWRP to be submitted on February 28th.

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51	*Sean Maguire*	*SWRCB*	6.4	6-2		The plan implementation strategy should look far beyond solely conducting a call for projects for grant funding. This needs to be expanded.	Since this is a functional equivalent plan, the SWRP relies on other documents for implementation strategy. Refer to WQIPs, IRWMP, and others for strategy.	Additional text has been added to Section 5.3 to provide more detail on the contents of the WQIPs that include specific goals, timelines and watershed strategies to achieve these goals. As discsussed, these presentation in the WQIP are extensive and specific to each jurisdiction and each watershed. Selected content from a WQIP is presented in Section 5.3 to provide context to the development of goals and implementation schedules.
52	*Sean Maguire*	*SWRCB*	8.1	8-2	Fig 8-1	The process seems to be focused predomintantly on grant funding only. Please revise per earlier comments.	This figure illustrates the funding process. However, the text has been revised to shift the focus away from funding only.	Addressed in Draft Final Submitted 1/31
53	*Sean Maguire*	*SWRCB*			Appdx A	Use latest version of the Self-Certification and Checklist.	Revised to use the latest version	
54	Harish Bagha	SWRCB				An overarching comment would be that the draft SWRP missed the opportunity to identify and quantify how the proposed projects and program are collectively resulting in addressing the regional goals and objects the plan.	The project table now includes metrics entered by the project applicants	Please refer to previous responses on the additional analysis of listed project quantification in Section 5.5, updates to the OPTI system, and quantification of the water supply projects in Appendix H that have been incorporated into the revised draft final SWRP submitted on February 28th.
55	Sheri McPhearson	County of San Diego			Appendix C-6	HA labeled incorrectly	Figure has been revised	Addressed in Draft Final Submitted 1/31
56	*Helen Davies*	*City of Escondido*	*ES*	*5*		*as projectS are*	text revised	Addressed in Draft Final Submitted 1/31
57	*Helen Davies*	*City of Escondido*	ES	5		replace exiting with existing	text revised	Addressed in Draft Final Submitted 1/31
58	*Helen Davies*	*City of Escondido*	2-3	2-8	Table 2-4	It would make sense to list the stakeholders in alphabetical order. There does not seem to be a logic in the order (see Carlsbad WMA).	table revised	Addressed in Draft Final Submitted 1/31
59	*Helen Davies*	*City of Escondido*	3.3.3.2	3-14	Table 3-7	Riparian habitat is the priority water quality condition in Escondido Creek.	This is included in the second row which lists "all water bodies within the WMA" per Table 7 of the updated WQIP.	Addressed in Draft Final Submitted 1/31
60	*Helen Davies*	*City of Escondido*	3.3.5	3-16		Is the sentence describing urbanization and development leading to habitat degradation necessary? How does it help us? Delete	sentence deleted	Addressed in Draft Final Submitted 1/31
61	*Helen Davies*	*City of Escondido*	3.4.6	3-22	First line	See previous comment. Does this discussion on urbanization help? Delete.	This section describes the watershed processes for San Dieguito, and urbanization of the watershed is a major process that has impacted water quality. For this reason, we include this sentence here.	No edits made.
62	*Helen Davies*	*City of Escondido*			Figure 3-18	Escondido is incorrectly represented and our wastewater treatment plant (HARRF) is missing. Both our water service and wastewater service areas are wrong. Please correct. Our correct service areas are presented in the attached figures.	Figure 3-18 and 3-24 updated to reflect service areas and HARRF	Addressed in Draft Final Submitted 1/31
63	*Helen Davies*	*City of Escondido*			Figure 4-1	JRMPs are jurisdictional, not regional. Where does the MS4 permit fit in?	Figure updated	Addressed in Draft Final Submitted 1/31
64	*Helen Davies*	*City of Escondido*	4.2.3	4-9		Update per approved version of WQIP. Riparian habitat for Escondido Creek for example.	This section has been updated with 2016 WQIP information. The References section has also been updated to replace the 2014 WQIP reference with the 2016 WQIP reference.	Addressed in Draft Final Submitted 1/31
65	*Helen Davies*	*City of Escondido*	4.2.3	4-9		Add qualifier that this is a snapshot. Facilities open/close all the time.	Note added below table explaining the high turnover of facilities in the hydrologic area.	Addressed in Draft Final Submitted 1/31
66	*Helen Davies*	*City of Escondido*	4.2.4	4-11	Table 4-7	Qualifier that facilities open/close would be applicable here too.	Note added below table explaining the high turnover of facilities in the hydrologic area.	Addressed in Draft Final Submitted 1/31
67	*Helen Davies*	*City of Escondido*	5.1.1.	5-4	Header	Water Quality IMPROVEMENT Plans. Correct	No, this is referring to any and all water quality plans, including WQIPs, WMAAs, WQE and others. Text added to clarify.	Addressed in Draft Final Submitted 1/31
68	*Helen Davies*	*City of Escondido*	5.2.1	5-8		What about the City of Escondido Hydraulic Study? This did a similar exercise and identified 10 locations in the City where it would be most beneficial to capture stormwater for infiltration or irrigation reuse. This was sent to you during the call for projects: http://www.escondido.org/storm-water-program.aspx	This SWRP does not capture all of the reports that are out there. If a project is prioritized in the Escondido study, the project could identify this study in the checklist and the project would receive points in Step 3.	No edits made.
69	*Helen Davies*	*City of Escondido*	5.2.2	5-8		See above comment.	This SWRP does not capture all of the reports that are out there. If a project is prioritized in the Escondido study, the project could identify this study in the checklist and the project would receive points in Step 3.	No edits made.
70	*Helen Davies*	*City of Escondido*			Figure 5-2a	The Country Club Golf Course in Escondido has closed and is rezoned for other uses. Remove from this figure.	Figure updated	Addressed in Draft Final Submitted 1/31
71	*Helen Davies*	*City of Escondido*			Appendix C	Why is the Spruce St Channel Improvement (tributary to Escondido Creek) not included here? Include.	Need to discuss the need to include this project with the County	Need to discuss the need to include this project with the County
72	*Helen Davies*	*City of Escondido*		P266		Why is Escondido (and others) missing from this list for Carlsbad? We have some significant strategies including a creek restoration project.	Jurisdictions updated. The strategies for Carlsbad are included in Section 2.4.2 of the WQIP as stated.	Addressed in Draft Final Submitted 1/31
73	*Helen Davies*	*City of Escondido*		P275		Why the repetition in figures? This goes on until p284.	This is part of the worksheets and what is included online in the OPTI system. So certain figures are included in the main report and online, thus included twice.	No edits made.
74	*Helen Davies*	*City of Escondido*		P275		Remove Escondido Creek Country Club, no longer a golf course. Rezoned for other purposes.	Figure updated	Addressed in Draft Final Submitted 1/31
75	*Helen Davies*	*City of Escondido*		P300		Why is Spruce St Channel Improvement Project not included? The project was in the database. Please include.	The project checklist was blank for this project.	RMC to coordinate with Escondido to get info entered correctly.
76	*Helen Davies*	*City of Escondido*		P301		All three of Escondido's projects are in the Carlsbad watershed. Please correct.	This has been updated	Addressed in Draft Final Submitted 1/31
77	*Malik Tamimi*	*City of Lemon Grove*	Appendix F	300-301	N/A	Updates were made to the Bakersfield Street and San Altos Channel Restoration and Main Street Promenade Extension projects. The water supply score and total scores shoul increase to include additional points.	These scores have been updated	Addressed in Draft Final Submitted 1/31

Comments on the DRAFT Final SWRP

Comment #	Commenter	Affiliation	Section No.	Page No.	Paragraph	w	Response to Comments
1	Diane Nygaard	Preserve Calavera	Section 2 - Outreach/Collaboration			San Diego is unique among most large MPOs in that we have about 400 environmental NGO's, but the vast majority have zero paid staff. This leaves us with limited capacity to engage in large scale efforts like this. The list of participants includes two well respected NGOs that do have paid staff and it is clear they have well represented the particular areas they represent. But what about the rest of us and the vast amount of the county that they do not represent? You need to put more effort into getting input from this key stakeholder group as it is clear the final product is diminished because you have not adequately included the balance that having more/broader NGO input would have provided.	We acknowledge that there are many non-profit organizations in the region that have an interest in stormwater capture and reuse, water quality improvement, and habitat protection. We intentionally chose to use the San Diego Integrated Regional Water Management (IRWM) Program and its Regional Advisory Committee (RAC) as a forum for communicating to stakeholders about the SWRP because many of those non-profit organizations are engaged in the IRWM Program. The similarities between the SWRP and the IRWMP, and that they are both grant programs, make this a common sense approach. We hoped that by using the IRWM stakeholder list that as many regional non-profits and stakeholders as possible would be informed about the SWRP and able to participate through an existing stakeholder engagement effort. If you are not already on the IRWM stakeholder list, please contact us at SDIRWM@woodardcurran.com.
2	Diane Nygaard	Preserve Calavera	Section 3 Carlsbad Watershed		Table 3-7 and 3-8	Riparian habitat is identified as a priority concern for all watersheds within the CHU, but is only called out on Table 3-8 for Escondido Creek. The Carlsbad Watershed Network made numerous comments about this issue in the WQIP process- but that input was basically ignored by the Coppermittees. It is not surprising that it also is basically ignored here. Please note that for the only 2 subwatershed that have completed watershed management Plans in this CHU (Loma Alta and Agua Hedionda) both included analysis of the importance of key acquisitions and improved creek buffers in protecting water quality. Protection of riparian habitat throughout the CHU needs to be a high priority. Failure to recognize this also carries into the identified projects.	This SWRP is a functionally equivalent document, which means it draws from other watershed and regional documents that have undergone stakeholder input and review, such as the WQIPs. The SWRP has used the table referenced from the WQIP as it has undergone stakeholder review and has been approved by the Regional Board. The goal of the SWRP is for project leads to partner with stakeholders including NGOs in each watershed to identify and develop multi-beneficial stormwater capture projects that can apply for funding under Proposition 1. The SWRP applies a scoring system to projects that encourages this watershed collaboration. Your identification of the importance of creek buffers is reflected in the project criteria that are used in scoring projects. We encourage your organization to partner with other in the Carlsbad watershed to develop and submit projects through the online SWRP OPTI system.
3	Diane Nygaard	Preserve Calavera	Section 3.3.5 and Figure 3-19 Parks and Habitat		Figure 3-19 Parks and Habitat	I did not find anything that explained why only the 6 listed species were targeted. That is an important criteria and further explanation as to how that was determined is needed to support the actions in the Plan.	Per US Fish & Wildlife, "critical habitat" is defined in the Endangered Species Act (ESA), and is a "specific geographic area(s) that contains feature essential for the conservation of a threatened or endangered species and that may require special management and protection." An area may be designated as critical habitat if it has the characteristics required for the species' life cycles, regardless of whether the species is currently present in the area. At this time, not all listed endangered and threatened species have designated critical habitat; as of January 2015, 704 species, of the more than 1,500 listed species had designated critical habitat (https://www.fws.gov/endangered/what-we-do/critical-habitats-faq.html). Only designated critical habitat was mapped, and does not indicate the presence or absence of a listed species. All listed species are protected under the ESA, even if critical habitat has not yet been designated. For more information on critical habitat, refer to US Fish & Wildlife's Critical Habitat Fact Sheet, available here:
4	Diane Nygaard	Preserve Calavera	Section 3.3.5 and Figure 3-19 Parks and Habitat		Figure 3-19 Parks and Habitat	Also throughout there is no mention of the MHCP- the adopted conservation plan that covers most of the CHU. The figure shows boundaries of the MCSP (which is very small) but fails to show the MHCP or discuss it in the text.	https://www.fws.gov/midwest/Endangered/saving/CriticalHabitatFactSheet.html
5	Diane Nygaard	Preserve Calavera	Section 3.3.5 and Figure 3-19 Parks and Habitat		Figure 3-19 Parks and Habitat	It also is unclear why such a small number of actual parks and critical habitat is depicted on the map. For example the Buena Vista Creek Ecological Reserve certainly seems like it should be included- on an impaired section of creek and immediately above the lagoon. Oak Riparian Park in Oceanside includes key riparian habitat in the AH sub-watershed. Numerous existing parks are not included.	Oak Riparian Park and Buena Vista Creek Ecological Reserve have been added to the map. The data included in the map is from SANGIS, so the map displays everything that is included in that database.
6	Diane Nygaard	Preserve Calavera	Section 3.3.5 and Figure 3-19 Parks and Habitat		Figure 3-19 Parks and Habitat	And I could not see several areas designated as critical habitat in the MHCP. It would seem like at a minimum all riparian and critical habitats should be shown.	The MHCP boundaries have been added to the figure. See response above regarding the mapping of designated critical habitat for listed species.
7	Diane Nygaard	Preserve Calavera	Project List			Few groups have the capacity to provide the kind of information required by the checklist to submit a project- but that does not mean that there are not a lot of projects worthy of consideration. I urge you to put some real effort into supporting broader involvement of NGO's, and the necessary technical support for small organizations to prepare applications and get worthy projects considered. The Coppermittees have no incentive to provide such support is it competes for their projects. But our local watersheds are crying out for this kind of help. The guidance from the state makes it clear that all stakeholders are supposed to be part of the process. It really is your challenge to figure out how to make that happen.	As long as a project responds to the project eligibility questions, it will be included in the SWRP project list. Additionally, all of the information included in the checklist are also required for a Prop 1 grant application, so the goal of the checklist is to help a project sponsor prepare for submitting a grant, rather than eliminate any projects. The more information a project has, the more competitive it will be at the state level. Appendix G provides worksheets to help project sponsors calculate project metrics and is designed to assist project sponsors in the checklist process. The SWRP applies a scoring system to projects that encourages this watershed collaboration. We encourage your organization to partner with other in the Carlsbad watershed to develop and submit projects through the online SWRP OPTI system.
8	Wbaldo Arellano	Public Works D	Section 3.9 Tijuana		3rd paragraph	Correction needed to Rio Alomar-change to "Rio Alamar".	name revised
9	Harish Bagha	water boards	section 1-1		2nd	Revise the first sentence in the second paragraph for section 1-1 as follows: "…promulgate ~~regulations~~ guidance for compliance…"	revised
10	Alex Yescas	Harris &Associates	Appendix I			changes to project metrics in Appendix I	metrics updated

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1	Beth Payne	SWRCB	1 (and throughout)	1-1	2	Throughout the document, it is stated or implied that the the Storm Water Resource Plan Guidelines are regulations. To clarify, the State Water Board's Storm Water Resource Plan Guidelines are NOT a regulation or regulatory. SB985 requires the State Water Board to provide <u>guidance</u> for public agencies for the development of Storm Water Resource Plans (SWRPs) consistent with Water Code sections 10560 *et seq* . Water Code section 10563, subdivision (c)(1), requires a SWRP as a <u>condition of receiving funds</u> for storm water and dry weather runoff capture projects from any bond approved by voters after January 2014.	The text in Section 1 has been revised to reflect that SWRP guidelines are to guide public agencies in the development of SWRPs.	Addressed in Draft Final Submitted 1/31.
2	Beth Payne	SWRCB	1.8	1-11	1	*"The Appendix A checklist has been certified by the County of San Diego for the San Diego Copermittees."* Explain what the "certification" signifies for this completed Checklist.	Certification indicates that the checklist is complete, accurate and addresses the elements of the SWRP checklist. This has been clarified in this paragraph.	Addressed in Draft Final Submitted 1/31
3	Beth Payne	SWRCB	3	various		Why was the 2010 303(d) list used to describe waterbody impairments, rather than the more recent **2012** 303(d) list?	The 2010 303d list is referenced as it was the basis for a number of TMDL references, and used in the development of the prioritization of water quality conditions in the WQIPs. The WQIPs will be updated to reflect current 303d listing in future updates to these plans per the Permit. Updates to the WQIPs may include updates to highest priority conditions that will then be reflected in the goals and priority strategies. The SWRP is therefore an adaptive plan that will reflect these updates and new project priorities and listings.	Addressed in Draft Final Submitted 1/31
4	Beth Payne	SWRCB	4	4-2	Fig 4-1	The term "Stormwater Resource Planning Act" is not explained in the text. Is this referring to SB985? If so, then it should be replaced with "SB985" or the appropriate Water Code sections.	SB985 has been added to the figure. The Act is explained in Ch 1.	Addressed in Draft Final Submitted 1/31
5	Beth Payne	SWRCB	5.3	5-21		Water Code section 10563, subdivision (c)(1), requires a SWRP as a condition of receiving funds for <u>storm water and dry weather runoff capture projects</u> from any bond approved by voters after January 2014. Accordingly, **Step 1 Project Eligibility** should include a condition that only <u>storm water management</u> projects are eligible, assuming that this prioritization schematic is for Prop 1 funding as described throughout the SWRP.	The project eligibility criteria has been changed throughout the document to state that projects must have an element of storm water and dry weather runoff capture and water quality improvements or beneficial use benefits. This SWRP is not exclusive to Prop. 1 Stormwater funding and per the Guidelines encourages multi-benefit projects that may have habitat restoration, flooding and/or water conservation as a primary benefit, but also have a water quality and/or stormwater capture and beneficial use element. Funding under conservation type grants under Prop 1, such as through the Ocean Protection Council, require listing in a SWRP, but encourage habitat restoration with ocean water quality as an important element. This SWRP has been prepared to cover these funding sources as well.	Addressed in Draft Final Submitted 1/31
6	Beth Payne	SWRCB	5			Overall, the scoring flowcharts are hard to follow and confusing, especially Figures 5-8 and 5-9. It would be helpful to simplify the flowcharts and use an example project to fill out the flowchart graphically, from Stage 1 through Stage 3.	The scoring process is illustrated in the flow charts, but also presented in project examples in each section of Section 5.3.2, the checklist in Appendix D, and in the OPTI online system.	No edits made.
7	Beth Payne	SWRCB	5.3.2.5	5-34		The project described does not appear to be a storm water and/or dry weather runoff capture project and, as written, does not appear to be eligible for Prop 1 funding. How does this project fit into a SWRP?	We have replaced this project with a new one that includes storm water capture	Addressed in Draft Final Submitted 1/31
8	Beth Payne	SWRCB	5.5	5-39		Section **5.5 Data Management** is not very clear or detailed. What does the MS4 Permit require for data management? It may be better for this SWRP to describe the Permit's data management requirements, and then outline a suggested process for project managers to input data into OPTI and describe the kind of data that is expected to be submitted. Is OPTI publicly accessible? For projects that are not in WQIPs, what are the expectations for project sponsors/managers for data management and submittal to OPTI?	Text has been revised to incorporate the MS4 permit requirements that relate to project data. OPTI is publicly accessible but only includes project data prior to implementation (projected benefits). Post-implementation data would be collected and reported by the project applicants and used in the various plans as described in those plans (e.g. Copermittees would collect data for WQIPs)	Addressed in Draft Final Submitted 1/31
9	Beth Payne	SWRCB	7			Community outreach plan is comprehensive and well described.	Excellent, thank you	No edits made.
10	Beth Payne	SWRCB	App A	A-7		Water Code section 10562, subdivision (d)(6), requirement for new development and redevelopments is not filled out. Are there any sections in the MS4 Permit, WQIPs, or IRWM Plan that addresses this requirement? This includes LID or Green Street Ordinances.	Text added in Section 5.1.1 and referenced in Appendix A	Addressed in Draft Final Submitted 1/31 - Additional discussion of watershed measures and strategies provided in Section 5.3
11	*Harish Bagha*	*SWRCB*	ES	1	1	Last sentence says that "project applying for Proposition 1 grant funding must be listed in the SWRP". This is true for storm water management projects only, prop 1 may be funding other projects that are not listed SWRP.	Text revised	Addressed in Draft Final Submitted 1/31
12	*Harish Bagha*	*SWRCB*	5.5/OPTI			Are all of the projects listed in the OPTI database storm water management projects? How does the public access the projects that are listed in the SWRP on OPTI? How are the SWRP projects differentiated from other IRWM Projects?	Projects listed in the OPTI system under the SWRP have at least one benefit as stormwater water quality and/or stormwater and urban runoff capture and beneficial use. The text has been revised and the checklist used for the OPTI system will be revised. The public can access the projects in OPTI through the link provided in footnote 1. The SWRP projects are identified as SWRP projects (rather than IRWM projects) in the OPTI system- project applicants must choose to enter their projects in as for SWRP, for IRWM, or for both. Text revised to clarify this.	Addressed in Draft Final Submitted 1/31. Text has been further revised to include the list of IRWM projects. The reference to the IRWM projects is in 5.5.4 and the listed projects provided in Appendix I.

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13	*Harish Bagha*	*SWRCB*	5.2			For projects that maximize water supply, how does a project sponsor use the water supply project opportunities analysis done in section 5.2 for developing their projects? Are the parcel maps provided and easily accessible in a useful format?	Text added to clarify how project sponsors can use the analysis. The parcel maps are provided both in this document and through the OPTI online system.	Additional analysis to quantify the volume captured and used beneficially was determined for the parcels analyzed and the diversion opportunities identified. The results of this analysis are incorporated into the revised Draft Final Plan to be submitted in February 28th. Text has been added in the revised plan in Section 5.2 that includes the results and how applicants will use the results. The quantifications are also used for the project quantification analysis and ranking as presented in Section 5.5.
14	*Harish Bagha*	*SWRCB*	5.2			For projects that are claiming to maximize water supply, do they get any points for being located on a parcel that was identified for potential opportunities in this plan?	Yes. Projects would receive points in Step 3, Watershed Analysis for being located on a parcel identified in Section 5.2.	The parcel assessment was also used to provide regional quantification of water supply benefits and used to compare listed projects to provide an additional quantification assessment of listed projects as presented in Section 5.4.
15	*Harish Bagha*	*SWRCB*	Chapter 3 and Checklist item 6			Reference section does not provide general description of groundwater conditions.	General description added	Addressed in Draft Final Submitted 1/31
16	*Harish Bagha*	*SWRCB*	Chapter 3 and Checklist item 7			Checklist Item 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" The referenced section do not provide an estimate of the volume of potable water provided by the water suppliers.	Estimates have been added to Section 3 with citations.	Addressed in Draft Final Submitted 1/31
17	*Harish Bagha*	*SWRCB*	Chapter 5 and Checklist item 25			Checklist item 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." Did not see an analysis on how the proposed projects are collectivity achieving capture and use of any proposed amount of storm water and dry weather runoff. Is OPTI capable of providing a summary of the benefits claimed by all of the SWRP projects?	The project table now includes metrics entered by the project applicants.	The Project Team has revised the OPTI checklist and requested project applicants to re-submit their projects with more consistent quantification of the benefits under the specified project metrics. The OPTI system was updated to require consistent units in order to summarize the collective benefit with regard to capture and water quality improvement and/or beneficial use of storm water and dry weather runoff. This additional information was provided and is included in the SWRP Project List. To specifically address this comment, an additional quantification analysis was developed and will be incorporated into the OPTI system that compares these project quantities with the quantities of stormwater and dry weather flow captured, stored and used beneficially. This is presented in Section 5.5. This quantitative analysis results in the further scoring and ranking of projects that have water supply as a main benefit (projects can have multiple benefits). The results of this additional analysis that assessing the listed projects with the larger set of water supply projects identified through the parcel assessment (Section 5.2 and Appendix H) is presented in Appendix I. This additional analysis, project ranking and description of the methods have been added to Section 5 in the February 28th Final Draft SWRP.
18	*Harish Bagha*	*SWRCB*	Section 7.1.1.1 Checklist item 48			"Checklist item 48. Plan identifies specific audiences including local ratepayers, developers, locally regulated commercial and industrial stakeholders, nonprofit organizations, and the general public." The referenced section did not list local ratepayers, developers, and local regulated commercial and industrial stakeholders. Some of the information is included in the Table 2-2, checklist reference may need to be updated.	Table 2-2 reference added in Section 7.1	Addressed in Draft Final Submitted 1/31
19	*Harish Bagha*	*SWRCB*	Section 6.1, 6.4 Checklist item 38			Are there any other funding sources for implementation of the plan besides SWRCB SWGP R1 or R2 funding? Should also consider local revenue/funding sources, DWR IRWM funding, prop 1 through conservancies, urban greening program or any other funding sources. We suggest adding an additional section.	Text added	Addressed in Draft Final Submitted 1/31
20	*Harish Bagha*	*SWRCB*	Chapter 3 and 8			What happens when the WQIPs get updated and the new 2012 303(d) list adopted? Since majority of the plan references the WQIP, should an update to the WQIP trigger an update to the SWRP?	The SWRP is an adaptive plan. Updates to the water quality conditions, priorities, and goals will be documented in the WQIPs which the SWRP references. Future projects that have a water quality benefit are required to answer in the OPTI system whether they are a priority strategy in the most current version of the WQIP, which collectively meet the interim and final water quality goals. Therefore, the SWRP does not need to be updated as the OPTI system prioritizes projects based on the most current version of the WQIPS and other applicable planning documents referenced in the SWRP.	The OPTI system and checklist have been updated to specify that the current version of the WQIP or applicable plan is to be used to determine if the project has been identified as a priority in the watershed to address the stated goals for the plan. For water quality projects, the most recent version of the WQIP needs to be used to confirm that the listed project is a priority strategy listed in the WQIP for meeting the interim and final water quality goals. See Questions 8 and 9 on the OPTI checklist - Appendix D. The additional quantification analysis of listed projects presented in Section 5.5 includes an assessment of an individual projects quantities with a larger set of regional listed projects for water quality.
21	*Sean Maguire*	*SWRCB*	Cover Page			Suggest renaming the document to San Diego County Regional Storm Water Resource Plan or similar and noting that the document was perpared for San Diego County Department of Public Works and San Diego Region MS4 Copermittees	Change accepted	Addressed in Draft Final Submitted 1/31
22	*Sean Maguire*	*SWRCB*	Cover Page			Suggest deleting the Regional SWRP diagram and replacing with a different graphic or photo. The diagram relies on information embedded in the SWRP and does not stand on its own merit.	Figure updated	Addressed in Draft Final Submitted 1/31
23	*Sean Maguire*	*SWRCB*	General			The SWRP should give credit to State Water Board Prop 1 Storm Water Planning funding as a major funding source.	Text added on cover	Addressed in Draft Final Submitted 1/31
24	*Sean Maguire*	*SWRCB*	General			There is a lot of interplay between the SWRP And IRWMP but this is not fully described, or is attempted to be described at different places throught the SWRP. Suggest clarifying. It would be good to highlight early that the SWRP serves to actually fill a void in the IRWMP as it pertains to storm water management. For example, the call for projects is indicated will be done through the IRWM process.	The relationship between the SWRP and IRWMP is described in Section 2.5. Additional text has been added to clarify.	Addressed in Draft Final Submitted 1/31. Text has also been added in the February 28th SWRP to Section 2.5 that stated that the SWRP listed projects are included in the OPTI system that is part of the IRWM. Separate tabs are used for the SWRP and IRWM projects. IRWM projects may become a SWRP listed project when the project sponsor completes the on-line SWRP checklist that scores and ranks projects per the SWRP guidance.

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25	*Sean Maguire*	*SWRCB*	General			The document appears to be almost entirely written for the purposes of obtaining Proposition 1 funding. While we agree this is an important factor in preparing a SWRP - we anticipate much more to be accomplished through the SWRP process.	Text has been revised to shift the focus throughout the document.	Addressed in Draft Final Submitted 1/31. Text has been added to Section 1.2 in the February 28th Final Draft to clarify that this is a regional stormwater planning document and de-emphasize the focus on grants.
26	*Sean Maguire*	*SWRCB*	General			Read through the entire plan for redundancy and repetitiveness and eliminate where possible for clarity. Some sections may also be presented out of optimal order. Read for consistency as to references to the "SWRP", "Plan" Functional Equivalent SWRP", "region", etc. Make sure key terms are defined.	Completed	Addressed in Draft Final Submitted 1/31. Additional revisions completed in February 28th version to reduce redundancy. The SWRP follows the Guidance and is formatted to follow the self-checklist. Section 2 was consolidated with Section 7 to reduce redundancy.
27	*Sean Maguire*	*SWRCB*	ES			The Executive Summary seems to focus largely on process and does not summarize the features over the SWRP overall. Some background/context as to storm water challenges in the region would benefit an uninformed reader.	Text added and revised	Addressed in Draft Final Submitted 1/31
28	*Sean Maguire*	*SWRCB*	ES-1		1	Storm water resource plans are required to obtain funding from any voter-approved bond after Jan 1, 2014. Not just Prop 1. This is incorrectly stated here, but correctly stated elsewhere in the SWRP.	Text revised	Addressed in Draft Final Submitted 1/31
29	*Sean Maguire*	*SWRCB*	ES-1		3	Define MS4.	Spelled out	Addressed in Draft Final Submitted 1/31
30	*Sean Maguire*	*SWRCB*	Section 1	1-2	3	The objective of the SWRP to priortize projects does not truly get at the intent of the SWRP, to identify opportunities to enhance utlization of storm water as a resource. Section 1.2 should be reconsidered in this light. The scoring and ranking process should be saved for the appropriate section.	Section revised	Addressed in Draft Final Submitted 1/31
31	*Sean Maguire*	*SWRCB*		1-3	3	Its not clear how all of the regional plans really fit together. The WQIPS are introduced but more detailed discussion is not provided until later in the document, this should be corrected.	Section 4.1 and 5.1 describe the different plans and their relationships. To avoid repetition, references were added to this section to refer the reader to later sections.	The overall approach is to provide an adaptable SWRP. Existing, updated, and new plans developed to address benefit specific goals are the basis for identification, assessment, and prioritization of projects. Only the water supply benefit is addressed directly in the SWRP and this assessment was expanded to provide quantification and prioritization of parcels and diversion opportunities. The results of this additional effort is presented in Section 5.2 and Appendix H in the revised draft final SWRP submitted on February 28th. In addition, more discussion on the WQIPs and what is contained in these heavily referenced documents has been added to Section 5.3. I Section 5.3, the goal setting, identification of projects, prioritization and timelines are summarized and content from one of the WQIPs presented to provide clearer context.
32	*Sean Maguire*	*SWRCB*	1.4	1-5		Identification of projects a duplicate section with chapter 5? Consider consolidating for clarity.	Text has been revised to consolidate	Addressed in Draft Final Submitted 1/31
33	*Sean Maguire*	*SWRCB*		1-6	fig 1-3	Its not clear that all projects shown are related to storm water, nor if they all belong in the SWRP, or how they are screened. Where does the integrated analysis step happen to optimize opportunities?	Text has been revised to clarify projects must be related to storm water. The integrated analysis is covered in Ch 5	Addressed in Draft Final Submitted 1/31
34	*Sean Maguire*	*SWRCB*	1.5	1-7	2	All programmatic projects are not necessarily germaine to the SWRP. For example, many water conservation programmatic projects should not be included.	Agreed. Text revised to clarify must be storm water related	Addressed in Draft Final Submitted 1/31
35	*Sean Maguire*	*SWRCB*	1.8	1-8	5	Last paragraph seems repetitive; consolidate or delete.	Paragraph deleted	Addressed in Draft Final Submitted 1/31
36	*Sean Maguire*	*SWRCB*	1.6	1-9	Fig 1-4	Consider generalizing for all funding opporunities, not just Prop 1. There is too much focus on grant funding only, versus storm water planning. See previous comments.	The purple boxes cover the general funding sources other than Prop 1. Text has been revised throughout to shift the focus away from funding only.	Addressed in Draft Final Submitted 1/31
37	*Sean Maguire*	*SWRCB*	1.8	1-11	1	The SWRP needs to address all of the SWRP Guidelines. This paragraph seems to allude to the "Mandatory elements" of the Water Code.	Text revised	Addressed in Draft Final Submitted 1/31
38	*Sean Maguire*	*SWRCB*	2.3	2-7	1	Are phase II permittees included in the WQIPS? If not, how are these addressed. This section 2.3 does not have any actual objectives included. Please revise and include quantifiable objectives for the SWRP. Reference the SWRP guidelines for additional guidance on the types of objectives.	Yes, Phase II permittees are included in the WQIPs. The objectives and strategies are described in Section 5.3 and the WQIPs. A reference has been added.	Addressed in Draft Final Submitted 1/31
39	*Sean Maguire*	*SWRCB*	2.4	2-9		Clarify "accept" vs. "adopting" of the SWRP. What is the intent? Also clarify on whether the IRWM will be "accepting" the SWRP or incorporating it into the IRWM.	Text changed to "adopt". IRWM will adopt as well (text edited in following paragraph)	Text has been add and updated in Section 2.4.2 to clarify the adoption of the SWRP into the IRWMP.
40	*Sean Maguire*	*SWRCB*	5.1.4			Its not clear how all the environmental plans would result in eligible storm water projects, necessarily.	Text added to clarify	Addressed in Draft Final Submitted 1/31
41	*Sean Maguire*	*SWRCB*	5.1.5			It is not clear how the community plans fit into the quantative methods section. What is quantitative about this process?	The community plans identify the priorities for the watershed analysis-this is Step 3 of the quantification process. Text has been added to clarify. Actual quantified metrics are discussed in Section 5.4.2.4.	Addressed in Draft Final Submitted 1/31

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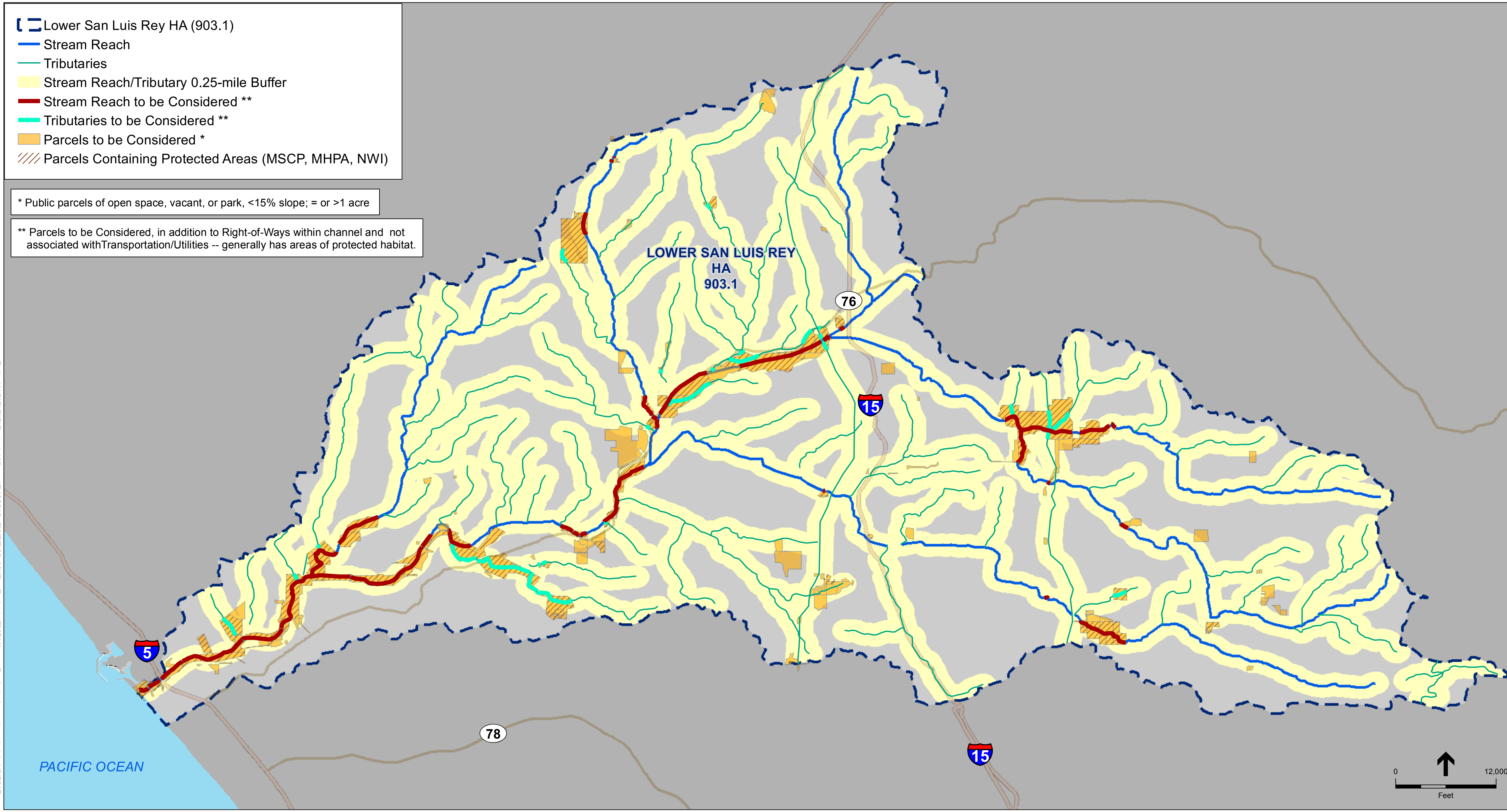
42	*Sean Maguire*	*SWRCB*	5.2			Water supply opportunities. We appreciate the effort but it does not seem to be complete as there is no identification of projects nor reconcilitation with existing projects, which we would expect as a tangible outcome from this effort. There is also no quantification of the benefits.	Text has been added to clarify how the analysis can be used. A more detailed assessment is planned by the County through the IRWM. Additional effort is also planned that will be incorporated into the February revised draft final SWRP.	Additional analysis to quantify the volume captured and used beneficially has been determined for the parcels analyzed and the diversion opportunities identified. The results of this analysis have been incorporated into the revised Draft Final Plan submitted on February 28th. Appendix H provides the results of this assessment including the quantification of the volumes of stormwater that could be captured and used for the beneficial use options discussed. These quantities are then used to provide additional analysis of SWRP listed projects that have water supply as a main benefit. Project sponsors are asked to provide project metric quantities such as volume per year of stormwater and/or dry weather flows captured and used beneficially. These quantities are compared to the larger set of water supply opportunties and prioritized using an additional color score (this is an additional to the number score that determines overall scoring for all benefits. Section 5.5 provides more detail on the scoring process.
43	*Sean Maguire*	*SWRCB*				Priortization of public lands - seems to be incomplete. How does public lands priortization completed in the WQIP factor into this process ?	The prioritization of public lands for water quality focused storm water projects was conducted in the WQIPs. This is explained throughout the document that the assessment and prioritization of projects that have a water quality focus have been completed in each WQIP per WMA. Project listed in the SWRP are prioritized by scoring higher if they have been assessed and prioritized on a watershed basis in the WQIP. See Section 5.4.3 for further discussion.	Additional quantification and prioritization of projects with water quality and/or water supply benefits has been completed and is included in the February 28th final Draft SWRP. The additional analysis and prioritization of water quality projects compares the quantitative metrics provided to the overall set of projects. Additional analysis to quantify the volume captured and used beneficially has been determined for the public parcels analyzed and the diversion opportunities identified. The results of this analysis are presented in Appendix H of the revised Draft Final Plan submitted on February 28th. This set of water supply projects is then used to compare with the SWRP listed projects to develop an additional color coded score. This is presented in Section 5.5.
44	*Sean Maguire*	*SWRCB*	5.3		fig 5-6	It seems like the very first question should be "is this a storm water management project"?	This question has been added	Addressed in Draft Final Submitted 1/31
45	*Sean Maguire*	*SWRCB*			fig 5-7	Why is it that a project can kicked out for not having O&M secure but there is no question about security of capital project funding? I suggest this not be a pass/fail question for eligibility, but both elements need to be addressed.	Most grants (such as Prop 1) will cover funding of construction, but not O&M. Prop 1 eligibility requires O&M funding to be secured, which is why it is included here.	Addressed in Draft Final Submitted 1/31
46	*Sean Maguire*	*SWRCB*	5.3.1			This process should not be written around only improving chances to compete for funding, but rather as a means to prioritize storm water management efforts in the region.	The project eligibility section is largely focused on grant requirements. The remaining steps of the process are to encourage collaboration with agencies and stakeholders within each watershed and regionally to develop and implement multi-benefit projects that provide water quality benefits that meet the goals stated in the WQIPs and/or provide water supply benefits through stormwater and/or urban runoff capture and beneficial use to the maximum feasible level.	Addressed in Draft Final Submitted 1/31
47	*Sean Maguire*	*SWRCB*			fig 5-9	How is the quantified scale and benefit of the project considered in the priortization process?	A project receives more points when additional benefits are provided in addition to water quality and/or water supply. Projects are also scored higher when the project has already been prioritized in a watershed or regional plan such as the WQIPs. The WQIPs have developed goals and watershed strategies to address the highest priority water quality conditions. Projects that are consistent with the prioritized strategies in the applicable WQIP will score higher.	See previous responses regarding the additional quantification analysis and prioritization that is presented in Section 5.5.
48	*Sean Maguire*	*SWRCB*			fig 5-10	Consider whether a flood management project should have equal weight with a WQIP project when it may not be storm water resource focused. Similar comments apply to Figure 5-12 re: community benefits.	We've added a project eligibility question to ensure all projects are storm water resources focused. Additionally, if a project is included in a WQIP, it receives additional points in Step 3- Watershed Analysis.	Addressed in Draft Final Submitted 1/31
49	*Sean Maguire*	*SWRCB*	5.3.3			See previous comments regarding how the quantified analysis of project benefits is conducted and incorporated.	The quantification of projects occurs in Step 2- Project Benefit Metrics. Step 3 is a spatial prioritization based on quantification done at the watershed level in different documents (WQIP, IRWM, etc).	See previous responses regarding the additional quantification analysis and pritization that is presented in Section 5.5.
50	*Sean Maguire*	*SWRCB*	5.4	5-39		The list of projects seems incomplete and does not represent a complete analysis or compilation of storm water management opportunities, either known or projected in the county. Projects cannot be priortized when the only represent a small fraction of the actual projects that exist. What do the project benefits attain relative to the plan goals, once established? If the project list is "living" as proposed, how will plan success be measured? No time schedule is provided for plan implementation.	Projects are submitted by project applicants- the plan does not develop projects, but prioritizes efforts throughout the region. The proposed projects can still be prioritized against each other to help the region/state choose the best projects to implement. Project metric results have been added to the project table to track progress toward goals. The overall projects are contained in each of the watershed and regional plans which have specific goals per benefit type. For the SWRP, projects must have as a element either storm water / dry weather runoff water quality and/or water resource benefits. The SWRP has listed the priority strategies that are presented in the WQIPs and the SWRP prioritizes projects if they are consistent with these priorities that have already been assessed to meet the water quality goals. For storm water as a resource projects, the SWRP includes project opportunities as a basis to develop and assess and prioritize these type of projects. The tools provided for water resource benefit can be by project sponsors to either develop or augment their water quality or other benefit area project.	Please refer to previous responses on the planned additional analysis of listed project quantification presented in Section 5.5, updates to the OPTI system, and quantification of the water supply projects in Appendix H that have been incorporated into the revised draft final SWRP to be submitted on February 28th.

Comment #	Commenter	Affiliation	Section No.	Page No.	Paragraph	Comment	Response to Comments	Additional Plan Changes in February 28 Final Draft Plan Noted Here
51	*Sean Maguire*	*SWRCB*	6.4	6-2		The plan implementation strategy should look far beyond solely conducting a call for projects for grant funding. This needs to be expanded.	Since this is a functional equivalent plan, the SWRP relies on other documents for implementation strategy. Refer to WQIPs, IRWMP, and others for strategy.	Additional text has been added to Section 5.3 to provide more detail on the contents of the WQIPs that include specific goals, timelines and watershed strategies to achieve these goals. As discsussed, these presentation in the WQIP are extensive and specific to each jurisdiction and each watershed. Selected content from a WQIP is presented in Section 5.3 to provide context to the development of goals and implementation schedules.
52	*Sean Maguire*	*SWRCB*	8.1	8-2	Fig 8-1	The process seems to be focused predomintantly on grant funding only. Please revise per earlier comments.	This figure illustrates the funding process. However, the text has been revised to shift the focus away from funding only.	Addressed in Draft Final Submitted 1/31
53	*Sean Maguire*	*SWRCB*			Appdx A	Use latest version of the Self-Certification and Checklist.	Revised to use the latest version	
54	Harish Bagha	SWRCB				An overarching comment would be that the draft SWRP missed the opportunity to identify and quantify how the proposed projects and program are collectively resulting in addressing the regional goals and objects the plan.	The project table now includes metrics entered by the project applicants	Please refer to previous responses on the additional analysis of listed project quantification in Section 5.5, updates to the OPTI system, and quantification of the water supply projects in Appendix H that have been incorporated into the revised draft final SWRP submitted on February 28th.
55	Sheri McPhearson	County of San Diego			Appendix C-6	HA labeled incorrectly	Figure has been revised	Addressed in Draft Final Submitted 1/31
56	*Helen Davies*	*City of Escondido*	*ES*	*5*		*as projectS are*	text revised	Addressed in Draft Final Submitted 1/31
57	*Helen Davies*	*City of Escondido*	ES	5		replace exiting with existing	text revised	Addressed in Draft Final Submitted 1/31
58	*Helen Davies*	*City of Escondido*	2-3	2-8	Table 2-4	It would make sense to list the stakeholders in alphabetical order. There does not seem to be a logic in the order (see Carlsbad WMA).	table revised	Addressed in Draft Final Submitted 1/31
59	*Helen Davies*	*City of Escondido*	3.3.3.2	3-14	Table 3-7	Riparian habitat is the priority water quality condition in Escondido Creek.	This is included in the second row which lists "all water bodies within the WMA" per Table 7 of the updated WQIP.	Addressed in Draft Final Submitted 1/31
60	*Helen Davies*	*City of Escondido*	3.3.5	3-16		Is the sentence describing urbanization and development leading to habitat degradation necessary? How does it help us? Delete	sentence deleted	Addressed in Draft Final Submitted 1/31
61	*Helen Davies*	*City of Escondido*	3.4.6	3-22	First line	See previous comment. Does this discussion on urbanization help? Delete.	This section describes the watershed processes for San Dieguito, and urbanization of the watershed is a major process that has impacted water quality. For this reason, we include this sentence here.	No edits made.
62	*Helen Davies*	*City of Escondido*			Figure 3-18	Escondido is incorrectly represented and our wastewater treatment plant (HARRF) is missing. Both our water service and wastewater service areas are wrong. Please correct. Our correct service areas are presented in the attached figures.	Figure 3-18 and 3-24 updated to reflect service areas and HARRF	Addressed in Draft Final Submitted 1/31
63	*Helen Davies*	*City of Escondido*			Figure 4-1	JRMPs are jurisdictional, not regional. Where does the MS4 permit fit in?	Figure updated	Addressed in Draft Final Submitted 1/31
64	*Helen Davies*	*City of Escondido*	4.2.3	4-9		Update per approved version of WQIP. Riparian habitat for Escondido Creek for example.	This section has been updated with 2016 WQIP information. The References section has also been updated to replace the 2014 WQIP reference with the 2016 WQIP reference.	Addressed in Draft Final Submitted 1/31
65	*Helen Davies*	*City of Escondido*	4.2.3	4-9		Add qualifier that this is a snapshot. Facilities open/close all the time.	Note added below table explaining the high turnover of facilities in the hydrologic area.	Addressed in Draft Final Submitted 1/31
66	*Helen Davies*	*City of Escondido*	4.2.4	4-11	Table 4-7	Qualifier that facilities open/close would be applicable here too.	Note added below table explaining the high turnover of facilities in the hydrologic area.	Addressed in Draft Final Submitted 1/31
67	*Helen Davies*	*City of Escondido*	5.1.1.	5-4	Header	Water Quality IMPROVEMENT Plans. Correct	No, this is referring to any and all water quality plans, including WQIPs, WMAAs, WQE and others. Text added to clarify.	Addressed in Draft Final Submitted 1/31
68	*Helen Davies*	*City of Escondido*	5.2.1	5-8		What about the City of Escondido Hydraulic Study? This did a similar exercise and identified 10 locations in the City where it would be most beneficial to capture stormwater for infiltration or irrigation reuse. This was sent to you during the call for projects: http://www.escondido.org/storm-water-program.aspx	This SWRP does not capture all of the reports that are out there. If a project is prioritized in the Escondido study, the project could identify this study in the checklist and the project would receive points in Step 3.	No edits made.
69	*Helen Davies*	*City of Escondido*	5.2.2	5-8		See above comment.	This SWRP does not capture all of the reports that are out there. If a project is prioritized in the Escondido study, the project could identify this study in the checklist and the project would receive points in Step 3.	No edits made.
70	*Helen Davies*	*City of Escondido*			Figure 5-2a	The Country Club Golf Course in Escondido has closed and is rezoned for other uses. Remove from this figure.	Figure updated	Addressed in Draft Final Submitted 1/31
71	*Helen Davies*	*City of Escondido*			Appendix C	Why is the Spruce St Channel Improvement (tributary to Escondido Creek) not included here? Include.	Need to discuss the need to include this project with the County	Need to discuss the need to include this project with the County
72	*Helen Davies*	*City of Escondido*		P266		Why is Escondido (and others) missing from this list for Carlsbad? We have some significant strategies including a creek restoration project.	Jurisdictions updated. The strategies for Carlsbad are included in Section 2.4.2 of the WQIP as stated.	Addressed in Draft Final Submitted 1/31
73	*Helen Davies*	*City of Escondido*		P275		Why the repetition in figures? This goes on until p284.	This is part of the worksheets and what is included online in the OPTI system. So certain figures are included in the main report and online, thus included twice.	No edits made.
74	*Helen Davies*	*City of Escondido*		P275		Remove Escondido Creek Country Club, no longer a golf course. Rezoned for other purposes.	Figure updated	Addressed in Draft Final Submitted 1/31
75	*Helen Davies*	*City of Escondido*		P300		Why is Spruce St Channel Improvement Project not included? The project was in the database. Please include.	The project checklist was blank for this project.	RMC to coordinate with Escondido to get info entered correctly.
76	*Helen Davies*	*City of Escondido*		P301		All three of Escondido's projects are in the Carlsbad watershed. Please correct.	This has been updated	Addressed in Draft Final Submitted 1/31
77	*Malik Tamimi*	*City of Lemon Grove*	Appendix F	300-301	N/A	Updates were made to the Bakersfield Street and San Altos Channel Restoration and Main Street Promenade Extension projects. The water supply score and total scores shoul increase to include additional points.	These scores have been updated	Addressed in Draft Final Submitted 1/31

Comments on the DRAFT Final SWRP

Comment #	Commenter	Affiliation	Section No.	Page No.	Paragraph	w	Response to Comments
1	Diane Nygaard	Preserve Calavera	Section 2 - Outreach/Collaboration			San Diego is unique among most large MPOs in that we have about 400 environmental NGO's, but the vast majority have zero paid staff. This leaves us with limited capacity to engage in large scale efforts like this. The list of participants includes two well respected NGOs that do have paid staff and it is clear they have well represented the particular areas they represent. But what about the rest of us and the vast amount of the county that they do not represent? You need to put more effort into getting input from this key stakeholder group as it is clear the final product is diminished because you have not adequately included the balance that having more/broader NGO input would have provided.	We acknowledge that there are many non-profit organizations in the region that have an interest in stormwater capture and reuse, water quality improvement, and habitat protection. We intentionally chose to use the San Diego Integrated Regional Water Management (IRWM) Program and its Regional Advisory Committee (RAC) as a forum for communicating to stakeholders about the SWRP because many of those non-profit organizations are engaged in the IRWM Program. The similarities between the SWRP and the IRWMP, and that they are both grant programs, make this a common sense approach. We hoped that by using the IRWM stakeholder list that as many regional non-profits and stakeholders as possible would be informed about the SWRP and able to participate through an existing stakeholder engagement effort. If you are not already on the IRWM stakeholder list, please contact us at SDIRWM@woodardcurran.com.
2	Diane Nygaard	Preserve Calavera	Section 3 Carlsbad Watershed		Table 3-7 and 3-8	Riparian habitat is identified as a priority concern for all watersheds within the CHU, but is only called out on Table 3-8 for Escondido Creek. The Carlsbad Watershed Network made numerous comments about this issue in the WQIP process- but that input was basically ignored by the Coppermittees. It is not surprising that it also is basically ignored here. Please note that for the only 2 subwatershed that have completed watershed management Plans in this CHU (Loma Alta and Agua Hedionda) both included analysis of the importance of key acquisitions and improved creek buffers in protecting water quality. Protection of riparian habitat throughout the CHU needs to be a high priority. Failure to recognize this also carries into the identified projects.	This SWRP is a functionally equivalent document, which means it draws from other watershed and regional documents that have undergone stakeholder input and review, such as the WQIPs. The SWRP has used the table referenced from the WQIP as it has undergone stakeholder review and has been approved by the Regional Board. The goal of the SWRP is for project leads to partner with stakeholders including NGOs in each watershed to identify and develop multi-beneficial stormwater capture projects that can apply for funding under Proposition 1. The SWRP applies a scoring system to projects that encourages this watershed collaboration. Your identification of the importance of creek buffers is reflected in the project criteria that are used in scoring projects. We encourage your organization to partner with other in the Carlsbad watershed to develop and submit projects through the online SWRP OPTI system.
3	Diane Nygaard	Preserve Calavera	Section 3.3.5 and Figure 3-19 Parks and Habitat		Figure 3-19 Parks and Habitat	I did not find anything that explained why only the 6 listed species were targeted. That is an important criteria and further explanation as to how that was determined is needed to support the actions in the Plan.	Per US Fish & Wildlife, "critical habitat" is defined in the Endangered Species Act (ESA), and is a "specific geographic area(s) that contains feature essential for the conservation of a threatened or endangered species and that may require special management and protection." An area may be designated as critical habitat if it has the characteristics required for the species' life cycles, regardless of whether the species is currently present in the area. At this time, not all listed endangered and threatened species have designated critical habitat; as of January 2015, 704 species, of the more than 1,500 listed species had designated critical habitat (https://www.fws.gov/endangered/what-we-do/critical-habitats-faq.html). Only designated critical habitat was mapped, and does not indicate the presence or absence of a listed species. All listed species are protected under the ESA, even if critical habitat has not yet been designated. For more information on critical habitat, refer to US Fish & Wildlife's Critical Habitat Fact Sheet, available here:
4	Diane Nygaard	Preserve Calavera	Section 3.3.5 and Figure 3-19 Parks and Habitat		Figure 3-19 Parks and Habitat	Also throughout there is no mention of the MHCP- the adopted conservation plan that covers most of the CHU. The figure shows boundaries of the MCSP (which is very small) but fails to show the MHCP or discuss it in the text.	https://www.fws.gov/midwest/Endangered/saving/CriticalHabitatFactSheet.html
5	Diane Nygaard	Preserve Calavera	Section 3.3.5 and Figure 3-19 Parks and Habitat		Figure 3-19 Parks and Habitat	It also is unclear why such a small number of actual parks and critical habitat is depicted on the map. For example the Buena Vista Creek Ecological Reserve certainly seems like it should be included- on an impaired section of creek and immediately above the lagoon. Oak Riparian Park in Oceanside includes key riparian habitat in the AH sub-watershed. Numerous existing parks are not included.	Oak Riparian Park and Buena Vista Creek Ecological Reserve have been added to the map. The data included in the map is from SANGIS, so the map displays everything that is included in that database.
6	Diane Nygaard	Preserve Calavera	Section 3.3.5 and Figure 3-19 Parks and Habitat		Figure 3-19 Parks and Habitat	And I could not see several areas designated as critical habitat in the MHCP. It would seem like at a minimum all riparian and critical habitats should be shown.	The MHCP boundaries have been added to the figure. See response above regarding the mapping of designated critical habitat for listed species.
7	Diane Nygaard	Preserve Calavera	Project List			Few groups have the capacity to provide the kind of information required by the checklist to submit a project- but that does not mean that there are not a lot of projects worthy of consideration. I urge you to put some real effort into supporting broader involvement of NGO's, and the necessary technical support for small organizations to prepare applications and get worthy projects considered. The Coppermittees have no incentive to provide such support is it competes for their projects. But our local watersheds are crying out for this kind of help. The guidance from the state makes it clear that all stakeholders are supposed to be part of the process. It really is your challenge to figure out how to make that happen.	As long as a project responds to the project eligibility questions, it will be included in the SWRP project list. Additionally, all of the information included in the checklist are also required for a Prop 1 grant application, so the goal of the checklist is to help a project sponsor prepare for submitting a grant, rather than eliminate any projects. The more information a project has, the more competitive it will be at the state level. Appendix G provides worksheets to help project sponsors calculate project metrics and is designed to assist project sponsors in the checklist process. The SWRP applies a scoring system to projects that encourages this watershed collaboration. We encourage your organization to partner with other in the Carlsbad watershed to develop and submit projects through the online SWRP OPTI system.
8	Wbaldo Arellano	Public Works D	Section 3.9 Tijuana		3rd paragraph	Correction needed to Rio Alomar-change to "Rio Alamar".	name revised
9	Harish Bagha	water boards	section 1-1		2nd	Revise the first sentence in the second paragraph for section 1-1 as follows: "…promulgate ~~regulations~~ guidance for compliance…"	revised
10	Alex Yescas	Harris &Associates	Appendix I			changes to project metrics in Appendix I	metrics updated

APPENDIX E
Restoration Opportunities

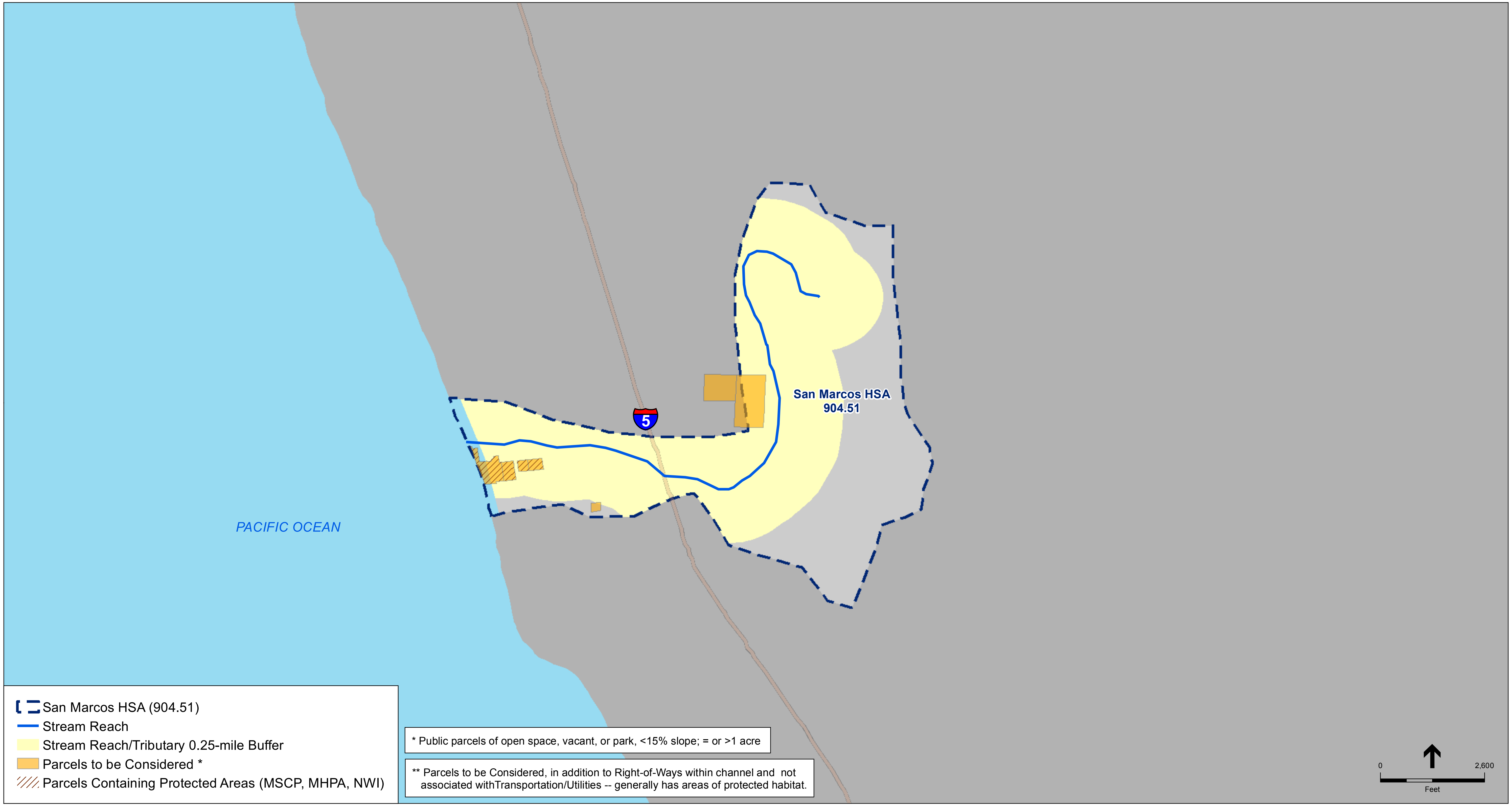


Source: SanGIS; NHD; ESRI; NWI

SWRP . 160618

Appendix E-1

San Diego County Watershed Management Areas - Lower San Luis Rey HA

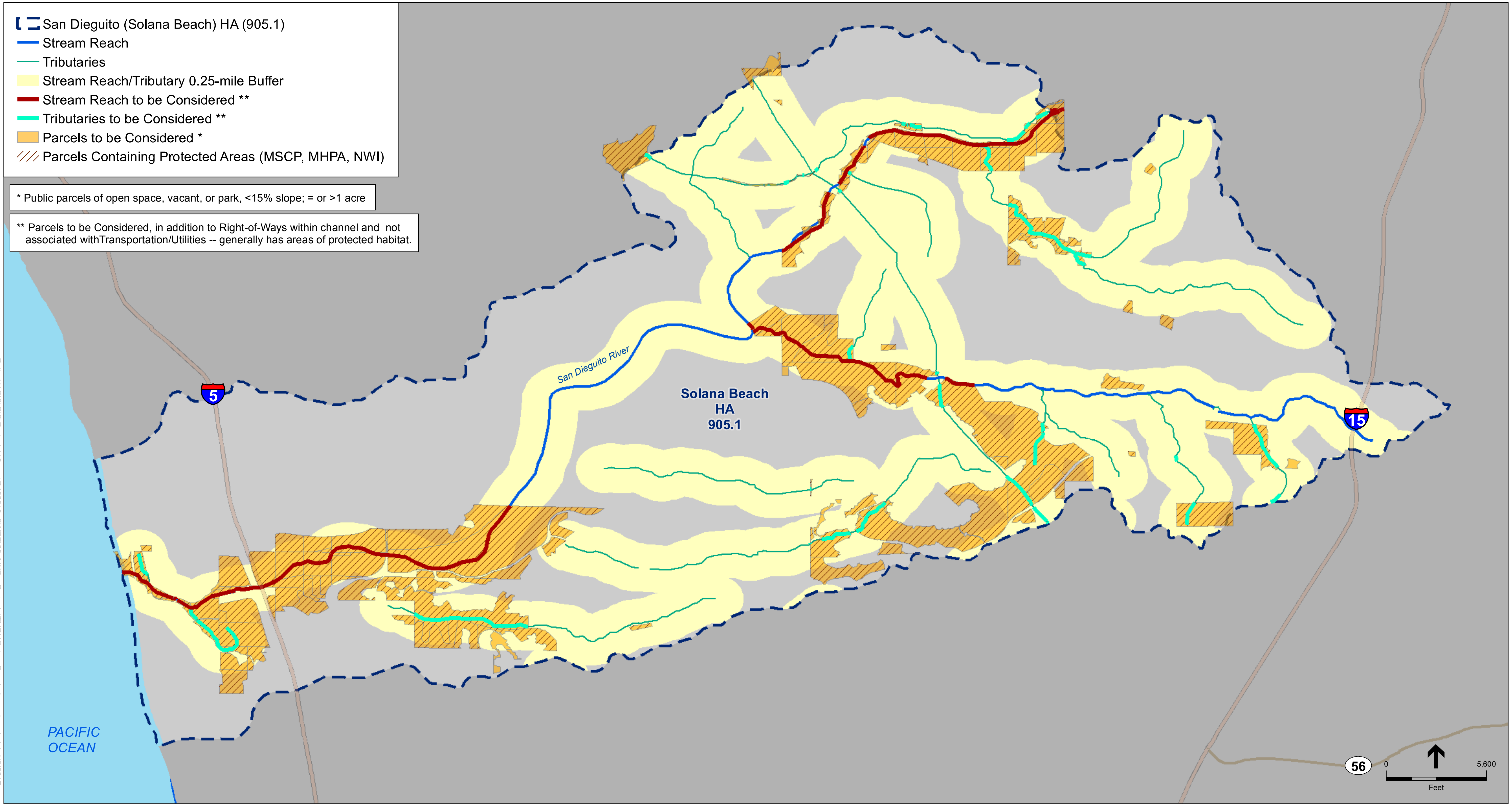


Source: SanGIS; NHD; ESRI; NWI

SWRP . 160618

Appendix E-2

San Diego County Watershed Management Areas - San Marcos HSA

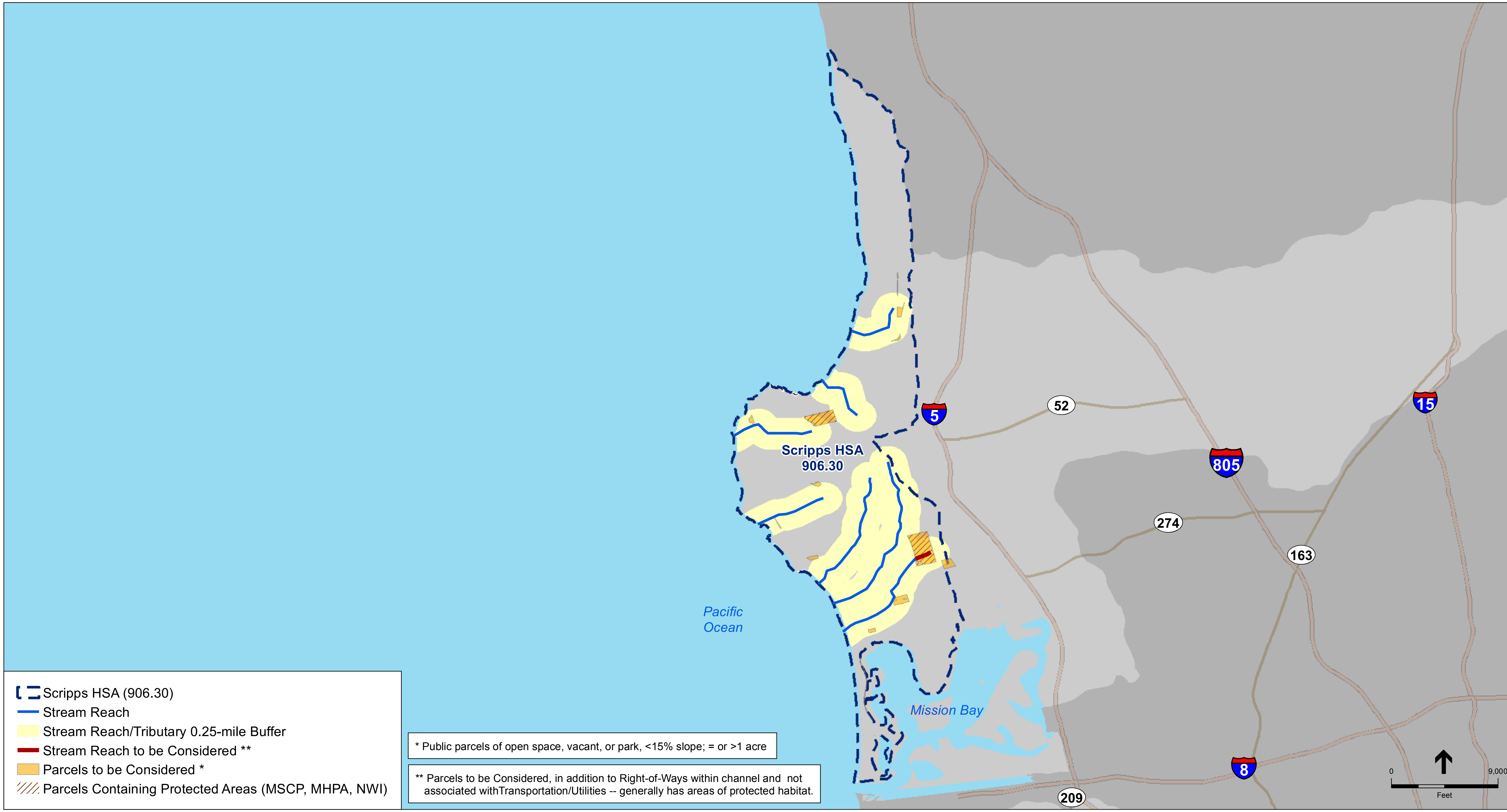


Source: SanGIS; NHD; ESRI; NWI

SWRP . 160618

Appendix E-3

San Diego County Watershed Management Areas - San Dieguito (Solana Beach) HA

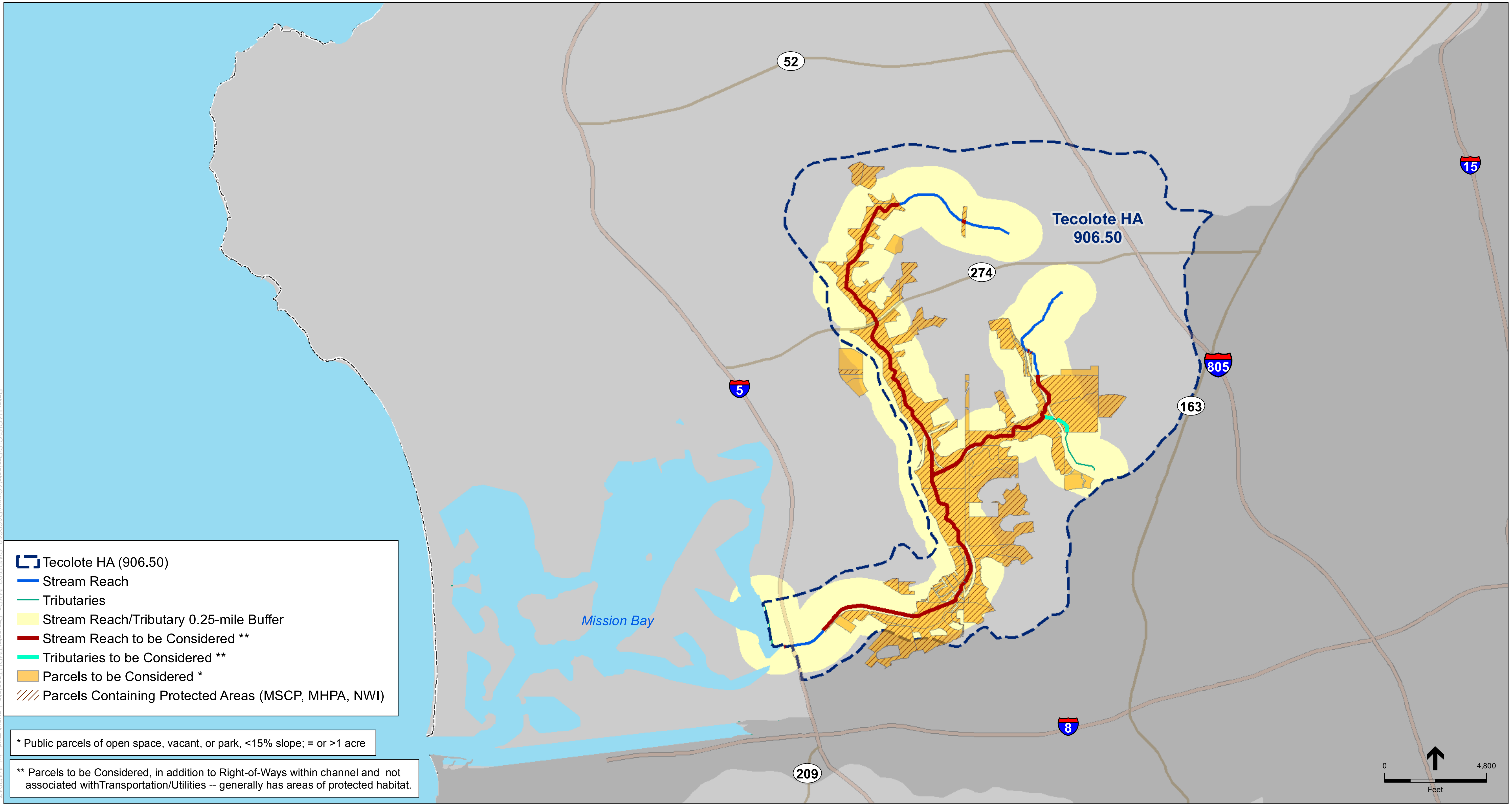


Source: SanGIS; NHD; ESRI; NWI

SWRP . 160618

Appendix E-4

San Diego County Watershed Management Areas - Scripps HSA

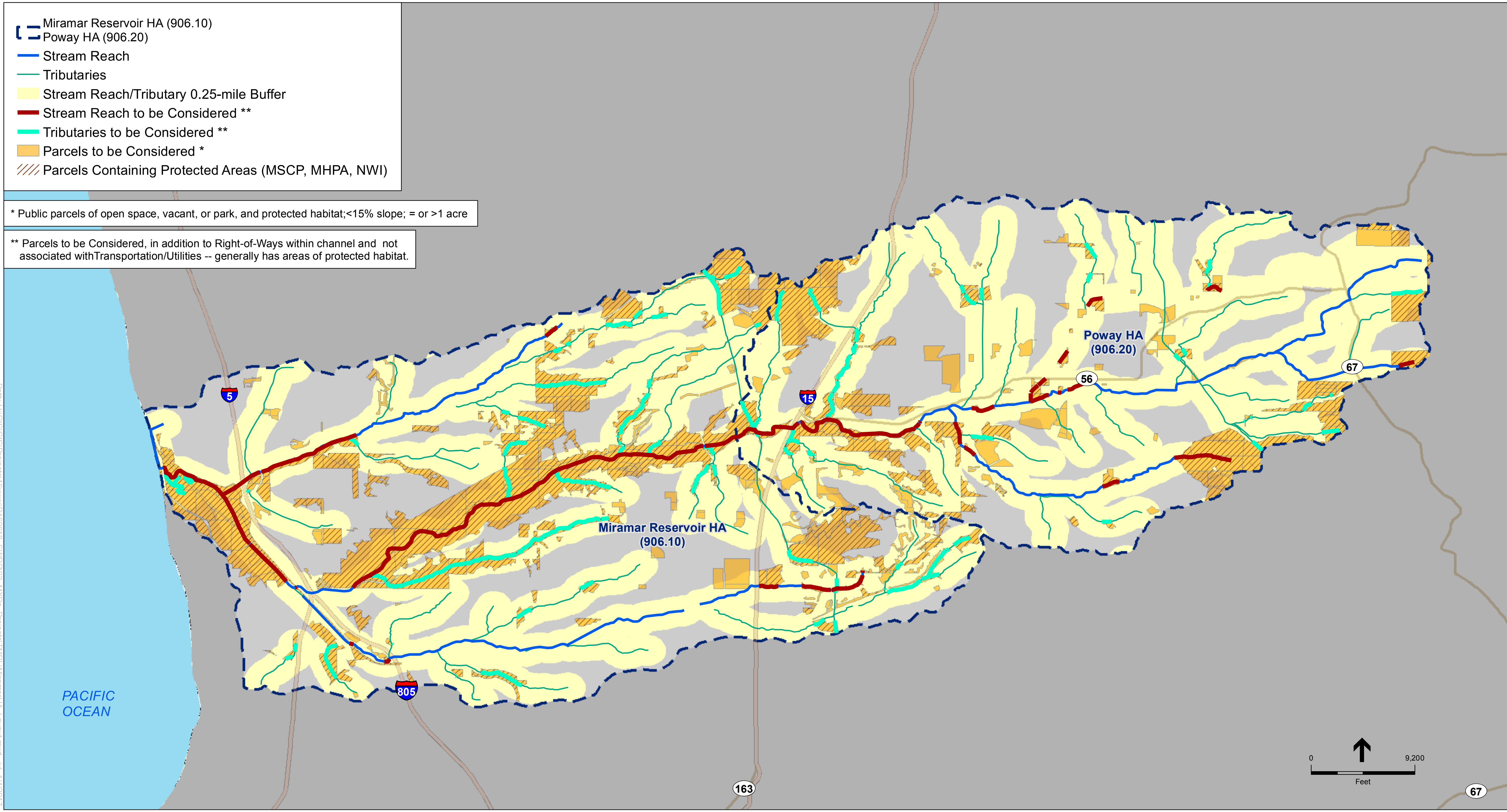


Source: SanGIS; NHD; ESRI; NWI

SWRP . 160618

Appendix E-5

San Diego County Watershed Management Areas - Tecolote HA

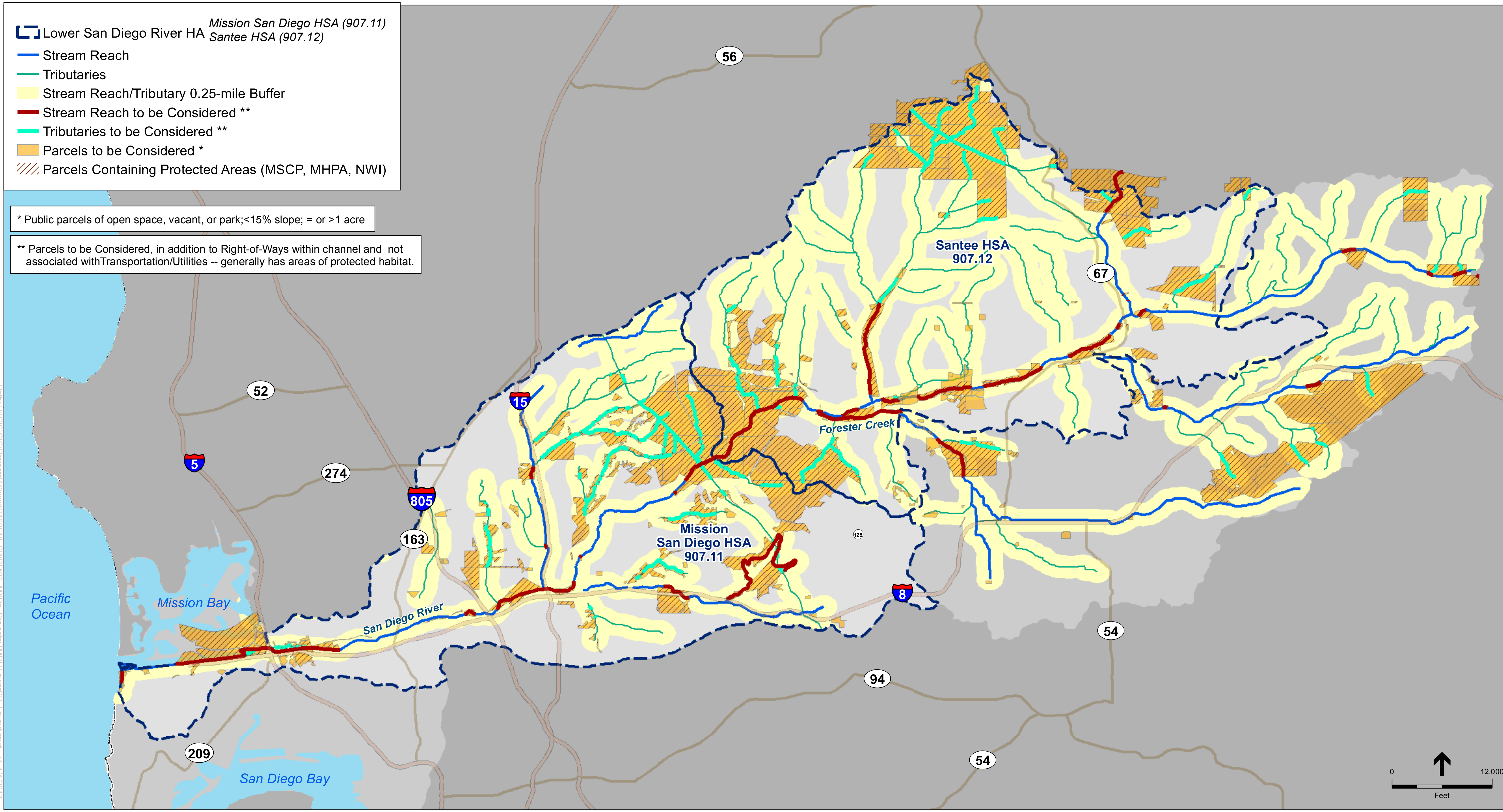


Source: SanGIS; NHD; ESRI; NWI

SWRP . 160618

Appendix E-6

San Diego County Watershed Management Areas - Miramar Reservoir HA and Poway HA

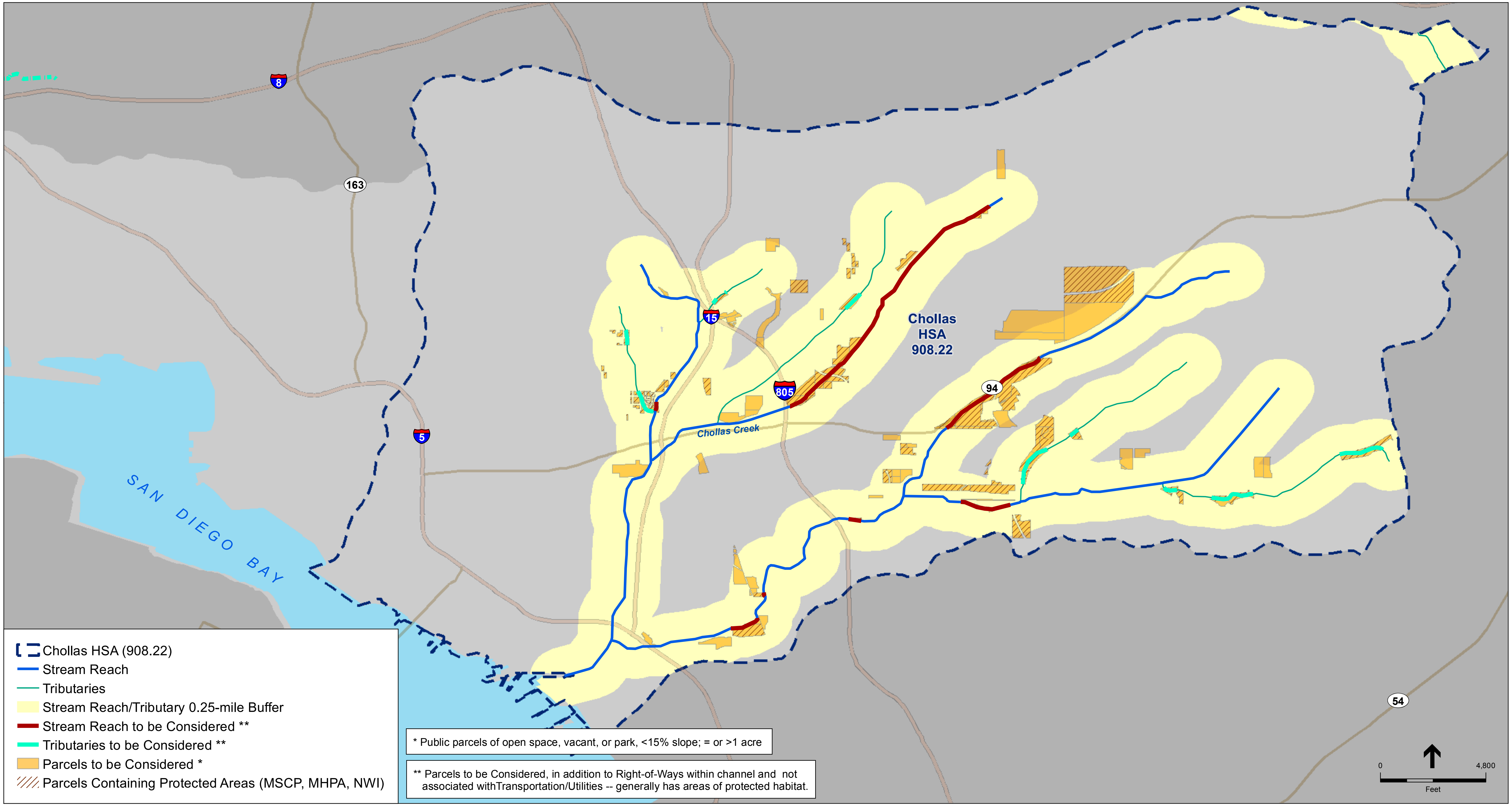


Source: SanGIS; NHD; ESRI; NWI

SWRP . 160618

Appendix E-7

San Diego County Watershed Management Areas - Lower San Diego River HA



Source: SanGIS; NHD; ESRI; NWI

SWRP . 160618

Appendix E-8

San Diego County Watershed Management Areas - Chollas HSA

APPENDIX F

SWRP Criteria and Metrics Checklist

San Diego
Regional Storm Water Resource Plan
Checklist Steps 1-3

Section 1. Project Eligibility – Step 1

Complete the following Step 1 Checklist questions to determine project eligibility prior to completing Step 2 and Step 3.

	Yes (Y)	No (N)	Not Applicable (n/a)	
1.	☐	☐	☐	Is the project an implementation project?
1a.	☐	☐	☐	If project includes planning activities (CEQA, permitting and design) does the percentage of planning funds being requested of the total project costs meet the grant application requirements (see applicable grant application requirements)?
2	☐	☐	☐	Does the project include stormwater or dry weather runoff water quality improvement (water quality) and/or capture and beneficial use (water supply) as a key element and main benefit?
3.	☐	☐	☐	Does the project meet at least 2 or more Main Benefits and as many as feasible Additional Benefits (listed below)? Check all benefits that apply
3a.	☐	☐	☐	**Water Quality Benefit**– while contributing to compliance with applicable permit and/or Total Maximum Daily Loads requirements. ***Main Benefit:*** increased filtration and/or treatment of runoff; ***Additional Benefits:*** nonpoint source control, re-establish natural water drainage and treatment
3b.	☐	☐	☐	**Water Supply Benefit** – through groundwater management and/or runoff capture and use. ***Main Benefits:*** direct water supply and conjunctive use through stormwater and runoff capture and groundwater infiltration to an aquifer that is a source of water supply; dry weather flow diversion to wastewater treatment plant or recycled water treatment plant to augment water supply; capture and delivery to water treatment for irrigation, ***Additional Benefits:*** or indirect use through capture and infiltration to groundwater that is not designated as a groundwater aquifer used for water supply and/or water conservation.

3c.	☐	☐	☐	**Flood Management Benefit**
				Main Benefit: decrease flood risk by reducing runoff rate and/or volume.
3d.	☐	☐	☐	**Environmental Benefit**
				Main Benefit: habitat restoration or enhancement, including wetland enhancement/creation and/or riparian enhancement, instream flow improvements and/or increased urban green space; ***Additional Benefits:*** reduced energy use, reduced greenhouse gas emissions, or providing a carbon sink; reestablishment of the natural hydrograph; and water temperature improvements to improve habitat.
3e.	☐	☐	☐	**Community Benefit**
				Main Benefits: Employment opportunities and/or public education provided. ***Additional Benefits:*** enhanced and/or created recreational and public use areas and/or; community involvement.
4.	☐	☐	☐	Does the project sponsor have an available funding source for its operations and maintenance?
5.	☐	☐	☐	Does the project meet the minimum eligibility requirements per the specific grant application under Proposition 1 (see grant-specific application guidelines and requirements)?

If you answered no to questions #1, 2, 3, 4, or 5 the project is not eligible. If all responses are yes, proceed to Steps 2 and 3.

Section 2. Project Metrics and Watershed Prioritization Steps 2 and 3

For the following sections, only respond to questions in the corresponding benefit areas identified in question #2.

Scores shown are awarded with a "yes" answer or, where applicable, provision of the requested data or information. A "no" answer results in no points awarded.

Section 2.1 Water Quality Benefit

Section 2.1.1 Project Metrics – Step 2 (20 Possible Points)

	Y	N	n/a		Scoring
1.	☐	☐	☐	Does the project increase filtration and/or treatment of runoff (Main Benefit)?	4

If you answered no to #1, skip to the Section 2.2.

2.	☐	☐	☐	Does the project address one or more of the constituents covered under a Total Maximum Daily Load (TMDL) and/or listed as a priority water quality condition in the WQIP? See Section 5 for further details.	4
3.	☐	☐	☐	Have estimates of expected pollutant load reductions been calculated? (Points awarded only if quantities provided below.)	2

If you answered yes to #3, enter the estimated load reduction for each constituent as either a concentration-based or mass-based value. Report pollutant load reductions in **lbs./year or MPN/yr.** for each high priority and priority water quality conditions or constituents identified in the applicable WQIP. For projects designed to meet the minimum pollutant removal requirements under the MS4 Permit using the 85th percentile design storm event, the metric for load reduction can be reported as **lbs/design storm event** or **MPN/design storm event**. (see worksheet in Appendix G):

4.	☐	☐	☐	Does the project reduce stormwater runoff volume through increased infiltration, filtration and evapotranspiration in order to restore natural hydrology?	4

If you answered no to #4, skip to #6

5.	☐	☐	☐	Have estimates of the reduction of stormwater runoff through infiltration, filtration, and evapotranspiration been calculated? (Points awarded only if quantities provided below.)	2

If you answered yes to #5, enter the estimated change to overland flow, groundwater recharge and infiltration, interflow, and/or evapotranspiration here. Report storm water runoff volume reductions in **gallons/year.** (see worksheet in Appendix G)::

6.	☐	☐	☐	Does the project restore natural stream and riparian corridor function by a) restoring natural coarse fraction sediment delivery or, b) restoring natural hydrology through increased subsurface residence time in subsurface soils?	2

If you answered no to #6, skip to Section 2.1.2.

7.	☐	☐	☐	Have estimates of the (a) changes to coarse sediment delivery or (b) increased subsurface soil residence time been calculated? (Points awarded only if quantities provided below.)	2

If you answered yes to #7a and #7b, enter the estimated change here. Report changes to subsurface flow residence time as the **percent increase in lag time between rainfall and peak stormwater outflow from a BMP during the 85th percentile rainfall event**. (see worksheet in Appendix G):

Subtotal Score _____

Section 2.1.2 Watershed Prioritization – Step 3 (20 Possible Points)

	Y	N	n/a		
8.	☐	☐	☐	Has the project been identified and assessed as a strategy associated with high priority water quality conditions in the most current, applicable WQIP that has been listed as a key strategy to meet a defined interim and/or final water quality goal? See Section 5 for further details. Provide location of Project and reference to applicable WQIP section that specifically references the strategy associated with achieving an interim and/or final highest priority water quality condition in the most current WQIP.	10
9.	☐	☐	☐	Is the project located in a high priority drainage area of the watershed based on priority water quality assessment and high pollutant-loading potential? Provide location of project on high priority water quality drainage areas associated with achieving defined interim and/or final highest priority water quality conditions in the most current WQIP. (Maps provided in Appendix G.)	10
				Subtotal Score	_____

Section 2.2 Water Supply Benefit

Section 2.2.1 Project Metrics – Step 2 (20 Possible Points) (Bonus Points available under this Benefit)

	Y	N	n/a		Scoring
10.	☐	☐	☐	Does the project capture storm water and/or dry weather runoff for direct uses (Main Benefit)?	5

If you answered no to #10, skip to #17

The following direct use options under #11, #13 and #15 each provide a total of 20 points including #10. Bonus points are available if the project provides for more than one direct-use option.

11.	☐	☐	☐	Does the project collect, store, and divert stormwater and/or dry weather flows to a wastewater or water treatment facility for potable or recycled use (Main Benefit)?	10

If you answered no to #11, skip to #13.

12.	☐	☐	☐	Does the applicant have a written agreement with the appropriate agency to divert stormwater and/or dry weather runoff to a facility and have flows been estimated? (Points awarded only if quantities provided below.)	5

If you answered yes to #12, enter the volume diverted in acre-feet per year (AF/yr) here and attach the agreements (see worksheet in Appendix G):

13.	☐	☐	☐	Does the project collect, store, and divert stormwater and/or dry weather flows to be used as irrigation on-site, at a park, for habitat restoration, and/or for a natural treatment system ***(Main Benefit)*** and/or reduce the use of potable water for irrigation through quantifiable water conservation measures?	10

If you answered no to #13, skip to #15

14.	☐	☐	☐	Has the volume of storm water and/or dry weather runoff that will collected, stored, and used beneficially and/or the amount of potable water conserved from reduced irrigation use been calculated? (Points awarded only if quantities provided below.) See Section 5 for additional information.	5

If you answered yes to #14, enter the volume here. Report storm water and/or dry weather flow runoff volume diverted, stored and then used beneficially and/or conserved in **AF/yr** (see worksheet in Appendix G):

15.	☐	☐	☐	Does the project infiltrate storm water and/or dry weather runoff to a groundwater aquifer that is a source of local water (***Main Benefit***)?	10

If you answered no to #15, skip to #17

16.	☐	☐	☐	Has the volume of storm water and/or dry weather runoff that will be infiltrated to a direct-use basin been calculated? (Points awarded only if quantities provided below.)	5

If you answered yes to #16, enter the volume here in **AF/yr** (see worksheet in Appendix G):

17.	☐	☐	☐	Does the project capture storm water and/or dry weather runoff for indirect use (infiltration to groundwater not used as water source)?	5

If you answered no to #17, skip to Section 2.2.2.

18.	☐	☐	☐	Has the volume of storm water or dry weather runoff captured, stored and then infiltrated to a non-direct-use basin been calculated? (Points awarded only if quantities provided below.)	5

If you answered yes to #18, enter the infiltration volume here **in AF/yr** (see worksheet in Appendix G):

Subtotal Score _____

2.2.2 Watershed Prioritization– Step 3 (20 Possible Points)

	Y	N	n/a		Scoring
19.	☐	☐	☐	Has the project been identified and assessed as a water supply/conservation project opportunity on a watershed basis in Section 5 or in a watershed-based plan, and prioritized based on the quantification of the benefits achieved in AF/yr?	20

Subtotal Score _____

Section 2.3 Flood Management Benefit

Section 2.3.1 Project Metrics – Step 2 (20 Possible Points)

	Y	N	n/a		Scoring
20.	☐	☐	☐	Does the project decrease flood risk by reducing runoff rate and/or volume (***Main Benefit***)?	5

If you answered no to #20, skip to Section 2.4.

	Y	N	n/a		Scoring
21.	☐	☐	☐	Has the reduction of peak flows and duration of peak flows been determined for the project?	5

If you answered yes to #21, enter the percent reduction of peak flows and duration here (see worksheet in Appendix G):

	Y	N	n/a		Scoring
22.	☐	☐	☐	Has the volume of storm water runoff that will be infiltrated as part of the project been calculated? (Points awarded only if quantities provided below.)	5

If you answered yes to #22, enter the volume here. Report storm water runoff volume reductions in **gallons/year** (see worksheet in Appendix G):

	Y	N	n/a		Scoring
23.	☐	☐	☐	Has the volume of storm water runoff that will be reduced as part of the project been calculated? (Points awarded only if quantities provided below.)	5

If you answered yes to #23, enter the maximum stored volume here. Report storm water runoff volume reductions in **gallons/year** (see worksheet in Appendix G):

Subtotal Score _____

Section 2.3.2 Watershed Prioritization – Step 3 (20 Possible Points)

	Y	N	n/a		
24.	☐	☐	☐	Has the project been identified and assessed as a priority project to reduce flood risk in a watershed flood management plan, a master plan, or another watershed-based plan? See Section 5 for further details.	20 – high priority 10 – listed and ranked

If yes, provide plan reference and location of project with regard to flood risk management priority.

Subtotal Score _____

Section 2.4 Environmental Benefit

Section 2.4.1 Project Metrics – Step 2 (20 Possible Points)

	Y	N	n/a		Scoring
25.	☐	☐	☐	Does the project create or enhance wetland and/or riparian habitat (***Main Benefit***)?	4

If you answered no to #25, skip to #27.

26.	☐	☐	☐	Has the area of habitat created or protected been calculated for the project?	1

If you answered yes to #26, enter the area here:

27.	☐	☐	☐	Does the project reestablish the natural hydrograph (e.g. delay the timing of the peak flow or reduce the volume of the peak flow) (***Main Benefit***)?	3

If you answered no to #27, skip to #30.

28.	☐	☐	☐	Has the change in timing of the peak flow been calculated? (Points awarded only if quantities provided below.)	1

If you answered yes to #28, enter the change in time here. Report reductions in percent of peak flow and peak flow duration for design storm event and 10 year storm event (if different than design storm). (see worksheet in Appendix G):

29.	☐	☐	☐	Has the reduction in flow been calculated? (Points awarded only if quantities provided below.)	1

If you answered yes to #29, enter the reduction in flow here. Report reductions in percent of peak flow and peak flow duration for design storm event and 10 year storm event (if different than design storm). (see worksheet in Appendix G):

30.	☐	☐	☐	Does the project improve water temperatures for the benefit of habitats?	1

If you answered no to #30, skip to #31.

31.	☐	☐	☐	Has the change in water temperature been calculated? (Points awarded only if quantities provided below.)	1

If you answered yes to #31, enter the change in temperature here:

32.	☐	☐	☐	Does the project reduce energy use, reduce GHG emissions, or increase carbon sinks?	2

If you answered no to #32, skip to #34.

33.	☐	☐	☐	Has the reduction in energy use or GHG emissions or the increase in carbon sinks been calculated? (Points awarded only if quantities provided below.)	1

If you answered yes to #33, enter the value for each change here (see worksheet in Appendix G):

34.	☐	☐	☐	Does the project increase urban green space (***Main Benefit***)?	4

If you answered no to #34, skip to Section 2.4.2.

35.	☐	☐	☐	Has the area of urban green space been calculated for the project? (Points awarded only if quantities provided below.)	1

If you answered yes to #35, enter the area here:

Subtotal Score _____

2.4.2 Watershed Prioritization – Step 3 (20 Possible Points)

	Y	N	n/a		Scoring
36.	☐	☐	☐	Has the project been identified and assessed in a regional or watershed habitat conservation, restoration, watershed management, urban greening and/or other watershed-based plan? (See Appendix G for further details)	20 – high priority 10 – listed and ranked

If yes, provide plan reference and location of project with regard to habitat restoration and enhancement priorities

Subtotal Score _____

Section 2.5 Community Benefit

Section 2.5.1 Project Metrics – Step 2 (20 Possible Points)

	Y	N	n/a		Scoring
37.	☐	☐	☐	Does the project enhance and/or create recreational and public use areas (***Main Benefit***)?	4

If you answered no to #37, skip to #39.

38.	☐	☐	☐	Has the area of created recreational and public use areas been calculated? (Points awarded only if quantities provided below.)	2

If you answered yes to #38, enter the area here:

39.	☐	☐	☐	Does the project include community involvement?	3

If you answered no to #39, skip to #41.

40.	☐	☐	☐	Has the number of community members involved in the project been calculated? (Points awarded only if quantities provided below.)	1

If you answered yes to #40, enter the number of community members here:

41.	☐	☐	☐	Does the project provide employment opportunities (***Main Benefit***)?	4

If you answered no to #41, skip to #43.

42.	☐	☐	☐	Has the number of jobs created by the project been calculated?	2

If you answered yes to #42, enter the number of jobs here:

43.	☐	☐	☐	Does the project provide public education opportunities (***Main Benefit***)?	3

If your answer is no, skip to Section 2.5.2.

44.	☐	☐	☐	Have surveys been conducted or planned to obtain data on awareness of community actions that will help meet project goals (e.g. water conservation, water quality, etc.)?	1

Subtotal Score _____

2.5.2 Watershed Prioritization – Step 3 (20 Possible Points)

	Y	N	n/a		Scoring
45.	☐	☐	☐	Has the project been identified and assessed as a priority project in a community, recreational, education, development, active transportation, job opportunity plan and/or the County's 5-Year Operational Plan and/or another watershed-based plan? (See Appendix G for further details)	10 – high priority 5 – listed and ranked
46.	☐	☐	☐	Is the project located in a disadvantaged community? (See Appendix G for further details.)	10

If yes, provide reference to the plan and specific identification of the project in a priority assessment

Subtotal Score _____

TOTAL SCORE _____

APPENDIX G

Checklist Worksheets and Tables

APPENDIX G
Checklist Worksheets and Tables

List of Worksheets and Tables and the Corresponding Checklist Question

Water Quality

2. List of TMDLs

3. Pollutant Load Reduction Worksheet

5. Volume Reduction Worksheet

7a. Coarse Sediment Load Worksheet

7b. Subsurface Soil Residence Time Worksheet

8. List of Priority Water Quality Conditions & List of Priority Strategies from WQIP (2 tables)

9. Examples of High Priority Drainage Area Maps

Water Supply

12/14a. Volume Stored, Treated and Diverted for Beneficial Use Worksheet

14b. Volume of Potable Water Conserved Worksheet

16/18. Volume Infiltrated to Groundwater Worksheet

19. Water Supply Analysis Maps

Flood Management

21. Reduction of Peak Flows and Duration Worksheet

22/23 Reduction of Runoff Volumes Worksheet

24. Examples of Flood Management Plans

Environmental

28/29. Peak Flow Reduction and Timing Worksheet

33. GHG Emissions Worksheet

36. Examples of Environmental Plans

Community

45. Examples of Community Plans

46. Map of Disadvantaged Communities

List of TMDLs

Watershed	Water Body	Constituent	Adopted Date	Source
Santa Margarita	Rainbow Creek	Nitrogen and Phosphorus	February 9, 2005	http://www.waterboards.ca.gov/rwqcb9/water_issues/programs/tmdls/docs/rainbowcreek/final_docs/rctmdlfinaltechrpt032206.pdf
Santa Margarita	Santa Margarita River Estuary	Nutrients	In progress	
Multiple in North County	Several Lagoons and Agua Hedionda Creek	Nutrients, Bacteria, Sediment, TDS	In progress	
Carlsbad	Loma Alta Slough	Phosphorus	June 26, 2014	http://www.waterboards.ca.gov/sandiego/board_decisions/adopted_orders/2014/R9-2014-0020/Draft_TMDL_Report.pdf
Los Peñasquitos	Los Peñasquitos Lagoon	Sediment and Siltation	June 13, 2012	http://www.waterboards.ca.gov/rwqcb9/water_issues/programs/tmdls/docs/los_penasquitos_lagoon/updates071212/Staff_Report_Attch1-Tech_Report.pdf
San Diego River	Famosa Slough	Nutrients	In progress	
San Diego Bay	Chollas Creek	Diazinon	August 14, 2002	http://www.waterboards.ca.gov/rwqcb9/water_issues/programs/tmdls/docs/chollascreekdiazinon/finaltechtmdl042903.pdf
San Diego Bay	Chollas Creek	Dissolved Copper, Lead, And Zinc	June 13, 2007	http://www.waterboards.ca.gov/rwqcb9/water_issues/programs/tmdls/docs/chollascreekmetals/update011509/Technical_Report.pdf
San Diego Bay	Chollas Creek, Paleta Creek, Switzer Creek	Toxic Pollutants	In progress	http://www.waterboards.ca.gov/rwqcb9/water_issues/programs/tmdls/docs/sediment_toxicity/updates021913/CPS_Toxics_TMDL_Draft_Rpt_19Feb2013.pdf
San Diego Bay	Shelter Island Yacht Basin	Dissolved Copper	February 9, 2005	http://www.waterboards.ca.gov/sandiego/water_issues/programs/watershed/docs/swu/shelter_island/techrpt020905.pdf
San Diego Bay	Baby Beach and Shelter Island Shoreline	Indicator Bacteria	June 11, 2008	http://www.waterboards.ca.gov/rwqcb9/water_issues/programs/tmdls/docs/bacteria_project2/Final_Technical_Report_rev1.pdf
Multiple	Twenty Beaches and Creeks in San Diego Region	Indicator Bacteria	February 10, 2010	http://www.waterboards.ca.gov/sandiego/water_issues/programs/tmdls/docs/bacteria/updates_022610/2010-0210_Final_Technical_Report.pdf
Tijuana	Tijuana River and Estuary	Sediment and Trash	In progress	

Water Quality Benefit Worksheet

Item #3: Estimates of Expected Pollutant Load Reduction

- **<u>Metric Reporting Units</u>**: Report pollutant load reductions in **lbs/year or MPN/yr** for each high priority and priority water quality conditions or constituents identified in the applicable WQIP and/or watershed plan. Projects designed to meet the minimum pollutant removal requirements under the MS4 Permit using the 85th percentile design storm event, the metric for load reduction can be reported as **lbs/design storm event** or **MPN/design storm event**.
- **<u>Key Steps in Determining Metric</u>:**
  - *BMP Removal Efficiency*: Determine the pollutant removal efficiency for each applicable constituent based on published data for the BMP. References to BMP data bases are provided below. These are reported as percent reductions of initial concentrations for specific BMP types and configurations. Removal efficiencies will depend on retention times and flow through thresholds for BMPs that do not retain and infiltrate storm flows. Structural BMP shall meet the minimum standards as specified in the MS4 Permit and defined in the County of San Diego BMP Design Manual (BMP DM).
  - *Volume Treated*: Determine the volume treated by the BMP based on the design capacity of the BMP and the annual volume of runoff treated. The method of determining the annual volume will depend on the type of BMP and configuration, and the drainage area characteristics. Annual volume shall be based on estimated drainage areas runoff that is captured and treated in the BMP using methods presented in the BMP Design Manual and either using modeling to simulated storm events over a timeframe that captures dry, wet and average annual rainfall events or using the design capacity of the BMP compared to average annual rainfall using local precipitation data. This calculation is needed to allow for comparison of projects on a watershed, regionally and statewide basis. Other methods and approaches for annual volume estimates are allowable, but shall be explained as part of the checklist submittal. These are provided as guidelines for greater regional consistency, but are not required.
  - *Concentration of Pollutants prior to Treatment*: Obtain the initial concentration of the priority constituents being treated using the average of actual water quality monitoring data of the MS4 outfall or receiving water as applicable, or determined from the modeling of the drainage area using published runoff coefficients for the specific land uses.
  - *Annual Load Reduction*: Determine the expected annual load reductions based on the multiplying the pollutant removal efficiency by the inflow constituent concentration and then by the annual volume of runoff treated.
- *Design Storm Event Load Reduction*: Projects designed to meet the minimum pollutant removal requirements under the MS4 Permit using the 85th percentile design storm event, the metric for load reduction may be reported as lbs/design storm event or MPN/design storm event. The method for determining this load reduction metric follows the steps for

the annual load reduction metric except that the *volume treated* step includes determining the volume of storm water runoff from the drainage area that is treated for the 85th perecentile design storm event. This is approximately 0.6 inches/24 hours. The design storm event is defined in the BMP Design Manual. The Design Storm Event Load Reduction is then determined by multiplying the volume of the design storm treated by the BMP by the concentration reduction achevied. This is determined by multiplying the removal efficiency of the BMP for each specific constricutent by the intial cocnetration in the storm flows entering the BMP. The use of the design storm event load reduction is provided as an option as most BMP in the San Diego Region will be designed to these standards and therefore can be compared on a watershed and regional basis using this metric. For proejct and strategies that do not use this as the design criteria, the annual laod reduction may be used.

- **<u>Guidelines and References for Calculating Metric:</u>**
  - County of San Diego BMP Design Manual: http://www.sandiegocounty.gov/content/sdc/dpw/watersheds/DevelopmentandConstruction/BMP_Design_Manual.html
  - County of San Diego Precipitation Database:
  - http://www.projectcleanwater.org/index.php?option=com_content&view=article&id=167%3Arainfall-data&catid=29&Itemid=188
  - BMP Efficiency Data**:** http://www.bmpdatabase.org/
  - Runoff Coefficients and Determination of Pollutant Concentrations**:** http://www.sandiegocounty.gov/dpw/floodcontrol/floodcontrolpdf/hydro-evalcvalues.pdf
- **<u>Example Metric Calculation</u>**:

<u>Annual Pollutant Load from Tributary Area to BMP</u>:

Parameter:	Pollutant $Load_{Total}$	The total pollutant load generated on the BMP tributary drainage area that passes through BMP in units of pounds per year.
	P_{annual}	Annual precipitation based on historical rainfall data
	$Area_{Tributary}$	Tributary drainage area to the BMP
	Weighted “C”	Runoff Coefficient “C” weighted based on land use areas
	Pollutant EMC	Estimate pollutant concentration in runoff reaching BMP
	P_j	Fraction of annual rainfall that results in runoff (0.9)
	$Coeff_{BMP\ capacity}$	Coefficient to account for the limitation of the BMP. This may be computed using historic rainfall data and a continuous simulation model. The conservatively value of 0.85 may be used (BMP sized for 85th percentile storm event or smaller).

$$\text{Pollutant Load}_{Total} = P_{annual} * Area_{Tributary} * \text{Weighted “C”} * \text{Pollutant EMC} * Pj * Coeff_{BMP\ capacity}$$

The pollutant load removal efficiency of the selected BMP(s) shall be determined in order to estimate the pollutant load removal potential. The pollutant load removal efficiencies may be obtained from the BMP database website (http://www.bmpdatabase.org/) or other, accepted, published sources. Estimate the BMP pollutant load removal potential as shown here.

BMP Annual Pollutant Load Removal:

Parameter:	$BMP_{Load\ Removal\ Potential}$	Annual load removal potential of each selected BMP in units of pounds per year
	$Pollutant\ Load_{Total}$	Total pollutant load passing through selected BMP
	$BMP_{Removal\ Efficiency}$	Tributary drainage area to the BMP

$$BMP_{Load\ Removal\ Potential} = Pollutant\ Load_{Total} * BMP_{Removal\ Efficiency}$$

Water Quality Benefit Worksheet

Item #5: Estimates of Storm Water Runoff Volume Reductions through increased Infiltration, Filtration and Evapotranspiration

- **Metric Reporting Units**: Report storm water runoff volume reductions in **gallons/year.**

- **Key Steps in Determining Metric:**
  - *BMP Rates of Infiltration, Filtration and/or Evapotranspiration:* Determine the rates of infiltration, filtration and/or evapotranspiration whichever is applicable, that will result in a reduction of volume of storm water runoff that will results in the restoration of natural hydrology. The rates of this volume reduction factors will depend on BMP type, configuration, soil infiltration rates and design capacity. These factors can be determined using the design tools in the County of San Diego BMP Design Manual (BMP DM). Structural BMP shall meet the minimum standards as specified in the MS4 Permit and defined in the BMP DM for both pollutant removal and hydromodification as applicable.
  - *Volume Reduced*: Determine the volume reduced by the BMP based on the design of the BMP and the annual volume of runoff treated. The method of determining the annual volume will depend on the type of BMP and configuration, and the drainage area characteristics. Annual volume shall be based on estimated drainage areas runoff that is captured and infiltrated, filtered and/or lost to evapotranspiration using methods presented in the BMP Design Manual and using the continuous rainfall runoff SDHM 3.0 model used to size and design stormwater BMPs in accordance with the San Diego County Hydromodification Plan (HMP). The pro-version of SDHM 3.0 allows for alternate precipitation and evaporation time series input and is incorporated in the Western Washington Hydrologic Model version 4 (WWHM4). WWHM4 allows for time series, land-use basins, and BMP and hydraulic structure "elements" to be arranged and connected to represent the design or in-field setup. Note that while the model is referred to as the Washington model, San Diego County climatic, soil and land-use parameters are used in the SDHM 3.0. For methods and projects that may not be applicable for these tools, annual runoff volumes shall represent an average annual rainfall based on a timeline that covers dry, wet and average annual rainfall recorded near the project. Other methods and approaches for annual volume estimates are allowable, but shall be explained as part of the checklist submittal. These guidelines are provided for greater regional consistency, but are not required.
  - *Annual Volume Reduction*: Determine the expected annual volume of storm water runoff reductions based on the results of the calculations and/or modeling guidelines that represent continuous modeling and/or average annual rainfall based on a timeline that covers dry, wet and average annual rainfall recorded near the project.

- **Guidelines and References for Calculating Metric:**
  - County of San Diego BMP Design Manual: http://www.sandiegocounty.gov/content/sdc/dpw/watersheds/DevelopmentandConstruction/BMP_Design_Manual.html
  - County of San Diego Precipitation Database: http://www.projectcleanwater.org/index.php?option=com_content&view=article&id=167%3Arainfall-data&catid=29&Itemid=188
  - SDHM 3.0 Model: http://www.clearcreeksolutions.com/SearchResults.asp?Cat=17
  - County of San Diego Evapotranspiration Rates: http://wwwcimis.water.ca.gov/WSNReportCriteria.aspx
  - Water Quality Equivalency Report: http://www.projectcleanwater.org/images/stories/Docs/WQE/Final%20Water%20Quality%20Equivalency%20Guidance%20for%20Region%209%20-%20December%202015.pdf
  - Runoff Coefficients and Determination of Pollutant Concentrations**:** http://www.sandiegocounty.gov/dpw/floodcontrol/floodcontrolpdf/hydro-evalcvalues.pdf

Water Quality Benefit Worksheet

Item #7: Estimates of Changes to Coarse Sediment Delivery

- **Metric Reporting Units**: Report whether project **will result in any reduction in coarse sediment delivery from a critical coarse sediment area**. Projects must not reduce sediment supply or transport within these designated areas.

- **Key Steps in Determining Metric:**
  - *Changes to coarse sediment delivery*: Preservation of coarse sediment supplies from designated critical coarse sediment areas to downstream receiving waters is required by the San Diego Hydromodification Management Plan. When critical coarse sediment yield areas are identified adjacent to the project site (e.g. hillsides that will drain through the site), protection of these areas is similar to protection of undisturbed critical coarse sediment yield areas onsite. These areas must not be routed through detention basins or other facilities with restricted outlets that will trap sediment. The project storm water conveyance system shall be designed to bypass these areas to ensure that critical coarse sediment can be discharged to receiving waters, such that there is no net impact to the receiving water. The bypass shall be designed with sufficient capacity and slope to convey sediment from undisturbed areas and not result in sediment accumulation atop developed areas of a site, for example by sustaining flows exceeding 6 feet per second through BMPs during the two-year flow event.
  - Locate the potential project relative to the coarse sediment areas shown in the San Diego Regional Potential Coarse Sediment Yield Areas. Projects that are not in the mapped Potential Coarse Sediment Areas are exempt from further analysis. For potential projects within mapped areas, follow the procedure outlined in Chapter 6.2 of the San Diego BMP Design Manual to verify whether the project is in a critical coarse sediment area, or if the receiving water is not sensitive to reduction of coarse sediment, or if the area is not producing sediment that is critical to receiving streams.
  - Report whether the proposed project does or does not reduce supply or transport of coarse sediment.
- **Guidelines and References for Calculating Metric:**
  - County of San Diego BMP Design Manual: http://www.sandiegocounty.gov/content/sdc/dpw/watersheds/DevelopmentandConstruction/BMP_Design_Manual.html
  - County of San Diego Regional Potential Coarse Sediment Yield Areas: http://www.projectcleanwater.org/index.php?option=com_content&view=article&id=248

Water Quality Benefit Worksheet

Item #7: Estimates of Changes to Increased Subsurface Soil Residence Time.

- **Metric Reporting Units**: Report changes to subsurface flow residence time as the **percent increase in lag time between rainfall and peak stormwater outflow from a BMP during the 85th percentile rainfall event**.
- **Key Steps in Determining Metric:**
  - *Increased subsurface flow residence Time:* Determine the increase in subsurface soil residence time by calculating the time lag between the middle of the 85th percentile rainfall event and the peaks in the inflow and outflow hydrographs for the BMP. Model the proposed BMP using standard sizing tools e.g. SDHM, HEC-HMS, Pond. Report the existing and proposed time lags and the percent increase. If using continuous hydrologic models such as SDHM select a rainfall event from the time series that is similar in size and duration to the 85th percentile event and calculate the difference between the existing and proposed conditions peak hydrographs.
- **Guidelines and References for Calculating Metric:**
  - County of San Diego BMP Design Manual: http://www.sandiegocounty.gov/content/sdc/dpw/watersheds/DevelopmentandConstruction/BMP_Design_Manual.html
  - County of San Diego 85th percentile isopluvials: http://www.sandiegocounty.gov/content/dam/sdc/dpw/WATERSHED_PROTECTION_PROGRAM/susmppdf/susmp_85precip.pdf
  - Water Quality Equivalency Report: Link to Water Quality Equivalency Page

- **Example Metric Calculation**:

Parameter: percent change in lag time

Middle of rainfall = 4am

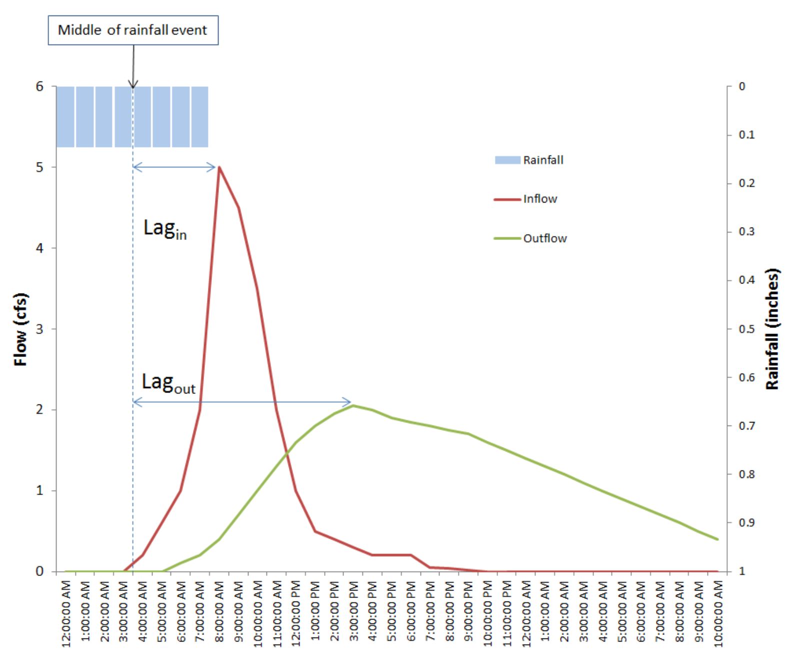
Peak inflow = 8am

Inflow lag = 4 hours

Peak outflow = 3pm

Outflow lag = 11 hours

Percent change in lag time
= 11/4 = 275%



List of Priority Water Quality Conditions from WQIPs

Watershed	Priority Conditions	Weather	Level
Santa Margarita			
San Luis Rey	Bacteria at San Luis Rey River Mouth	Dry/Wet	Highest
	Bacteria in Lower San Luis Rey River	Dry/Wet	Highest
	Nitrogen and Phosphorus	Dry/Wet	
	Total Dissolved Solids	Dry/Wet	
	Eutrophic Conditions	Dry	
	Index of Biological Integrity	Dry	
	Chloride	Dry	
	Toxicity	Dry/Wet	
Carlsbad	Bacteria at Loma Alta Slough	Dry/Wet	
	Toxicity at Loma Alta Creek	Dry	
	Bacteria at Loma Alta Creek Mouth	Dry/Wet	
	Bacteria at Buena Vista Lagoon	Dry/Wet	Highest
	Sediment/ Siltation at Buena Vista Lagoon		
	Bacteria at Agua Hedionda Creek	Dry/Wet	Highest
	Toxicity at Aqua Hedionda Creek	Wet	
	Sediment Erosion at Aqua Hedionda Creek	Wet	
	Nitrate and Nitrite at Buena Creek	Dry	
	Bacteria at Pacific Ocean Shoreline	Dry/Wet	
	Phosphorus at San Marcos Creek	Dry	
	Toxicity at Encinitas Creek	Dry	
	Bacteria at Escondido Creek	Wet	Highest
	Toxicity at Escondido Creek	Dry	
	Bacteria at San Elijo Lagoon	Dry	Highest
	Sediment/Siltation at San Elijo Lagoon		
	Bacteria at Moonlight Beach	Dry/Wet	Highest
	Eutrophic conditions at Loma Alta Slough	Dry	
	Eutrophic conditions at San Elijo Lagoon	Dry	
San Dieguito	Enterococcus at San Dieguito River	Dry	
	TDS at San Dieguito River	Dry/Wet	
	Total Nitrogen at San Dieguito River	Dry	
	Poor to very poor IBI at San Diequito River	Dry	
	Fecal Coliform at San Dieguito River	Dry/Wet	
	Phosphorus at San Dieguito River above Lake Hodges	Dry/Wet	
	Toxicity at San Dieguito River below Lake Hodges	Wet	
	Bacteria at San Diequito River	Dry/Wet	Highest
	Chloride at San Diequito River	Dry	
	Sulfate at San Diequito River	Dry	
	TSS at San Dieguito River above Lake Hodges	Wet	

Watershed	Priority Conditions	Weather	Level
Los Peñasquitos	Enterococcus, poor IBI, TDS, dissolved copper, and Toxicity at Carroll Canyon	Dry	
	Bifenthrin, fecal coliform, poor IBI, pH, TDS, TSS, and turbidity at Carroll Canyon	Wet	
	Benthic Algae, enterococcus, poor IBI, total nitrogen, phosphorus, TDS, and Toxicity at Los Peñasquitos Creek	Dry	
	Bifenthrin, diazinon, fecal coliform, very poor IBI, TDS, TSS, toxicity, and turbidity at Los Peñasquitos Creek	Wet	
	Benthic algae, enterococcus, poor IBI, nitrogen, phosphorus, TDS, toxicity at Los Peñasquitos Lagoon	Dry	
	Bifenthrin, fecal coliform, poor IBI, TDS, TSS, and turbidity at Los Penñasquitos Lagoon	Wet	
	Hydromodification, Siltation/Sedimentation	Dry	Highest
	Freshwater Discharges	Wet	Highest
	Bacteria	Dry/Wet	Highest
	Poor IBI, TDS, phosphorus, nitrogen, fecal coliform, and toxicity at Rose Canyon	Dry	
	Enterococcus, poor IBI, phosphorus, and toxicity at Tecolote Creek	Dry	
	Arsenic, chlordane, copper, dichloro-diphenyl-trichloroethane (DDT), mercury, and zinc at Mission Bay	Dry	
	Bifenthrin, fecal coliform, permethrin, TDS, TSS, and turbidity at Rose Canyon	Wet	
	Bifenthrin, fecal coliform, TSS, and turbidity at Tecolote Creek	Wet	
	Copper, fecal coliform, total coliform, and sediment at Scripps	Wet	
	Bacteria at Tecolote Creek	Dry/Wet	Highest
	Sediment at Scripps	Wet	Highest
	Bacteria at Scripps	Dry/Wet	Highest
San Diego River	Enterococcus, and TDS at El Capitan	Dry	High
	TN,TP, and Fecal Coliform at El Capitan	Dry	
	Nitrat, N/N, TN, TP, DP, TDS, fecal coliform, enterococcus, chloride, sulfate, and DO at San Vincente	Dry	High
	TN,TP,TDS, fecal coliform, enterococcus, and DP in Lower San Diego	Dry	High
	Nitrate, N/N, TP, TSS, enterococcus, DP, and TDS in Loser San Diego	Dry	
	Fecal coliform, TSS at El Capitan	Wet	High
	Fecal coliform at Lower San Diego	Wet	High
	S. capricronutum in San Diego River	Wet	
	TDS in San Diego River	Dry/Wet	
	Poor IBI, Nitrogen in the form of TN, TP, TD, enterococci, and selenestrum acute in San Diego River	Dry	

Watershed	Priority Conditions	Weather	Level
San Diego Bay	Metals, bacteria, phosphorus, nitrogen, trash, PAHs, chlordane, diazinon, and PCPs at Chollas Creek		
	Metals, and Bacteria at Shelter Island Yacht Basin		
	PAHs, mercury, PCBs, and zinc at San Diego Bay shoreline		
	PAHs, PCBs, and chlordane at Switzer Creek		
	PAHs, PCBs, and chlordane at Paleta Creek		
	Bacteria, nutrients, and trash at Sweetwater River		
	Bacteria at Pacific Ocean Shoreline		
	Nitrogen at Lower Otay Reservoir		
Tijuana	TSS and Fecal Colifrorm at San Ysidro	Wet	High
	Elevated Bacteria and Turbidity Levels at San Ysidro	Wet	
	Nitrogen, Phosphorus, Enterrococcus, MBAS, and DO in San Ysidro	Dry	High
	TSS in San Ysidro	Dry	
	TSS, turbidity, and dissolved copper in Water Tanks	Wet	High
	Nitrogen, Phosphorus, Enterrococcus, and DO in Water Tanks	Dry	High
	Fecal Coliform at Barret Lake	Wet	High
	TSS and Fecal Colifrorm at Cottonwood	Wet	High
	Nitrogen, TSS, and Enterrococcus at Cottonwood	Dry	High
	Phosphorus, TDS, and Enterrococcus at Canyon City	Dry	High
	TSS at Hill	Wet	High

List of Priority Strategies from WQIPs

Watershed	Jurisdiction	Strategy
Santa Margarita		
San Luis Rey	City of Oceanside, City of Vista, San Diego County, and Caltrans	Appendix B of San Luis Rey WQIP
Carlsbad	City of Oceanside, City of Vista, and San Diego County	Section 2.4.2 of Carlsbad WQIP
San Dieguito	City of Del Mar, City of Poway, City of Escondido, City of Solana Beach, City of San Diego, and San Diego County	Appendix I of San Dieguito WQIP
Los Peñasquitos	City of Del Mar, City of Poway, City of San Diego, San Diego County, and Caltrans	Appendix I of Los Peñasquitos WQIP
Mission Bay	City of San Diego	Appendix J of Mission Bay WQIP
	Caltrans	
San Diego River	City of El Cajon, City of La Mesa, City of San Diego, City of Santee, San Diego County, and Caltrans	Section 3.2, Appendix 3b of San Diego WQIP
San Diego Bay	San Diego Regional Airport, City of San Diego, City of Chula Vista, City of Coronado, National City, City of La Mesa, City of Lemon Grove, City of Imperial Beach, San Diego County, and San Diego Port	Appendix I of San Diego Bay WQIP
Tijuana	City of Imperial Beach	Appendix H of Tijuana WQIP
	City of San Diego	
	County of San Diego	

Examples of High Priority Drainage Area Maps (Los Peñasquitos WQIP, Appendix K)

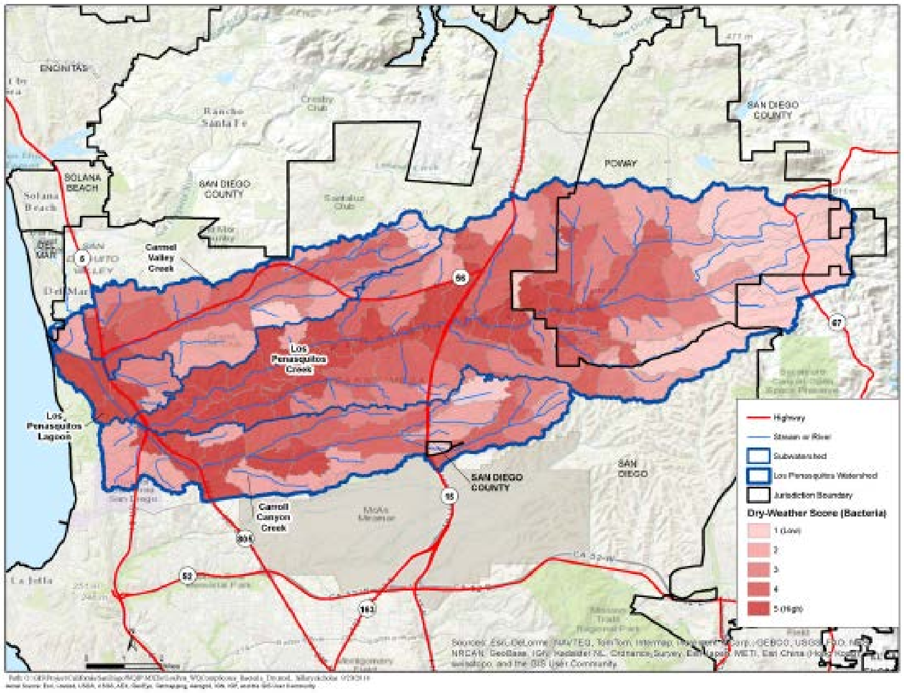


Figure K-2
Water Quality Dry-Weather Composite Score for Bacteria

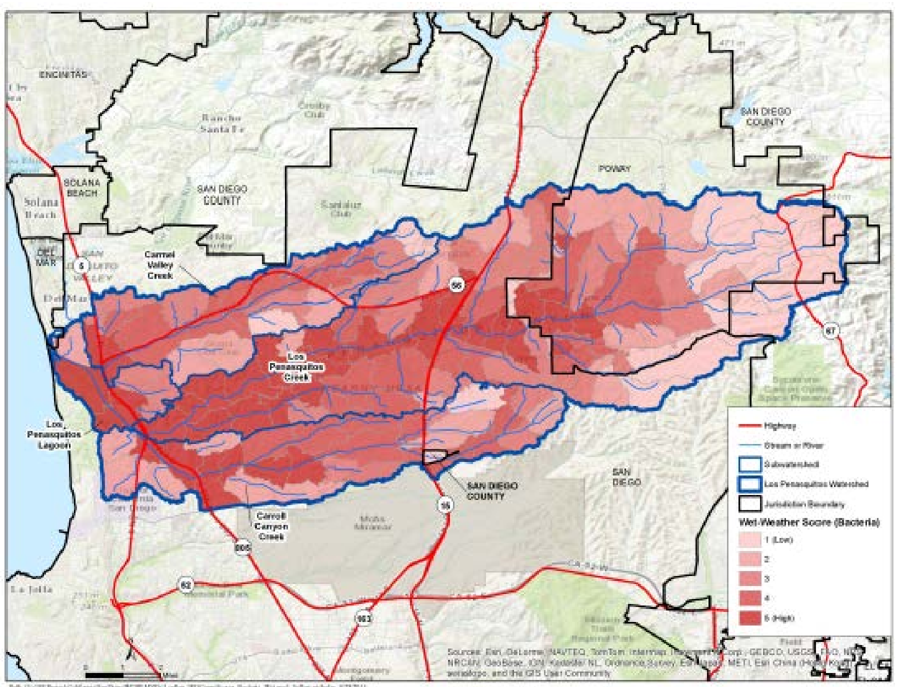


Figure K-3
Water Quality Wet-Weather Composite Score for Bacteria

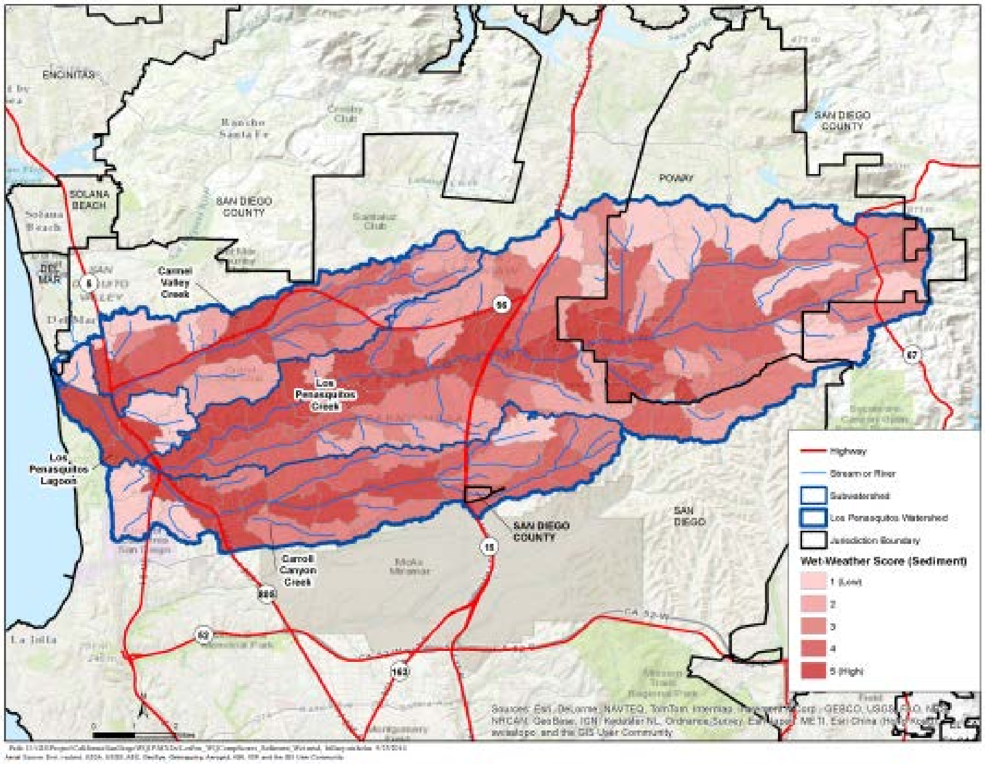


Figure K-4
Water Quality Wet-Weather Composite Score for Sediment

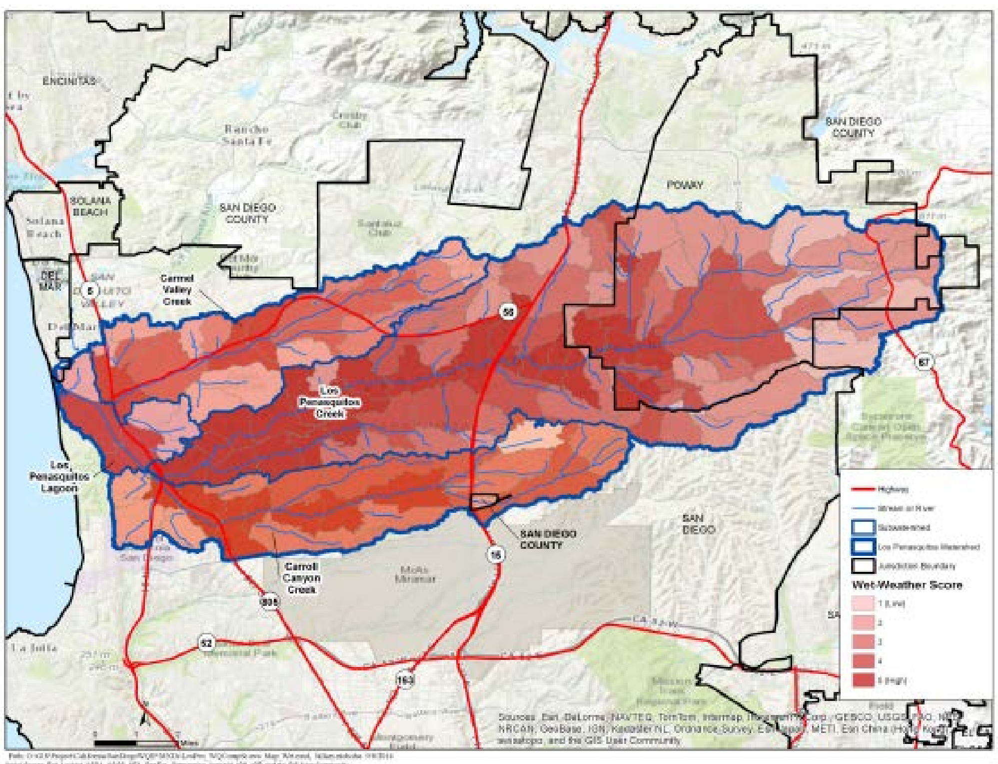


Figure K-5
Total Water Quality Wet-Weather Composite Score for Bacteria and Sediment

Water Supply Benefit Worksheet

Item #12 and 14: Estimates of Storm Water and /or Dry Weather Flow Volume that will be collected, stored, and beneficially used.

- **Metric Reporting Units**: Report storm water and/or dry weather flow runoff volume diverted, stored and then used beneficially and/or conserved in **AF/year.**

- **Key Steps in Determining Metric:**
  - *Project Rates of Stormwater and/or Dry Weather Runoff Diversion and Storage:* The volume of stormwater and/or dry flow diverted and stored for irrigation will depend on the project type, configuration, design capacity and measured and anticipated flows into the project. Prior to estimating the amount of these flows that are then beneficially used for irrigation, the capacity of the system to store, treat and distribute storm water and/or dry weather flows needs to be determined. The design storage can either be achieved through above or below ground retention of storm flows or storage/direct diversion of dry weather flows to treatment and distribution. As these flows are not consistent, storage is likely needed for these projects to allow for treatment and then distribution for irrigation when needed. The amount of storm water flow to be diverted and stored should be based on the hydraulic analysis of the drainage area(s) from which the storm water will be captured and conveyed to the project. Flows from existing MS4 outfall(s) may be used and the amounts controlled by inlet devices. The storage capacity shall be reported as part of these calculations as storage may be greater than annual rates of actual wet weather and dry weather flow diversion. Storage may be more a function of the end use needs and therefore important to the overall measurements of benefit achieved.
  - *Annual Volume Use for Beneficial Use (Irrigation)*: Determine the volume that is used beneficially on an annual basis for irrigation on-site, local park, golf course, habitat restoration or natural treatment wetland. Annual volumes shall be based on average annual runoff or measured flows that include data over a timeline that captures dry, wet and average precipitation years. Dry weather flows measurements should include at least 2 weeks of continuous flow monitoring during wet and dry weather seasons. Other methods and approaches for annual volume estimates are allowable, but shall be explained as part of the checklist submittal. These guidelines are provided for greater regional consistency, but are not required.

- **Guidelines and References for Calculating Metric:**
  - County of San Diego BMP Design Manual: http://www.sandiegocounty.gov/content/sdc/dpw/watersheds/DevelopmentandConstruction/BMP_Design_Manual.html

- County of San Diego Precipitation Database: http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7740
- County of San Diego Evapotranspiration Rates: http://www.itrc.org/etdata/etmain.htm
- **Water Quality Equivalency Report:** Link to Water Quality Equivalency Page

- **Example Metric Calculation**:

The example project would divert stormwater and dry weather runoff from the stormdrain into underground storage beneath a parking lot, with the water subsequently used to irrigate landscaping.

1. Estimate potential water supply
    a. Delineate stormdrain watershed
    b. Estimate available stormwater draining to the stormdrain using Rational Method or other stormwater calculations
    c. Estimate dry weather runoff using appropriate per unit area dry weather runoff rates for San Diego County multiplied by the area of developed land draining to the stormdrain system
    d. Estimate total potential water supply per year in AF/yr
2. Estimate potential beneficial reuse demand
    a. Delineate area of landscaping requiring irrigation
    b. Calculate irrigation demand using tools such as City of San Diego Landscape Watering Calculator http://apps.sandiego.gov/landcalc/
    c. Calculate total volume of water needed for irrigation in AF/yr
3. Estimate storage volume available beneath parking lot in AF and estimate frequency that store can be filled based on step 1 to yield potential volume in AF/yr.
4. Estimate stormwater and dry weather beneficial reuse
    a. Volume beneficially reused is the limiting factor (smallest volume) from steps 1, 2 and 3 above, reported in AF/yr
    b. Provide the volume and flow that has been approved in the agreement with the agency that will be accepting the flows and using them for beneficial use.

Water Supply Benefit Worksheet

Item #14b: Estimates of Water Conservation.

- **Metric Reporting Units**: Report the amount of potable water conserved in **AF/year.**

- **Example Metric Calculation**:

As an example project and calculation, the Turf Replacement and Agricultural Irrigation Efficiency Program proposed in the IRWMP provides education and outreach regarding the incentive program with an emphasis on dry weather runoff prevention and water quality protection that are achieved with improvements to irrigation efficiency within the City. This program component has been implemented by the Water Authority and the City for several years.

Estimates for the amount of water conversion from turf to water-efficient landscaping were made using a combination of expertise and scientific studies. Tim Schaadt, an Associate Resources Specialist from Metropolitan Water District (MWD), was consulted as an expert, given his experience with a similar rebate program and his experience with water use in Southern California. Tim Schaadt estimated that conversion from turf to water-efficient landscaping is expected to save 0.00014 AFY per square foot. He cites two sources to justify this value, an *Evaluation of the Synthetic Turf Pilot Program* by MWD and a *2005 Xeriscape Conversion Study* by Kent Sovocool of the Southern Nevada Water Authority. The MWD study found water savings of 0.00014 AFY per square foot when turf was converted from natural to synthetic. This study only looked at conversion of natural turf to synthetic, not conversion from natural turf to water efficient landscaping. The Xeriscape study found a savings of 55.8 gallons per square foot when lawns were converted to xeriscape (water-efficient) landscaping in southern Nevada. This is equivalent to 0.00017 AFY per square foot. This represents savings in a more extreme climate, but allows 0.00014 AFY per square foot to remain a reasonable estimate of water savings.

<u>Method Used to Determine Water Conservation:</u>

Using water meter records, the MWD study that showed water savings achieved when converting a natural grass field to a synthetic turf of 0.00014 AFY per square foot. This program plans to provide incentives for conversion of approximately 320,000 square feet of turf to water-efficient landscaping. At a savings of 0.00014 AFY per square foot, this would result in water savings of approximately 45 AFY.

Note that slight variations in calculations may occur due to rounding. Note that for the Turf Replacement component, we assumed a “phasing in” of physical benefits based on the budget: 10% in 2013, 50% in 2014 (60% cumulatively for benefits), and 40% in 2015 (100% cumulatively for benefits). This results in a “phasing-out” of benefits as well: 90% in 2033 and 40% in 2034.

Turf Replacement and Agricultural Irrigation Efficiency Program

(a)	(b)	(c)	(d)	(e)
Year	**Type of Benefit**	**Without Project***	**With Project**	**Change Resulting from Project**
2013	Water Conservation	4.5 AFY	0	4.5 AF
2014	Water Conservation	27 AFY	0	27 AF
2015-2032	Water Conservation	45 AFY	0	810 AF
2033	Water Conservation	40.5 AFY	0	40.5 AF
2034	Water Conservation	18 AFY	0	18 AF

** Annual volume of water conserved*

Water Supply Benefit Worksheet

Item #16 and 18: Estimates of Storm Water and /or Dry Weather Flow Volume that will be collected, stored, and infiltrated for beneficial use to recharge a groundwater aquifer.

- **Metric Reporting Units**: Report storm water and/or dry weather flow runoff volume diverted, stored and then infiltrated into a groundwater aquifer in **AF/year.**

- **Key Steps in Determining Metric**:
  - *Project Rates of Stormwater and/or Dry Weather Runoff Diversion and Storage:* The volume of stormwater and/or dry flow diverted and stored for infiltration into a groundwater aquifer will depend on the project type, configuration, design capacity and measured and anticipated flows into the project. Prior to estimating the amount of these flows that are then beneficially used for groundwater recharge, the capacity of the system to store storm water and/or dry weather flows needs to be determined. The design storage can either be achieved through above or below ground retention of storm flows or storage/direct diversion of dry weather flows that will infiltrate into the subsurface to the groundwater aquifer. As these flows are not consistent, storage is likely needed for these projects to allow for slower infiltration rates into the sub-surface. The amount of storm water flow to be diverted and stored should be based on the hydraulic analysis of the drainage area(s) from which the storm water will be captured and conveyed to the project. Flows from existing MS4 outfall(s) may be used and the amounts controlled by inlet devices. The storage capacity shall be reported as part of these calculations. Project storage capacity should also account of infiltration rates and drawdown of the system before the next storm event. ***In addition all projects that store runoff need to meet the requirements under the San Diego Department of Environmental Health Vector Mitigation Design Guidelines (see reference below) to control mosquitos breeding habitats. This requires ponded water to be eliminated or sufficiently disturbed with flowing water within 72 hours.***
  - *Infiltration Rates for Groundwater Recharge:* Rates of infiltration into existing soils shall be determined through geotechnical investigations and testing as part of the design process. Concept level designs may use existing soil maps that provide soil types and expected infiltration rates. Projects that include the addition of engineered soil layers to promote infiltration shall account for these installed material infiltration rates.
  - *Annual Volume Use for Beneficial Use (Groundwater Recharge for Direct Use as Potable Water Supply)*: Determine the volume that is used beneficially on an annual basis for groundwater recharge. Annual volumes shall be based on average annual runoff or measured flows that include data over a timeline that captures dry, wet and average precipitation years. Dry weather flows measurements should include at least 2 weeks of

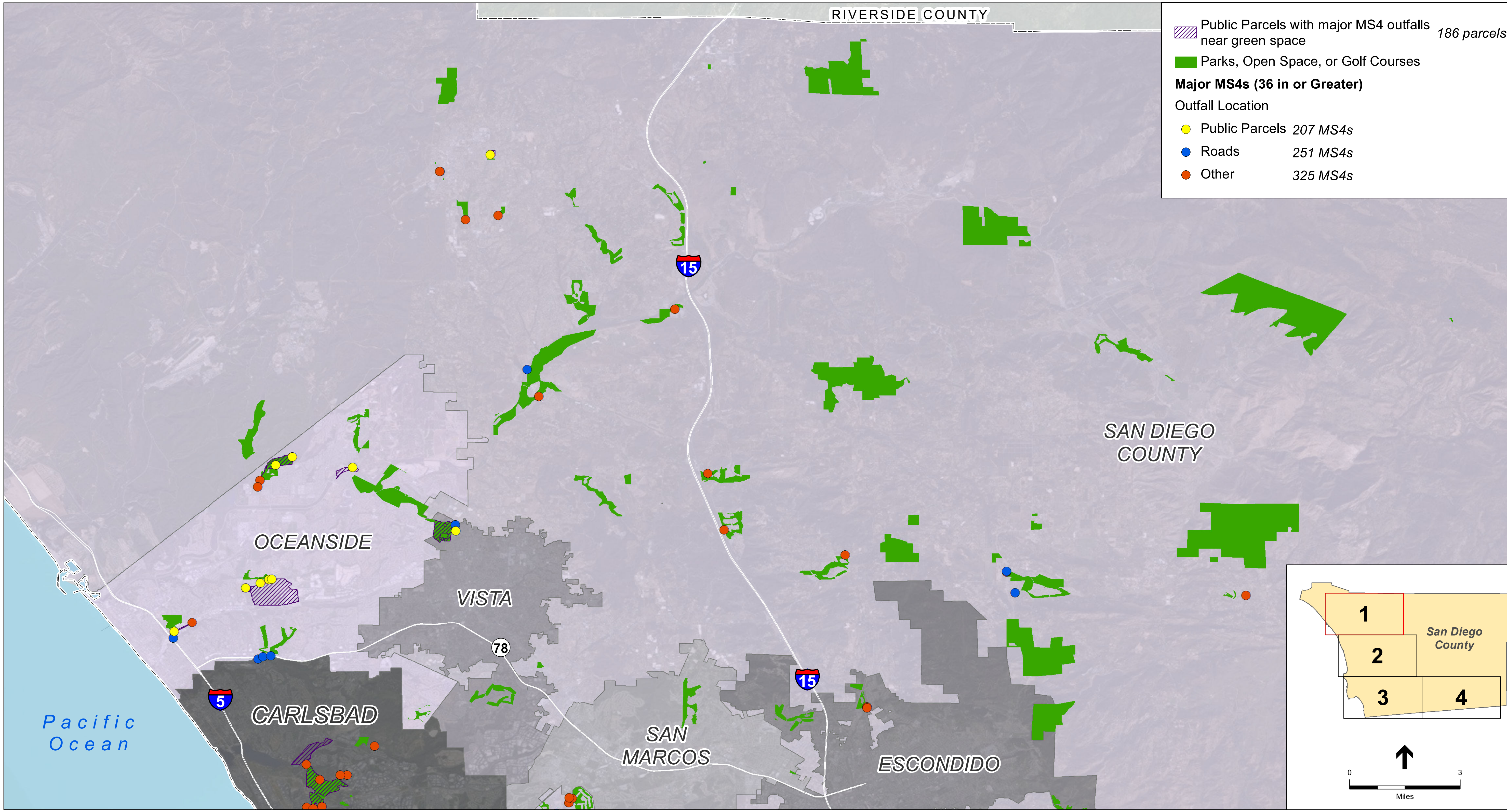
continuous flow monitoring during wet and dry weather seasons. Other methods and approaches for annual volume estimates are allowable, but shall be explained as part of the checklist submittal. These guidelines are provided for greater regional consistency, but are not required.

- **Guidelines and References for Calculating Metric:**
    - County of San Diego BMP Design Manual: http://www.sandiegocounty.gov/content/sdc/dpw/watersheds/DevelopmentandConstruction/BMP_Design_Manual.html
    - County of San Diego Precipitation Database: http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7740
    - County of San Diego Evapotranspiration Rates: http://www.itrc.org/etdata/etmain.htm
    - Water Quality Equivalency Report**:** Link to Water Quality Equivalency Page
    - County Department of Environmental Health Vector Habitat Mitigation Design Guidelines: http://www.sandiegocounty.gov/content/dam/sdc/pds/docs/vector_guidelines.pdf

- **Example Metric Calculation**:

The example project would divert stormwater and dry weather runoff from the stormdrain into underground storage and infiltration facility.

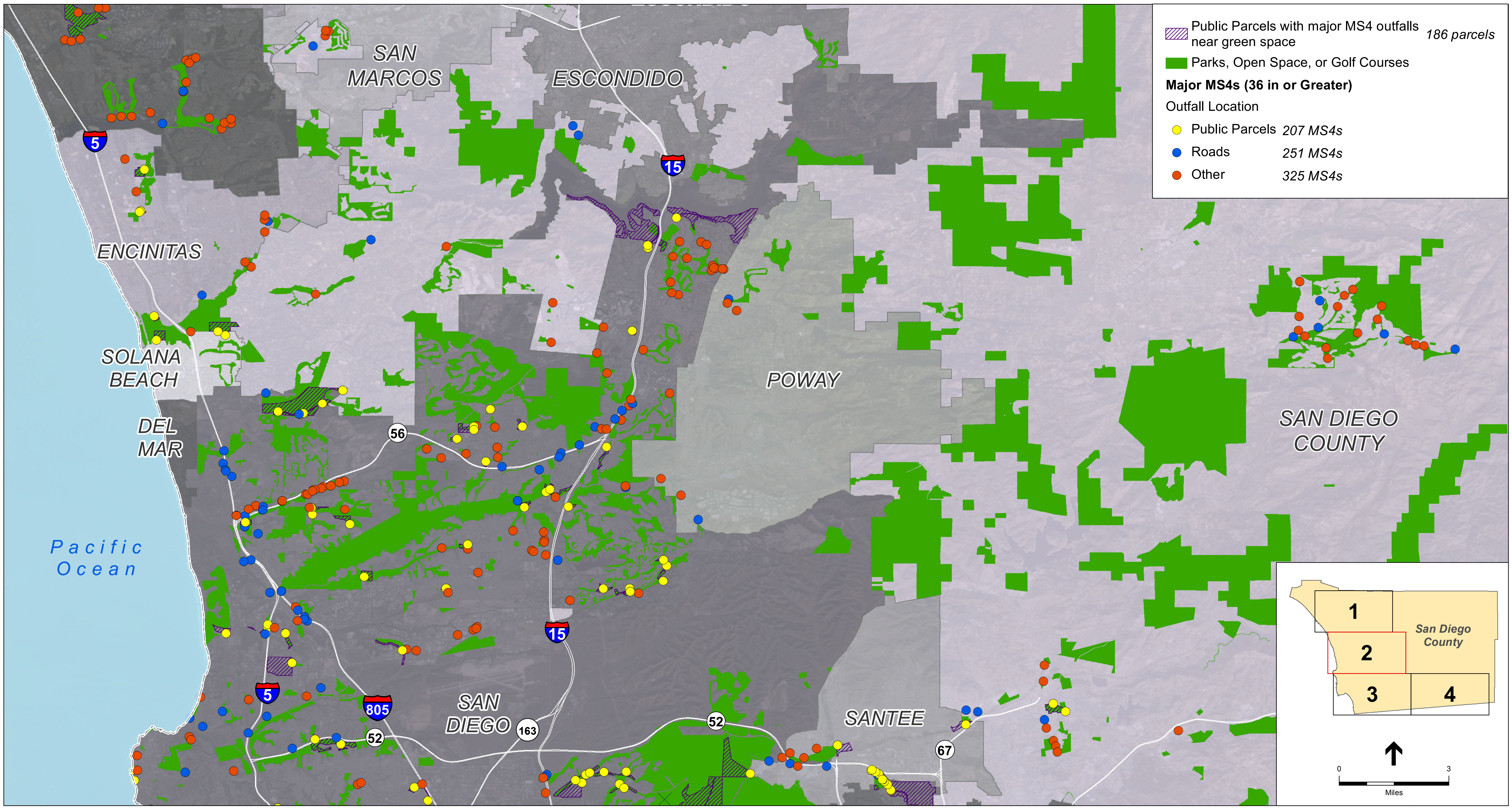
1. Estimate potential water supply
    a. Delineate stormdrain watershed
    b. Estimate available stormwater draining to the stormdrain using Rational Method or other stormwater calculations
    c. Estimate dry weather runoff using appropriate per unit area dry weather runoff rates for San Diego County multiplied by the area of developed land draining to the stormdrain system
    d. Estimate total potential water supply per year in AF/yr
2. Estimate potential infiltration rate
    a. Delineate footprint of potential infiltration facility
    b. Calculate soil infiltration potential
    c. Calculate total volume of water that could be infiltrated in AF/yr
3. Estimate storage volume available in facility in AF and estimate frequency that store can be filled based on step 1 to yield potential volume in AF/yr.
4. Estimate infiltration reuse potential
    a. Volume infiltrated is the limiting factor (smallest volume) from steps 1, 2 and 3 above, reported in AF/yr



SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

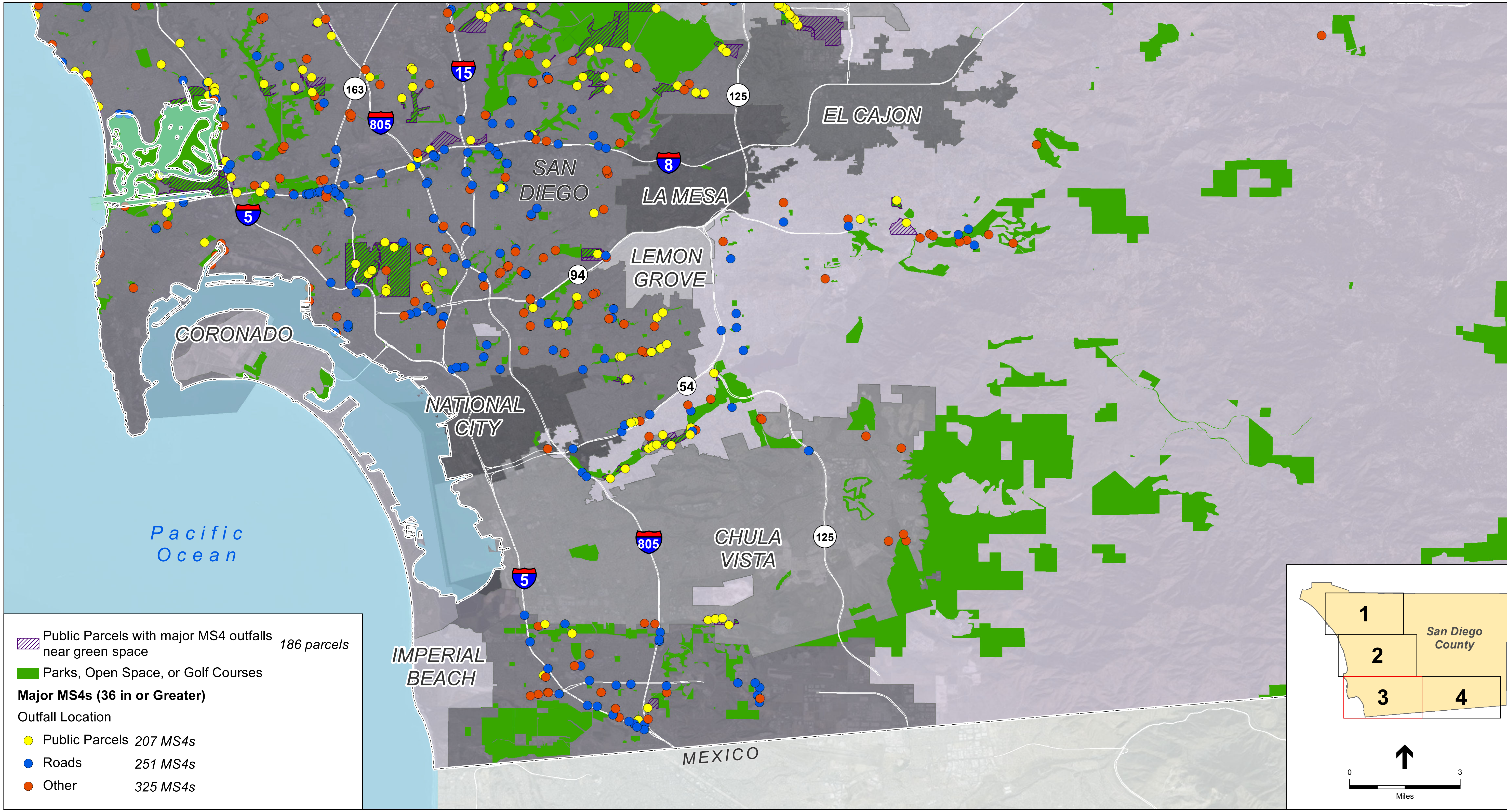
Figure 5-2a
Public Parcels with Major MS4 Oufalls
Located within 1/4 Mile of Green Space



SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

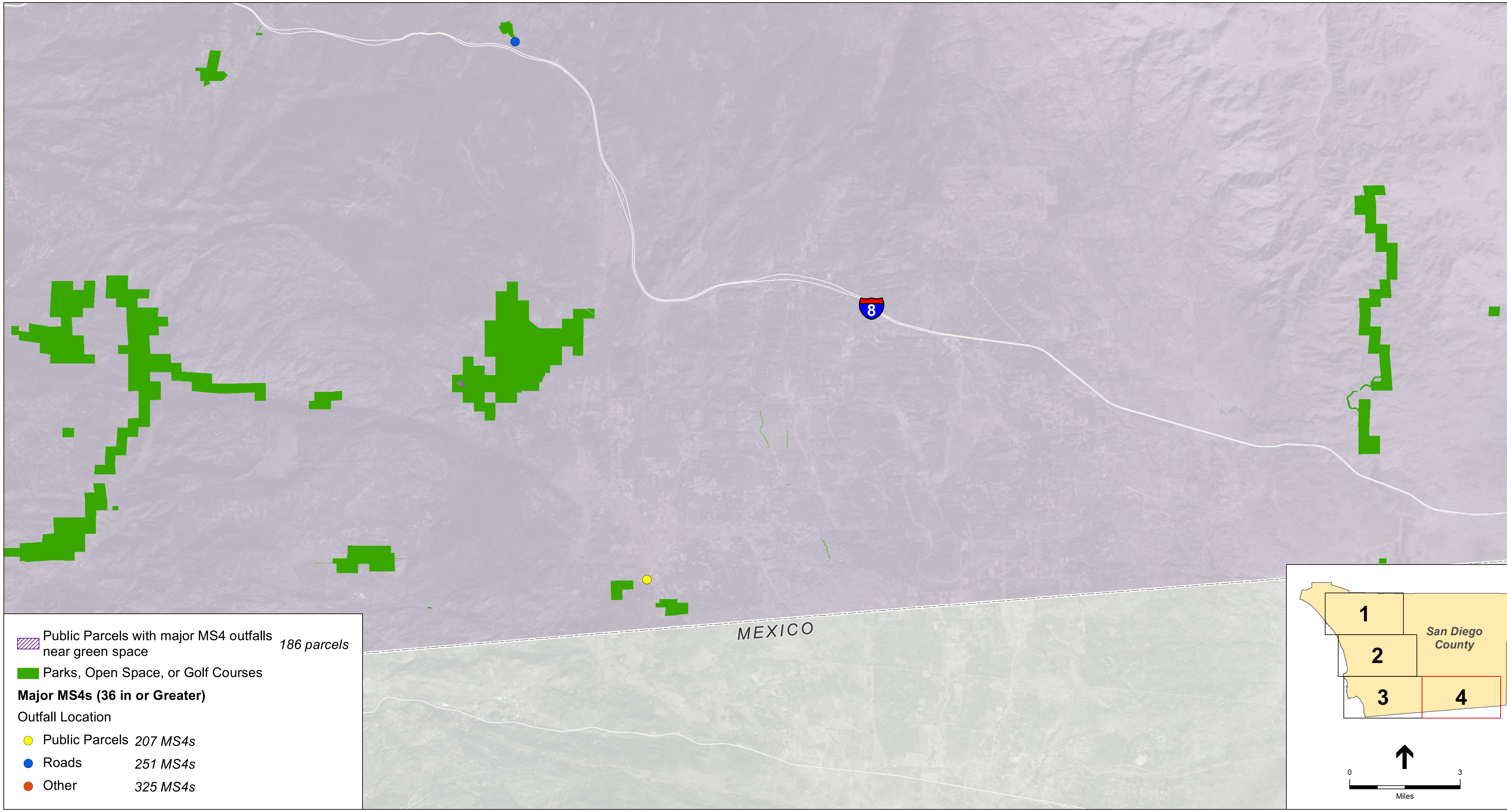
Figure 5-2b
Public Parcels with Major MS4 Oufalls
Located within 1/4 Mile of Green Space



SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

Figure 5-2c
Public Parcels with Major MS4 Oufalls
Located within 1/4 Mile of Green Space

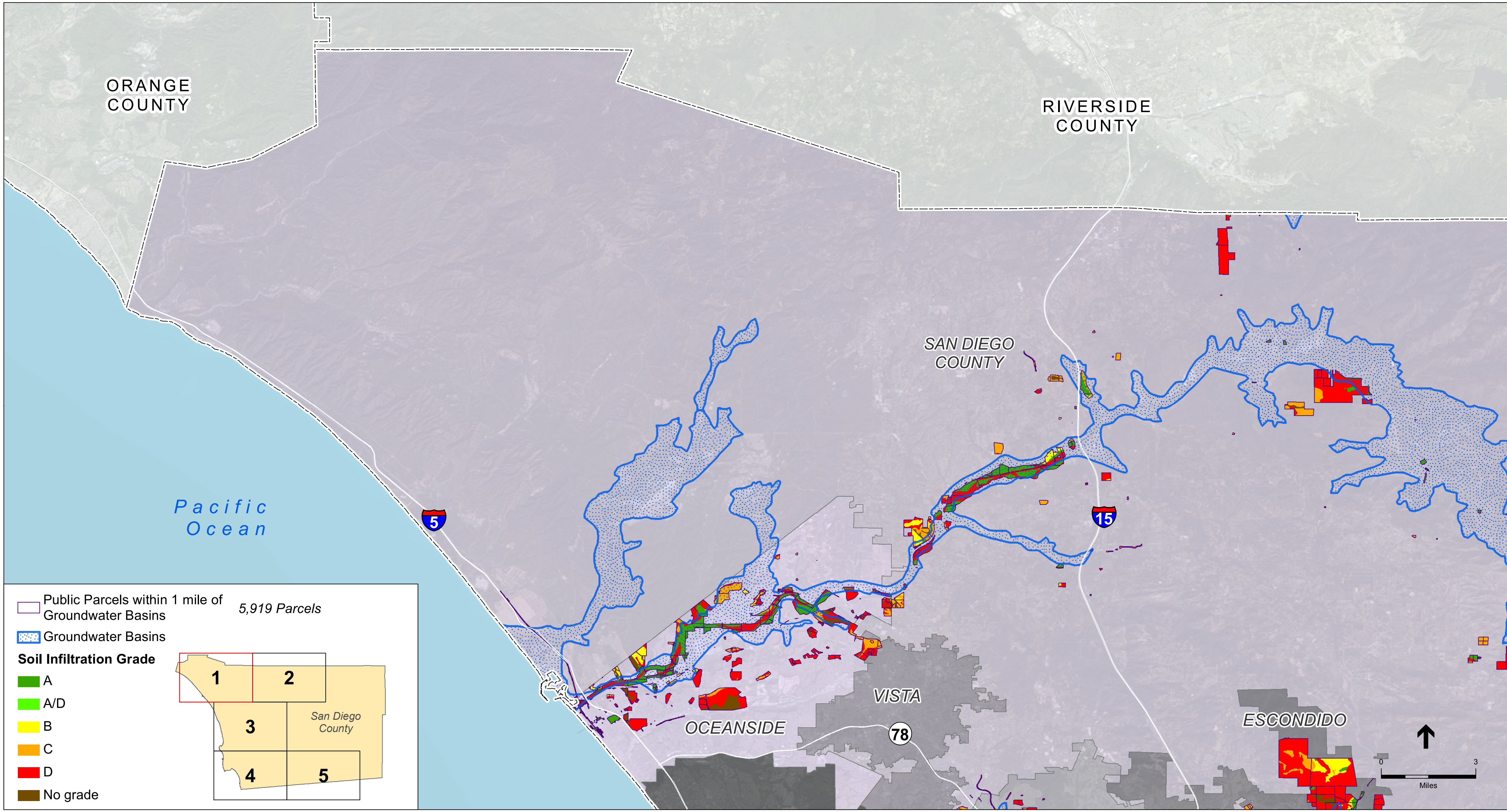


SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

Figure 5-2d

Public Parcels with Major MS4 Oufalls Located within 1/4 Mile of Green Space

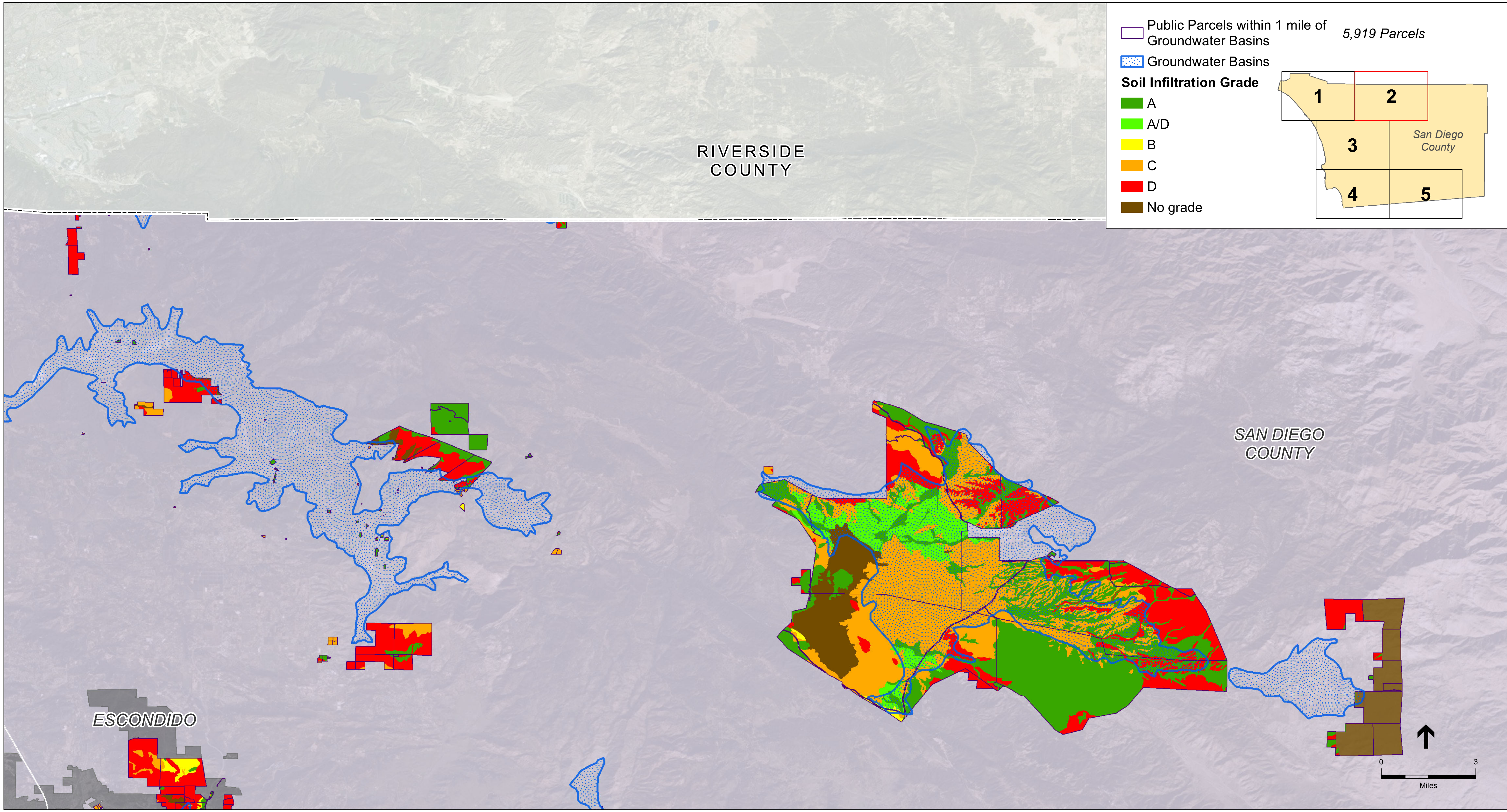


SOURCE: ESRI, 2016;SanGIS, 2016; NRCS, 2016

SWRP . 160618

Figure 5-3a

Public Parcels Within a Mile Of a Groundwater Basin

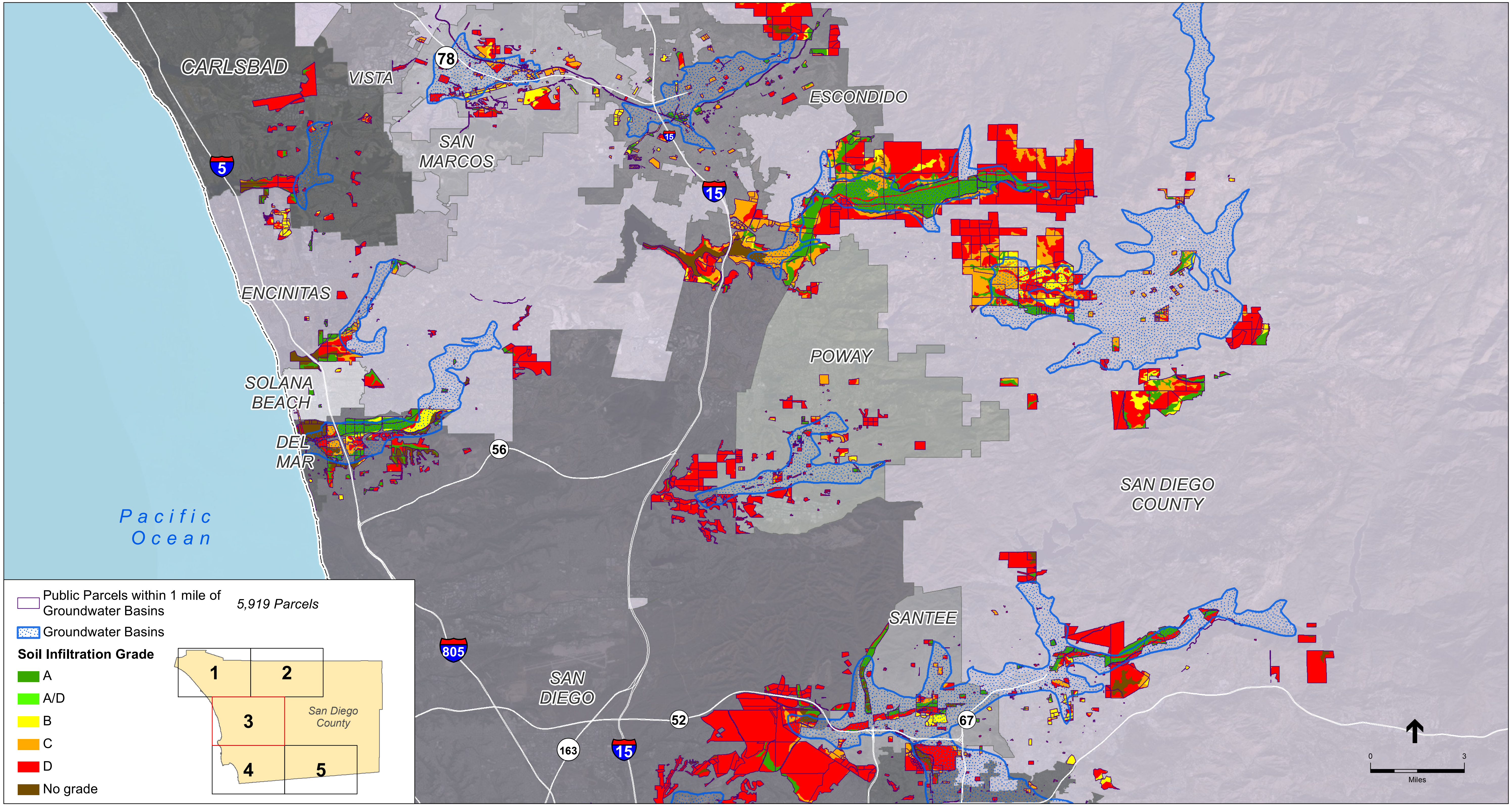


SOURCE: ESRI, 2016;SanGIS, 2016; NRCS, 2016

SWRP . 160618

Figure 5-2b

Public Parcels with Major MS4 Outfalls Located Within ¼ Mile of Green Space

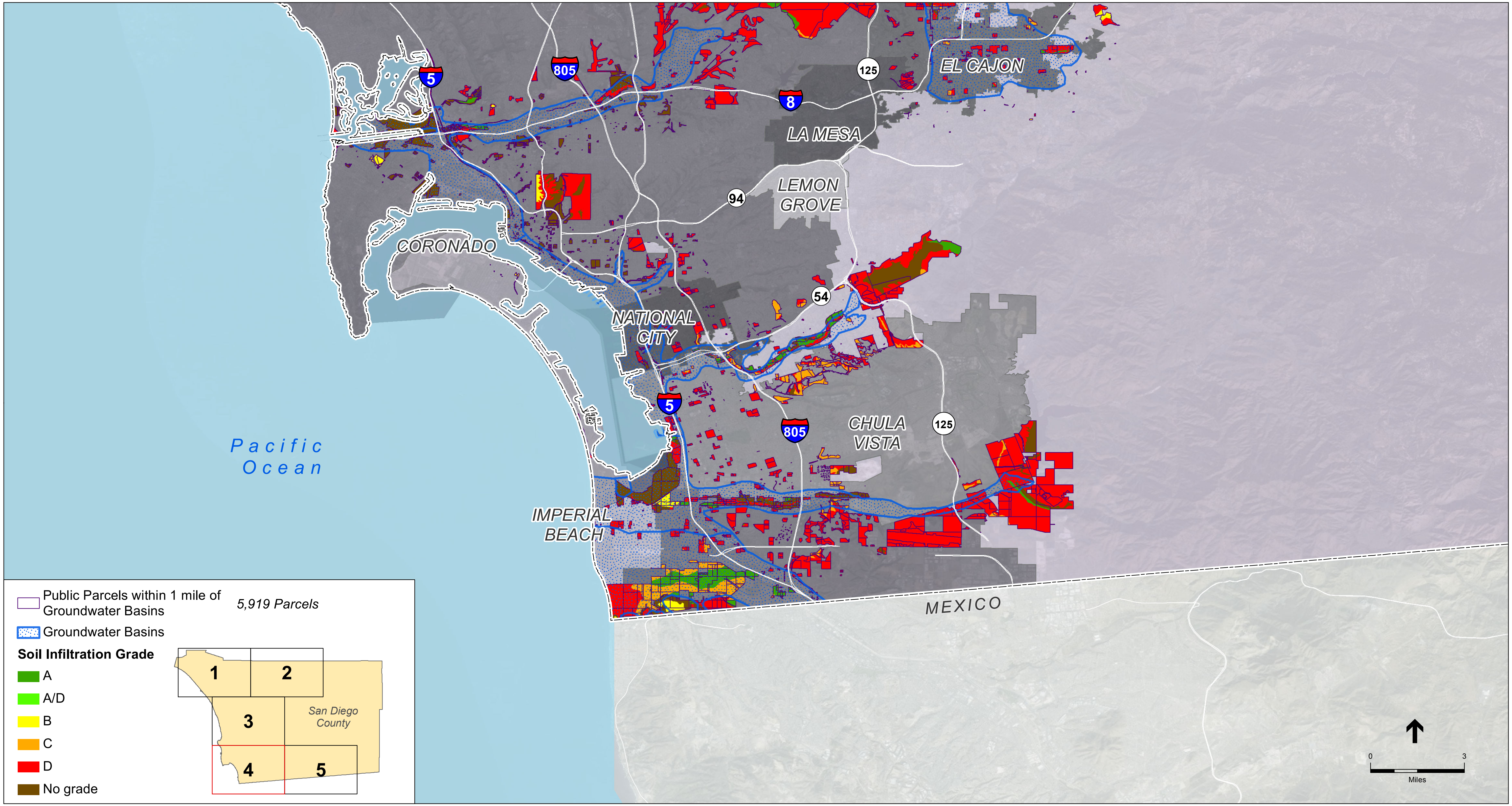


SOURCE: ESRI, 2016;SanGIS, 2016; NRCS, 2016

SWRP . 160618

Figure 5-3c

Public Parcels Within a Mile Of a Groundwater Basin

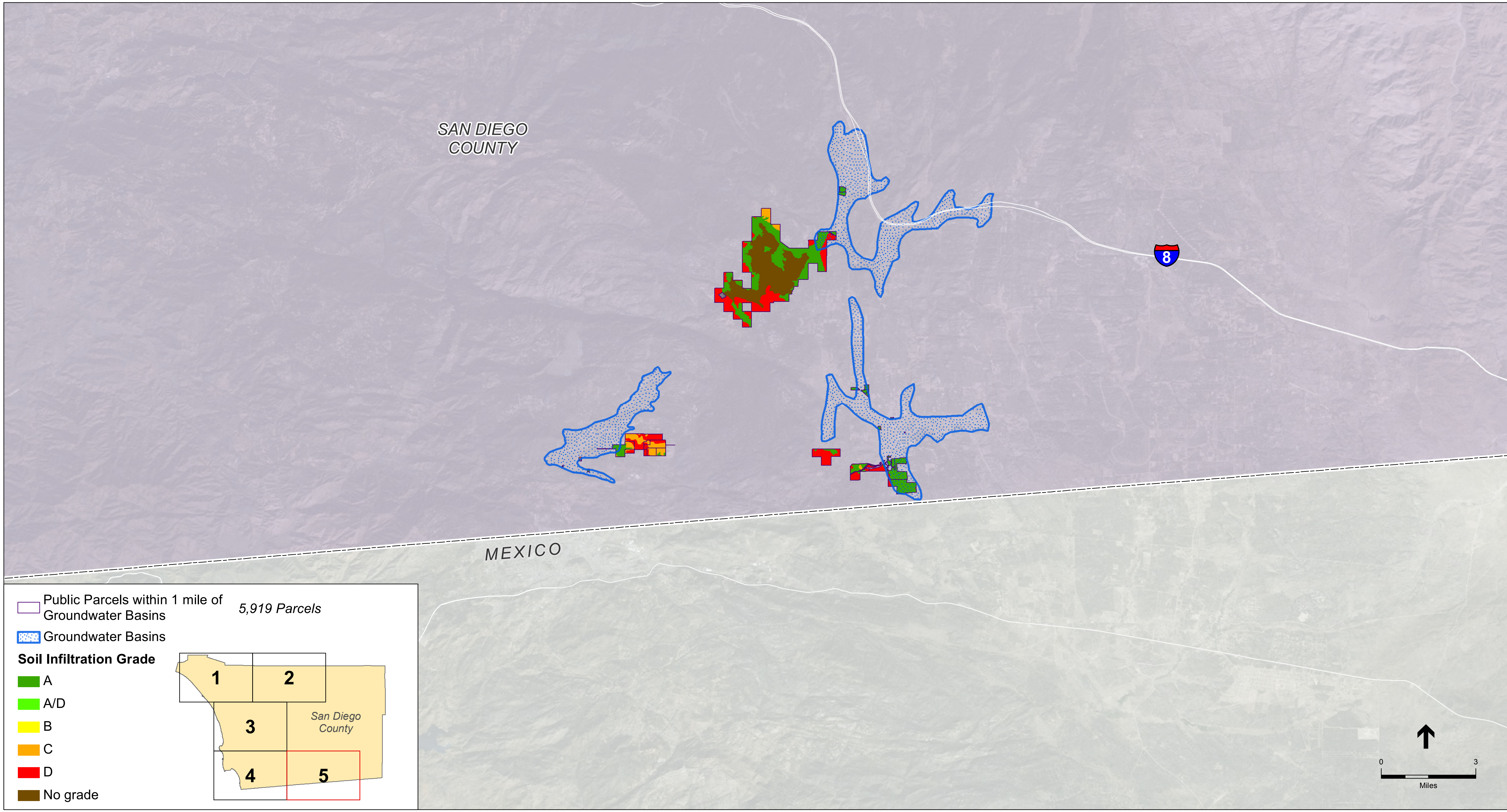


SOURCE: ESRI, 2016;SanGIS, 2016; NRCS, 2016

SWRP . 160618

Figure 5-3d

Public Parcels Within a Mile Of a Groundwater Basin

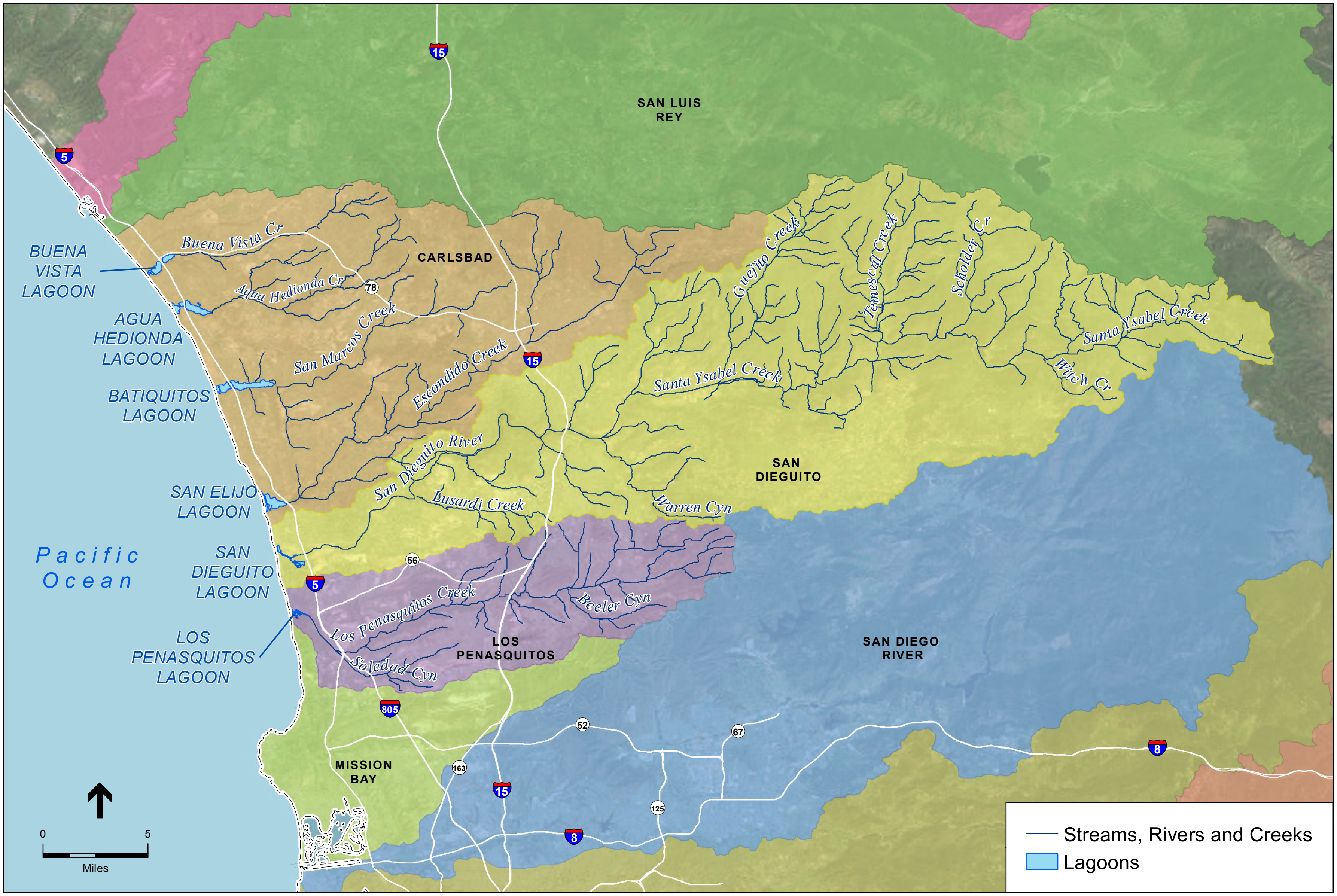


SOURCE: ESRI, 2016;SanGIS, 2016; NRCS, 2016

SWRP . 160618

Figure 5-3e

Public Parcels Within a Mile Of a Groundwater Basin



SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

Figure 5-5

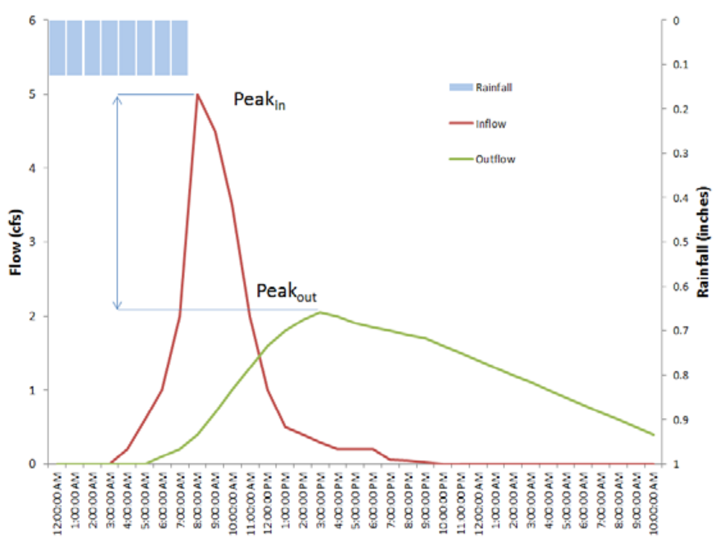
Creeks Systems with Lagoon Outlets

Flood Management Benefit Worksheet

Item #21: Estimates of the reductions of storm water runoff peak flow and peak flow duration resulting in reductions in flood risk.

- **<u>Metric Reporting Units</u>**: Report reductions in percent of peak flow for 25, 50 and 100 year storm frequency.
- **<u>Key Steps in Determining Metric</u>:**
    - *Project Outflow Peak Flows:* The percent reduction of peak flows will depend on project type, configuration, soil infiltration rates and design capacity. The percent reduction should be determined comparing the pre and post-project implementation peak flows for the 25, 50 and 100 year storm events using applicable hydraulic and hydrology models. Other methods and approaches for annual volume estimates are allowable, but shall be explained as part of the checklist submittal. These guidelines are provided for greater regional consistency, but are not required.
- **<u>Guidelines and References for Calculating Metric:</u>**
    - County of San Diego Precipitation Database: http://www.projectcleanwater.org/index.php?option=com_content&view=article&id=167%3Arainfall-data&catid=29&Itemid=188
    - County of San Diego Evapotranspiration Rates: http://wwwcimis.water.ca.gov/WSNReportCriteria.aspx
- **<u>Example Metric Calculation</u>**:

The example shown below represents the results of hydrology modeling to determine the pre- and post-peak flows that can be compared to determine the percent change.



Flood Management Benefit Worksheet

Item #22: Estimates of storm water runoff volume reductions through increased infiltration, filtration and evapotranspiration to reduce flood risk

- **Metric Reporting Units**: Report storm water runoff volume reductions in **gallons/year.**

- **Key Steps in Determining Metric:**
  - *BMP Rates of Infiltration, Filtration and/or Evapotranspiration:* Determine the rates of infiltration, filtration and/or evapotranspiration whichever is applicable, that will result in a reduction of volume of storm water runoff that will results in the restoration of natural hydrology. The rates of this volume reduction factors will depend on BMP type, configuration, soil infiltration rates and design capacity. These factors can be determined using the design tools in the County of San Diego BMP Design Manual (BMP DM). Structural BMP shall meet the minimum standards as specified in the MS4 Permit and defined in the BMP DM for both pollutant removal and hydromodification as applicable.
  - *Volume Reduced*: Determine the volume reduced by the BMP based on the design of the BMP and the annual volume of runoff treated. The method of determining the annual volume will depend on the type of BMP and configuration, and the drainage area characteristics. Annual volume shall be based on estimated drainage areas runoff that is captured and infiltrated, filtered and/or lost to evapotranspiration using methods presented in the BMP Design Manual and using the continuous rainfall runoff SDHM 3.0 model used to size and design stormwater BMPs in accordance with the San Diego County Hydromodification Plan (HMP). The pro-version of SDHM 3.0 allows for alternate precipitation and evaporation time series input and is incorporated in the Western Washington Hydrologic Model version 4 (WWHM4). WWHM4 allows for time series, land-use basins, and BMP and hydraulic structure “elements” to be arranged and connected to represent the design or in-field setup. Note that while the model is referred to as the Washington model, San Diego County climatic, soil and land-use parameters are used in the SDHM 3.0. For methods and projects that may not be applicable for these tools, annual runoff volumes shall represent an average annual rainfall based on a timeline that covers dry, wet and average annual rainfall recorded near the project. Other methods and approaches for annual volume estimates are allowable, but shall be explained as part of the checklist submittal. These guidelines are provided for greater regional consistency, but are not required.
  - *Annual Volume Reduction*: Determine the expected annual volume of storm water runoff reductions based on the results of the calculations and/or modeling guidelines that represent continuous modeling and/or average annual rainfall based on a timeline that covers dry, wet and average annual rainfall recorded near the project.

- **Guidelines and References for Calculating Metric:**
  - County of San Diego BMP Design Manual: http://www.sandiegocounty.gov/content/sdc/dpw/watersheds/DevelopmentandConstruction/BMP_Design_Manual.html
  - County of San Diego Precipitation Database: http://www.projectcleanwater.org/index.php?option=com_content&view=article&id=167%3Arainfall-data&catid=29&Itemid=188
  - SDHM 3.0 Model: http://www.clearcreeksolutions.com/SearchResults.asp?Cat=64
  - County of San Diego Evapotranspiration Rates: http://wwwcimis.water.ca.gov/WSNReportCriteria.aspx
  - Water Quality Equivalency Report: http://www.projectcleanwater.org/images/stories/Docs/WQE/Final%20Water%20Quality%20Equivalency%20Guidance%20for%20Region%209%20-%20December%202015.pdf

Examples of Flood Management Plans

Watershed	Flood Plans
All Watersheds	http://www.sdirwmp.org/pdf/Integrated_Flood_Mgt_Planning.pdf
San Luis Rey	https://marinemitigation.msi.ucsb.edu/documents/wetland/sce_reports/san_dieguito_final-planting-plan_spec-cond_080506.pdf

Environmental Benefit Worksheet

Item #28 and 29: Estimates of the reductions of storm water runoff peak flow and peak flow duration resulting in restoration of hydrology.

- **Metric Reporting Units**: Report reductions in percent of peak flow and peak flow duration for design storm event and 10 year storm event (if different than design storm).

- **Key Steps in Determining Metric:**
  - *Project Outflow Peak Flows and Duration:* The percent reduction of peak flows and the duration of peak flows will depend on project type, configuration, soil infiltration rates and design capacity. These factors can be determined for storm water management measures using the design tools in the County of San Diego BMP Design Manual (BMP DM). Structural BMP shall meet the minimum standards as specified in the MS4 Permit and defined in the BMP DM for both pollutant removal and hydromodification as applicable. The percent reduction should be determined comparing the pre and post-project implementation peak flows and flow durations for the design storm, 10 year storm event and/or the requirements of the HMP, where applicable. Peak flows shall be based on estimated drainage areas runoff that is captured and infiltrated, filtered and/or lost to evapotranspiration using methods presented in the BMP Design Manual and using the continuous rainfall runoff SDHM 3.0 model used to size and design stormwater BMPs in accordance with the San Diego County Hydromodification Plan (HMP). The pro-version of SDHM 3.0 allows for alternate precipitation and evaporation time series input and is incorporated in the Western Washington Hydrologic Model version 4 (WWHM4). WWHM4 allows for time series, land-use basins, and BMP and hydraulic structure "elements" to be arranged and connected to represent the design or in-field setup. Note that while the model is referred to as the Washington model, San Diego County climatic, soil and land-use parameters are used in the SDHM 3.0. Other methods and approaches for annual volume estimates are allowable, but shall be explained as part of the checklist submittal. These guidelines are provided for greater regional consistency, but are not required.

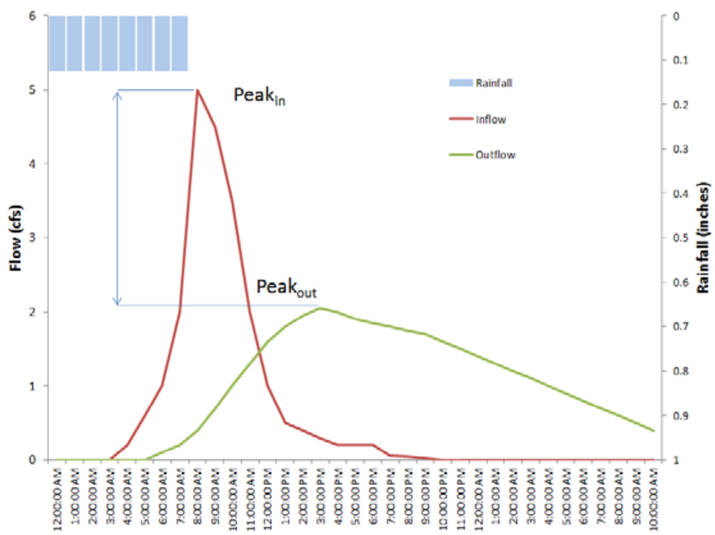
- **Guidelines and References for Calculating Metric:**
  - County of San Diego BMP Design Manual: http://www.sandiegocounty.gov/content/sdc/dpw/watersheds/DevelopmentandConstruction/BMP_Design_Manual.html
  - County of San Diego Precipitation Database: http://www.projectcleanwater.org/index.php?option=com_content&view=article&id=167%3Arainfall-data&catid=29&Itemid=188
  - SDHM 3.0 Model:

http://www.clearcreeksolutions.com/SearchResults.asp?Cat=64

- County of San Diego Evapotranspiration Rates: http://wwwcimis.water.ca.gov/WSNReportCriteria.aspx
- Water Quality Equivalency Report: http://www.projectcleanwater.org/images/stories/Docs/WQE/Final%20Water%20Quality%20Equivalency%20Guidance%20for%20Region%209%20-%20December%202015.pdf

- **Example Metric Calculation**:

The example shown below represents the results of hydrology modeling to determine the pre- and post-peak flows that can be compared to determine the percent change.



Community Benefit Worksheet

Item #33: Estimates of GHG Emissions

- **<u>Metric Reporting Units</u>**: Report GHG emissions reductions or carbon sink increase in **tonnes CO_2/year**.
- **<u>Key Steps in Determining Metric</u>:**
  - *Collect flux data from the field or from the literature*: Carbon aboveground biomass densities, soil sequestration rates (for wetlands), as well as emission rates of methane (for wetlands) need to be collated for the site or region.
  - *Determine change in carbon stocks*: The IPCC Wetlands Supplement to the 2006 accounting guidelines (IPCC 2014) identifies three carbon stocks important to calculating CO_2 removals: biomass (aboveground and belowground), dead organic matter (DOM), and soil carbon. To calculate CO_2 removals, each land cover type is assigned an aboveground biomass density (biomass stock density combined with carbon percentage of dry matter), a soil carbon sequestration factor, and a dead organic matter sequestration rate (mangrove habitat only). The soil carbon sequestration rate is often assumed to include belowground biomass.
  - *Determine change in methane emissions:* Methane emissions are produced when microorganisms in wet, poorly aerated soils, such as in freshwater marshes, decompose organic matter. However, high salinities reduce this methane production, so salt marsh is assumed to have negligible emissions (Poffenbarger et al. 2011). Methane has a 100-year Global Warming Potential (GWP) of 28-34 relative to CO_2, which means the effect of each tonne of CH_4 on the atmosphere in 100 years is 28—34 times greater than that of a tonne of CO_2 (IPCC 2014).
  - *Determine change in overall flux*: The IPCC 2006 GHG accounting framework is based on the following equation:

    Emissions=-Sequestration=Activity Data*Emissions Factor

    According to IPCC 2006, activity data are data on the magnitude of human activity resulting in GHG emissions and removals. For restoration projects, the relevant activity data are changes in land cover over time. Emissions factors are the rates of GHG emissions and removals associated with a unit of activity data. A removal is a negative emission.
- **<u>Guidelines and References for Calculating Metric:</u>**
  - IPCC Guidelines (2006): http://www.ipcc-nggip.iges.or.jp/public/2006gl/
  - IPCC Wetland Update (2014): http://www.ipcc-nggip.iges.or.jp/public/wetlands/

- **Example Metric Calculation**:

Carbon Reduction and Emission Facts for a Wetland in Los Angeles:

	Biomass Stock Factors			Carbon Reduction Factors		Methane Emission Factors	
Habitat type	**Biomass Stock (tonnes dry matter/ha)**	**Notes**	**Aboveground carbon stock (tonnes C/ha)**	**C Removal Rate (tonnes C/ha/yr)**	**Notes**	**CH_4 Emission Rate (kg Ch_4/ha/yr)**	**Notes**
Subtidal	0	Assumed unvegetated	0	0	Assumed unvegetated	0	Assumed unvegetated
Mudflat	0	Assumed unvegetated	0	0	Assumed unvegetated	0	Assumed unvegetated
Low salt marsh	0	Assumed unvegetated because cordgrass is uncommon in this system	0	0	Assumed unvegetated because cordgrass is uncommon in this system	0	Assumed unvegetated because cordgrass is uncommon in this system
Mid salt marsh	5.5		2.6	0.60		0	Assumed 0 for saline conditions
High salt marsh	5.5		2.6	0.60		0	Assumed 0 for saline conditions
Brackish marsh	5.5		2.6	0.60		193.7	
Salt pan	0.4	Assumed 7% cover	0.2	0.04	Assumed 7% cover	0	Assumed 0 for saline conditions
Transition zone	5.5	Assumed equal to other wetlands	2.6	0.60		0	Assumed 0 for saline conditions
Seasonal wetland	5.5		2.6	0.60		0	Assumed 0 for saline conditions
Upland	1.6	Assumed grassland for warm temperate – dry regions	0.8	0.09	Assumed value for non-rice annual cropland	0	Assumed dry

1. **Aboveground Biomass**

Biomass densities can be used to calculate aboveground carbon stock, using a habitat-specific carbon percentage of dry matter for all land covers. The carbon stock is then converted to CO_2 by multiplying by the ratio of molecular weights:

$$ST_A = CF * AB_A * A * \frac{MW_{CO_2}}{MW_C}$$

Where:

ST_A = Aboveground carbon stock (tonnes CO_2)

CF = Carbon fraction of dry matter

AB_A = Aboveground biomass, per area (tonnes dry matter/ha)

A = Habitat area (ha)

MW_{CO2} = Molecular weight of carbon dioxide (44)

MW_C = Molecular weight of carbon (12)

2. Soil Stock and Belowground Biomass

The change in soil carbon stock can be calculated by multiplying the restored habitat area by the soil sequestration rate (Table 11) and then subtracting the initial habitat area multiplied by the corresponding sequestration rate. This is then multiplied by the number of years since the habitat change occurred. The soil carbon stock is converted from tonnes C to CO_2 equivalents by multiplying by the ratio of molecular weights:

$$\Delta ST_B = (A_{restored} * SS_{restored} - A_{initial} * SS_{initial}) * T * \frac{MW_{CO_2}}{MW_C}$$

Where:

ΔST_B = Change in belowground carbon stock, per area (tonnes CO_2/yr)

$A_{restored}$ = Restored habitat area (ha)

$SS_{restored}$ = Soil sequestration rate for restored habitat type (tonnes C/ha/yr)

$A_{initial}$ = Initial habitat area (ha)

$SS_{initial}$ = Soil sequestration rate for initial habitat type (tonnes C/ha/yr)

T = Time since habitat was restored (yr)

3. Total Carbon Sequestration

The aboveground biomass, soil carbon stock, and DOM carbon stock can then combined to calculate the cumulative CO_2 equivalents sequestered:

$$\Delta ST_{ALL} = \Delta ST_A + \Delta ST_B + \Delta ST_{DOM}$$

Where:

ΔST_{ALL} = Change in total carbon stock (tonnes CO_2)

4. Methane

To calculate CH_4 emissions, each land cover type is assigned a methane emission rate. The IPCC recommends using an emission factor of 0 for salinities greater than 18 ppt and a factor of 193.7 kg CH_4/ha/yr for lower salinities (Table 11, IPCC 2014).

$$\Delta E_{CH4} = \frac{tonnes\ CH4}{kg\ CH4} * (A_{restored} * ER_{restored} - A_{initial} * ER_{initial}) * T * \ GWP$$

Where:

ΔE_{CH4} = Change in methane emissions (tonnes CO_2)

$\frac{tonnes\ CH4}{kg\ CH4}$ = Unit conversion (0.001)

$ER_{restored}$ = Methane emission rate for the restored habitat (kg CH_4/ha/yr)

$ER_{initial}$ = Methane emission rate for the initial habitat (kg CH_4/ha/yr)

GWP = Global Warming Potential (28)

5. Total Flux

Total flux is calculated by combining the

$$\Delta GHG = \Delta ST_{ALL} - \Delta E_{CH4}$$

Where:

ΔGHG = Change in GHG sequestrations (positive) and emissions (negative), (tonnes CO_2)

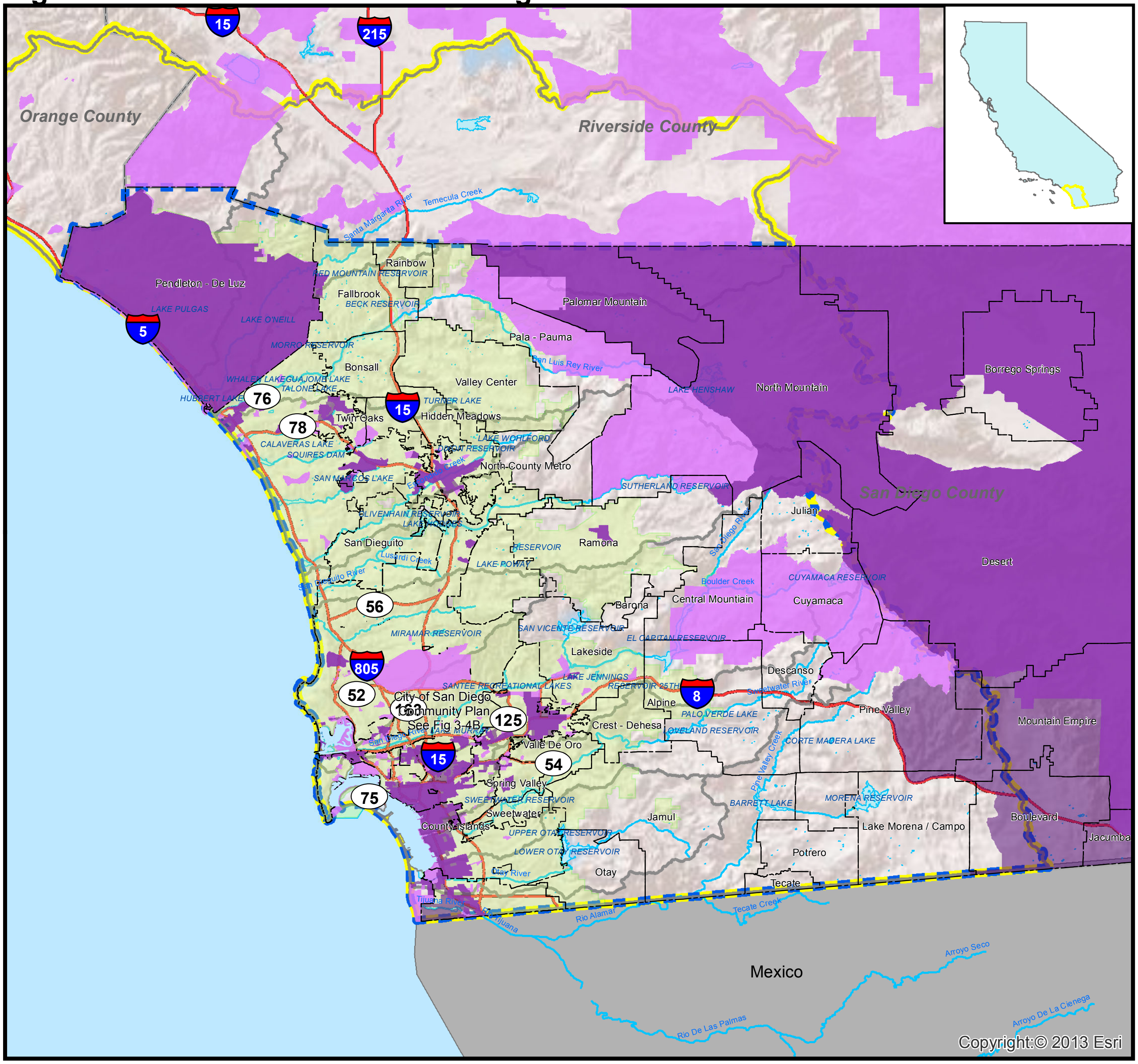
Examples of Environmental Plans

Watershed	Restoration	(source)
San Dieguito	San Dieguito Wetlands	https://marinemitigation.msi.ucsb.edu/documents/wetland/sce_reports/san_dieguito_final-planting-plan_spec-cond_080506.pdf
Los Peñasquitos	Los Peñasquitos Lagoon	http://scc.ca.gov/webmaster/ftp/pdf/sccbb/2012/1205/20120524Board3F_Los_Penasquitos_Lagoon.pdf
San Diego Bay	San Diego Bay Oysters	http://scc.ca.gov/webmaster/ftp/pdf/san_diego_bay_native_oyster_restoration_plan_final_reduced
San Diego Bay	City Heights	https://www.sandiego.gov/sites/default/files/final_city_hts_urban_greening_plan.pdf
San Diego Bay	Otay River	http://www.spl.usace.army.mil/Portals/17/docs/regulatory/Projects/SAMP/Riparian_Ecosystem_Restoration_Plan_for_the_Otay_Watershed.pdf
Tijuana	Tijuana Sewage Ponds	Sewage Ponds Restoration — Tijuana Estuary : TRNERR
Tijuana	Tijuana Estuary	Tijuana Estuary Tidal Restoration Program — Tijuana Estuary : TRNERR
Tijuana	Tijuana River	Napolitano Restoration Site — Tijuana Estuary : TRNERR

Examples of Community Plans

Watershed	Project	(source)
Santa Margarita	Rainbow Creek	http://www.sandiegocounty.gov/pds/docs/CP/Rainbow_CP.pdf
Carlsbad	Valley Center	http://www.sandiegocounty.gov/content/dam/sdc/pds/docs/CP/Valley_Center_CP.pdf
San Dieguito	San Dieguito	http://www.sandiegocounty.gov/content/dam/sdc/pds/docs/CP/San_Dieguito_Community_Plan.pdf
San Diego	Ramona	http://www.sandiegocounty.gov/pds/docs/CP/Ramona_CP.pdf

Figure 3-4A: Location of Disadvantaged Communities



Legend

- 2013 Disadvantaged Communities
- 2010 Disadvantaged Communities
- San Diego County Water Authority
- Community Planning Area
- Watershed
- San Diego IRWM Region
- Funding Area Boundary
- Ocean
- Waterbody
- County
- River
- Freeway

Community Planning Areas (CPA) Containing Disadvantaged Communities (DAC)

Alpine CPA***
Bostonia County/Lakeside CPA***
Central Mountain CPA*
City of Carlsbad***
City of Oceanside***
County Islands CPA
Cuyamaca CPA*
Descanso CPA***
Desert CPA
Fallbrook CPA***
Fallbrook CPA***
Julian CPA
Mountain Empire CPA**
North County Metro CPA*
City of Escondido
City of San Marcos
North Mountain County CPA
Pala-Pauma CPA*
Palomar Mountain CPA
Pendleton-DeLuz CPA
Pine Valley CPA
Ramona CPA***
Spring Valley CPA
Twin Oaks CPA***

**Areas meeting 2010 DAC criteria but not 2013 criteria*
***Areas meeting 2013 DAC criteria but not 2010 criteria*
****Areas contining small pockets of DAC*

N

0 3 6 12
Miles

Sources: San Diego Association of Governments (SANDAG) - GIS Data Warehouse, 2010 Census Data.
DAC defined as a block group with a median household income (MHI) of less than $48,706 (80% of the Statewide MHI).
\\rmcsd\RMCSD\Projects GIS\0188-003 SDIRWM Plan Update\AdminDraftMaps\060713_JD\Fig3-4A_Location of DACs 060713.mxd

APPENDIX H

Water Supply Analysis

ESA

550 West C Street
Suite 750
San Diego, CA 92101
619.719.4200 phone
619.719.4201 fax

www.esassoc.com

memorandum

date	February 28, 2017
to	Ruth Dela Rosa, County of San Diego
cc	
from	Lindsey Sheehan PE, Jaclyn Anderson, Ellen Buckley
subject	San Diego County Water Supply Quantification Analysis for the San Diego Region Storm Water Resources Plan

An analysis of potential water supply projects was undertaken to quantify the volume of storm water that could potentially be reused in San Diego County. This analysis was conducted to provide a baseline against which to compare projects submitted to the San Diego Region Storm Water Resources Plan (SWRP). This memo describes the steps of the analysis and the results.

1. Introduction

This memo presents an assessment of potential storm water and dry weather flow capture and direct use opportunities in San Diego County. Direct use, in this context, is an end use that can augment and/or conserve local water supplies. Opportunities for direct use of captured storm water and dry weather flows have greater constraints in San Diego County compared to other regions due to a more limited number of groundwater aquifers that are used for potable water supply and a more limited current capacity for treatment and redistribution of captured storm water. The purpose of this assessment is to supplement watershed and regional plans to identify water supply opportunities for further development and prioritization. The opportunities presented in this memo provide a tool for project sponsors to potentially develop or expand projects in order to provide greater water supply benefits to the San Diego region.

Three types of storm water capture and beneficial use opportunities are presented and assessed in this memo, and include:

- **Irrigation -** Store and divert storm water and/or dry weather flows to be used as irrigation onsite, at a park, for habitat restoration, and/or to sustain a natural treatment system.
- **Groundwater Aquifer Recharge -** Store and infiltrate storm water and/or dry weather flows to recharge a groundwater aquifer that is used as a potable water supply.

- **Treatment Facility for Recycled and Potable Water** – Store and divert storm water and/or dry weather flows to a wastewater or water treatment facility for recycled or potable water use

2. Parcel and Opportunity Analysis

The first step in the water supply analysis was a public parcel assessment used to identify potential opportunities for use of storm water and/or dry weather flows. Three types of parcels/opportunities were identified:

- **Irrigation** – parcels with a major Municipal Separate Storm Sewer System (MS4) outfall (greater than 36 inches) that are within a quarter mile of a park or a golf course.

- **Groundwater Aquifer Recharge** – parcels within a mile of a groundwater basin that is used for potable water supply.

- **Treatment Facility for Recycled and Potable Water –** existing ocean outfalls and creeks that enter lagoons.

Figure 1 presents a map of the 118 public parcel that could be used to collect storm water and dry weather runoff for irrigation. Figure 2 presents the 5,919 public parcels within a mile of a groundwater basin used for potable water supply. Figures 3 and 4 present the existing ocean outfalls and creeks that enter lagoons, which offer opportunities to divert dry weather flow to a treatment plant. These parcels represent an initial identification of opportunities, but further analysis of project feasibility is needed.

3. Water Supply Quantification

Once parcels were identified, they were categorized by land use type and size, as presented in Table 1. Open space/parks, schools, and transportation were identified as the best opportunities for storm water management and five categories were developed to best represent the identified parcels (Table 2). Five sites were chosen to represent the different parcel categories and storm water modeling and a conceptual design was developed for each.

TABLE 1. PARCEL OPPORTUNITIES BY LAND USE AND SIZE

Land Use	1-5 acres	5-25 acres	25-50 acres	50-100 acres	>100 acres	Total
Agriculture	19	12	4	4	1	40
Commercial	32	13	2	1	1	49
Industrial	23	7	2	-	-	32
Open Space/Parks	186	266	91	74	71	688
Public Service	57	24	3	3	4	91
Residential	17	14	3	-	3	37
Schools	17	119	24	9	1	170
Transportation	60	26	8	2	4	100
Total	411	481	137	93	85	1,207

TABLE 2. PARCELS FOR WATER SUPPLY PROJECTS

Land Use	Size	# of Parcels
Transportation	1 – 5 acres	60
Schools	-	170
	1 – 5 acres	186
Open Space/Parks	5 – 25 acres	266
	> 25 acres	236
Total		**918**

3.1 Representative Sites

3.1.1 Transportation

The representative site for the transportation land use category was a parcel along the train tracks in Del Mar, south of the San Dieguito lagoon (Figure 5). It was assumed that, due to narrow parcel dimensions and the train right of way, 20% of the site could be used for aboveground storage and that the storage would not exceed 3 feet in depth. For transportation parcels, it was assumed that the storage could be infiltrated into groundwater basins and used for irrigation on the landscaped slopes of the right of way (irrigating 50% of the site area).

3.1.2 Schools

The representative site for the school land use category was Point Loma High School in Point Loma (Figure 6). It was assumed that underground storage could be utilized under parking lots or open lots, or roughly 25% of the site area, at a depth up to 4 feet. For school parcels, it was assumed that the storage could be infiltrated into groundwater basins and used for irrigation of 50% of the site (e.g. sports fields, landscaping).

3.1.3 Open Space/Parks

Three representative sites were chosen for the open space/park land use category to capture the range in sizes. The smallest site was a 2-acre, open space parcel south of the Batiquitos Lagoon (Figure 7). The middle site was a 7-acre, open space parcel northeast of San Elijo Lagoon (Figure 8). The largest representative site was a 23-acre, open space parcel in Oceanside (Figure 9).

For the smaller sites, it was assumed that it would be harder to fit an aboveground basin within the shape of the site than in the larger sites, so it was assumed that 50% of the site could be used for storage. For the medium and large sites, 60% and 70% of site was assumed for storage, respectively. A 4-foot storage depth was assumed for all sites. For open space/park parcels, it was assumed that the storage could be infiltrated into groundwater basins and then any excess storage would either be used for irrigation if the site was a park or was near a park, or transferred to a treatment facility otherwise.

3.2 Hydrology Modeling

For each representative parcel, topographic data were acquired for the site and surrounding areas to determine the potential drainage area. The 7.5’ USGS DEMs were downloaded from The National Map (USGS) and brought into ArcMap. The Hydrology Toolbox in ArcMap was used to determine the drainage area of each parcel based on the topography.

The San Diego Hydrology Model v3.0 (SDHM3.0) was used to model runoff from these drainage areas. The model uses rainfall data and watershed land cover to determine runoff that would reach the site. The time step can be specified to produce varying time series of runoff flow data that would reach the site. Permeability, slope, hydrologic soil type, and ground cover (e.g. dirt, grass, gravel, etc) for the watershed were input into the model to determine the runoff coefficient. These factors were determined based on soil data from the Web Soil Survey, aerial imagery, and site knowledge. Forty to 45 years of rainfall data from the nearest San Diego ALERT station were used to drive the model.

TABLE 3. SDHM3.0 MODEL INPUTS

Land Use	Site	Rainfall Station	Drainage Area Land Categorization	Drainage Area (ac)
Transportation	Del Mar Train Right of Way	Encinitas	Entirely developed, some urban green	88
Schools	Point Loma High School	Lindberg Field	Very developed, 30% urban grass	15
Open Space/Parks	South of Batiquitos Lagoon	Encinitas	80% grass, 20% neighborhood	20
	Northeast of San Elijo Lagoon	Encinitas	80% green space, 20% low density housing	29
	Oceanside	Oceanside	Very developed, 20% grass, 10% dirt	721

The model output flow time series for the 40-45 year period for each site. The flow output is likely an overestimate of the total flow to the parcel due to infiltration into soils on the way to the parcel and storm water infrastructure interference that could be draining runoff before the flow reaches the parcel.

3.3 Water Reuse Calculations

3.3.1 Infiltration

Infiltration was calculated using the flow time series produced by the SDHM3.0 model. An infiltration rate of 0.07 in/hr was chosen based on the San Diego County C/D hydrologic soil type and a maximum drainage time of 72 hours was assumed for aboveground storage, based on vector control guidelines. Any remaining water volume that could not be infiltrated in this time period was assumed to be either used for irrigation or sent to a treatment facility. Table 4 provides the results of the infiltration calculation for each site.

3.3.2 Irrigation

Of the representative sites using irrigation onsite (transportation and school sites), only Point Loma High School did not have excess water after infiltration. This is likely due to the small drainage area (Figure 6) resulting in lower flow rates relative to the amount of storage. Therefore, the school site does not include an estimate for volume of irrigation in Table 4.

For the representative sites using irrigation offsite (open space/parks sites) at a park or golf course, it was assumed that 10 acres of the park or golf course could require irrigation, based on an analysis of the median park size in San Diego County.

For all sites, an irrigation rate of 3 ac-ft/yr per acre of land was chosen based on medium/high water use plants in either Coastal or Inland evapotranspiration zones. This rate was multiplied by the area to be irrigated to determine a maximum volume of water that could be used for irrigation. The maximum volume was then compared to the excess flow volume and the smaller of the two values was chosen for the volume of water that could be used for irrigation (Table 4).

3.3.3 Treatment Facility

For the three open space/parks sites, it was assumed that any excess water not infiltrated to a potable groundwater basin would be directed to a treatment facility. This assumption was made to produce a rough quantification of the volume of storm water that could be redirected to a treatment facility, but the feasibility of each project should be further considered based on existing infrastructure. Table 4 presents an estimate of volumes that could be sent to a treatment facility.

TABLE 4. WATER REUSE FOR REPRESENTATIVE SITES

Land Use	Site	Infiltration (ac-ft/yr)	Irrigation (ac-ft/yr)	Water Treatment (ac-ft/yr)
Transportation	Del Mar Train Right of Way	5.0	5.6	0
Schools	Point Loma High School	6.4	0	0
Open Space/Parks	South of Batiquitos Lagoon	2.9	0.7	0.7
	Northeast of San Elijo Lagoon	4.5	0.3	0.3
	Oceanside	98.1	30.0	301.7

3.4 Extrapolation to San Diego County

Based on values calculated for each representative site, total volumes of storm water that could be infiltrated, used for irrigation, and sent to a treatment facility were estimated for all of the parcels identified in Section 2. Table 5 presents the resulting volumes.

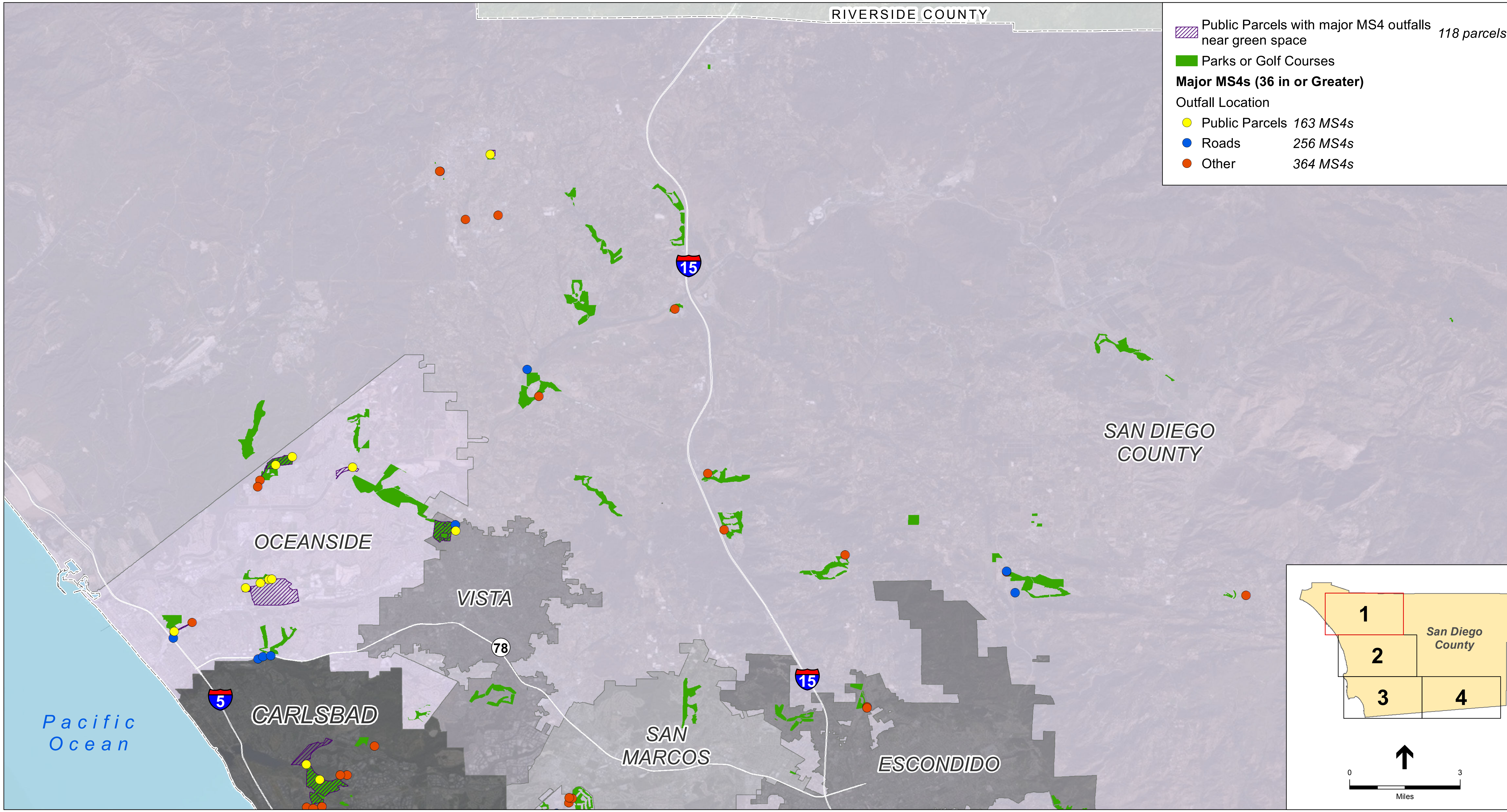
TABLE 5. WATER SUPPLY ANALYSIS

Land Use	Size	Near Potable GW Basin?	Near (or is) Park/Golf Course?	# of Parcels	Infiltration to Potable GW Basin (ac-ft/yr)	Infiltration to Non-Potable GW Basin (ac-ft/yr)	Irrigation (ac-ft/yr)	Water Treatment (ac-ft/yr)
Transportation	1-5 ac	Yes	-	57	283	-	318	-
	1-5 ac	No	-	3	-	15	17	-
Schools	-	Yes	-	161	1,023	-	-	-
	-	No	-	9	-	57	-	-
Open Space/Parks	1-5 ac	Yes	-	170	486	-	-	112
		No	Yes	8	-	23	5	-
		No	No	8	-	23	-	5
	5-25 ac	Yes	-	229	1,020	-	-	57
		No	Yes	26	-	116	7	-
		No	No	11	-	49	-	3
	> 25 ac	Yes	-	206	20,201	-	-	62,145
		No	Yes	20	-	1,961	600	-
		No	No	10	-	981	-	3,017
Total					23,014	3,225	947	65,339

4. Discussion

The water supply opportunities analysis documented in this memo resulted in an estimate of 92,500 ac-ft of storm water that could be captured, stored, and reused through infiltration, irrigation, and/or water treatment in San Diego County annually. Approximately 26,200 ac-ft of water could be infiltrated to either a potable (23,000 ac-ft) or non-potable groundwater basin (3,200 ac-ft), while approximately 950 ac-ft could be used for irrigation either onsite or at a local park or golf course, and 65,300 ac-ft could be sent to a water treatment facility. These estimates offer a quantitative comparison to the projects submitted to the SWRP with a water supply benefit and provide a rough estimate of the total possible volume of storm water that could be reused.

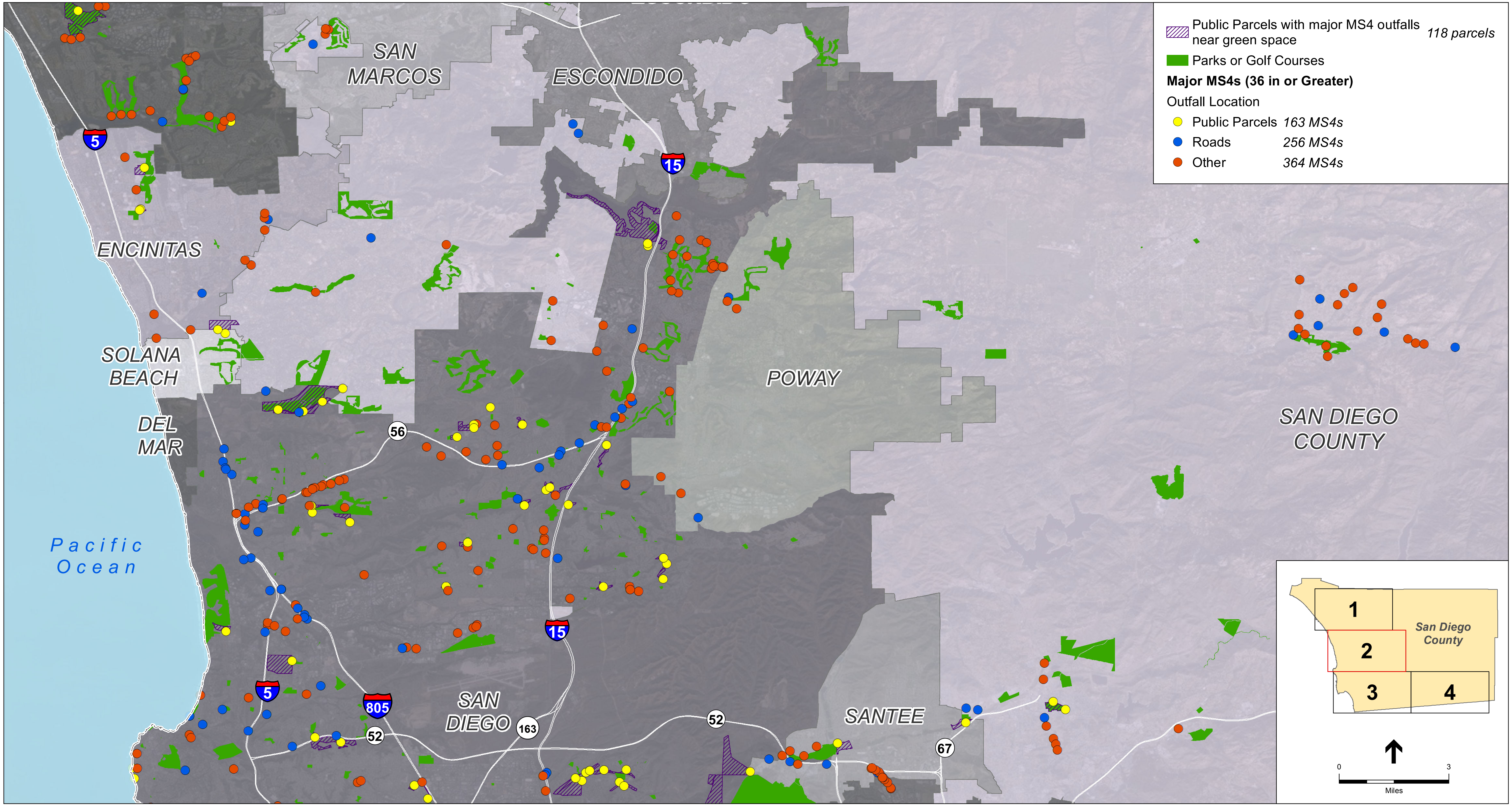
This analysis is based on many assumptions and should only be used as a planning-level estimate of water supply opportunities. It is expected that other plans will be developed to better estimate these opportunities, including the IRWMP update, which is expected to include a Storm Water Capture Feasibility Study.



SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

Figure 1-a
Public Parcels with Major MS4 Oufalls
Located within 1/4 Mile of Green Space

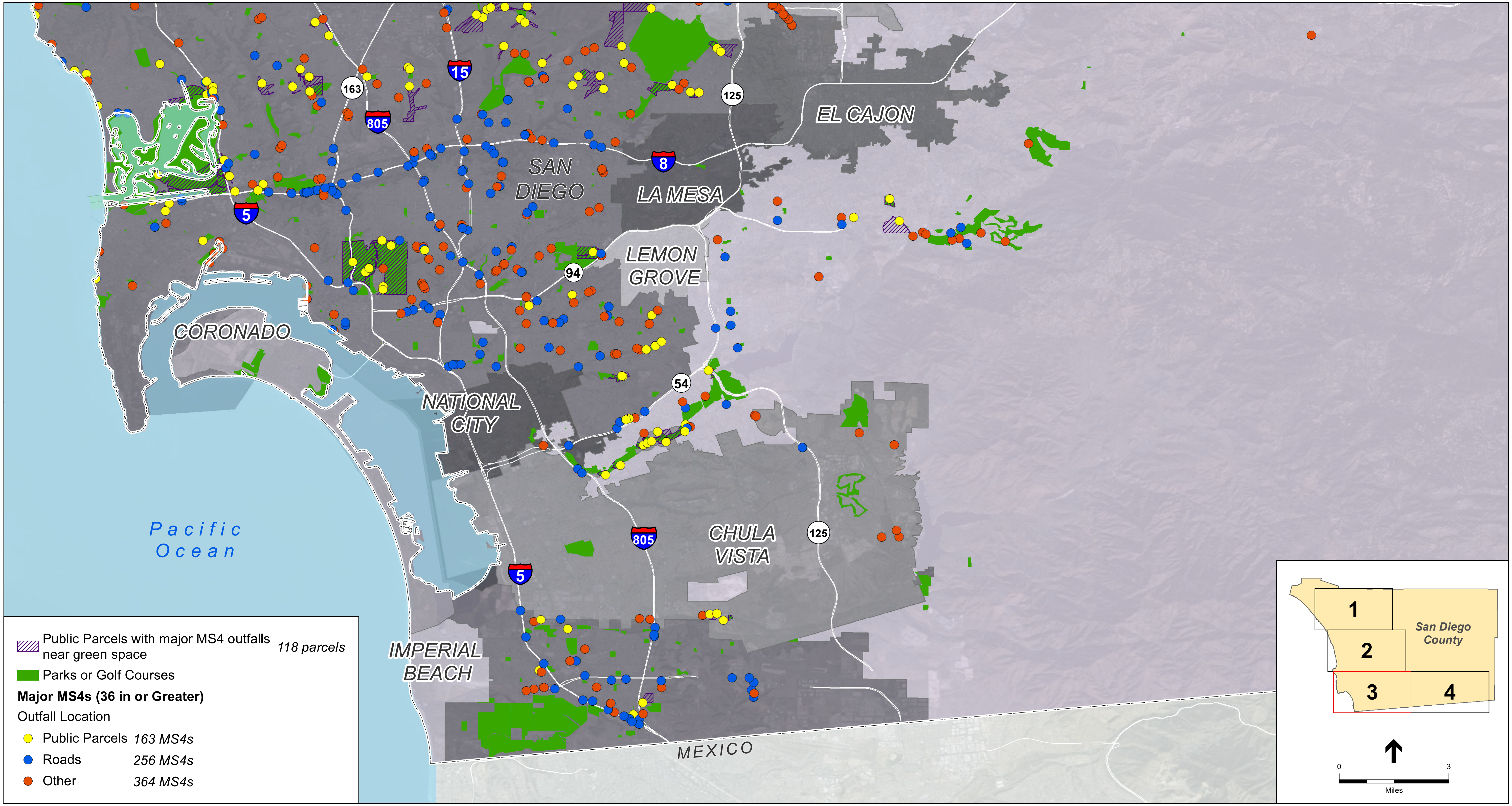


SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

Figure 1-b

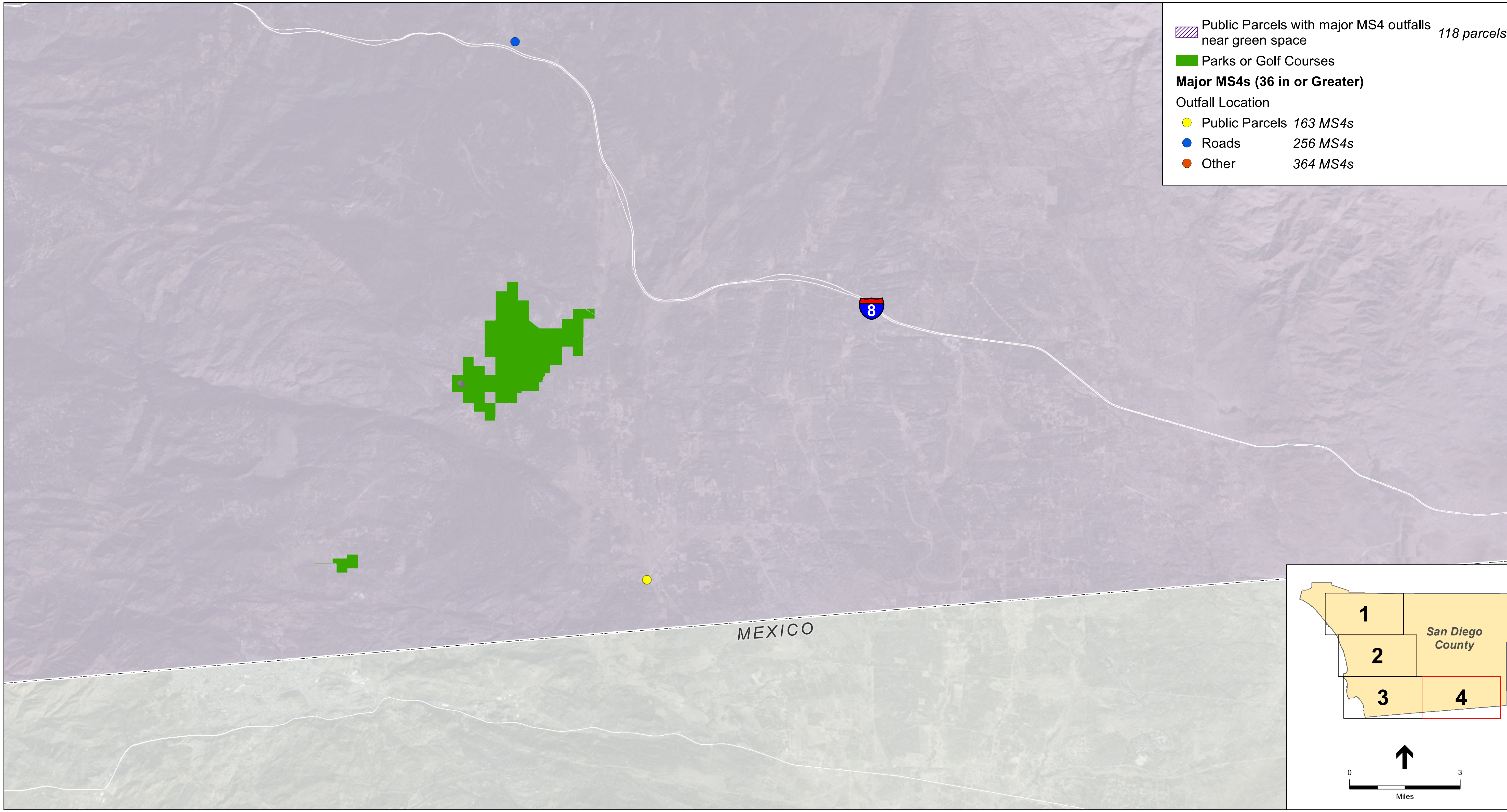
Public Parcels with Major MS4 Oufalls Located within 1/4 Mile of Green Space



SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

Figure 1-c
Public Parcels with Major MS4 Oufalls
Located within 1/4 Mile of Green Space

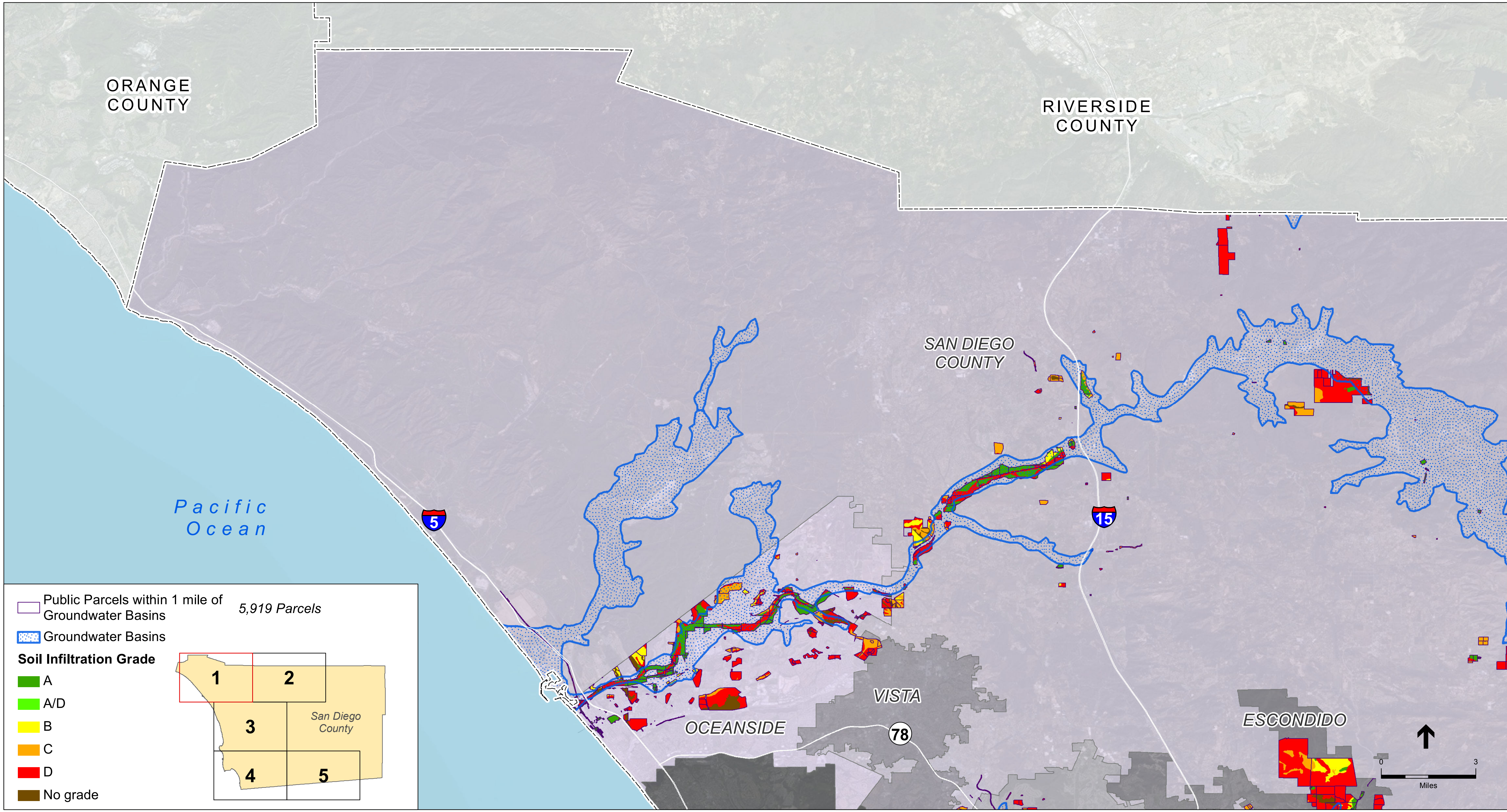


SOURCE: ESRI, 2016; SanGIS, 2016

SWRP . 160618

Figure 1-d

Public Parcels with Major MS4 Oufalls
Located within 1/4 Mile of Green Space

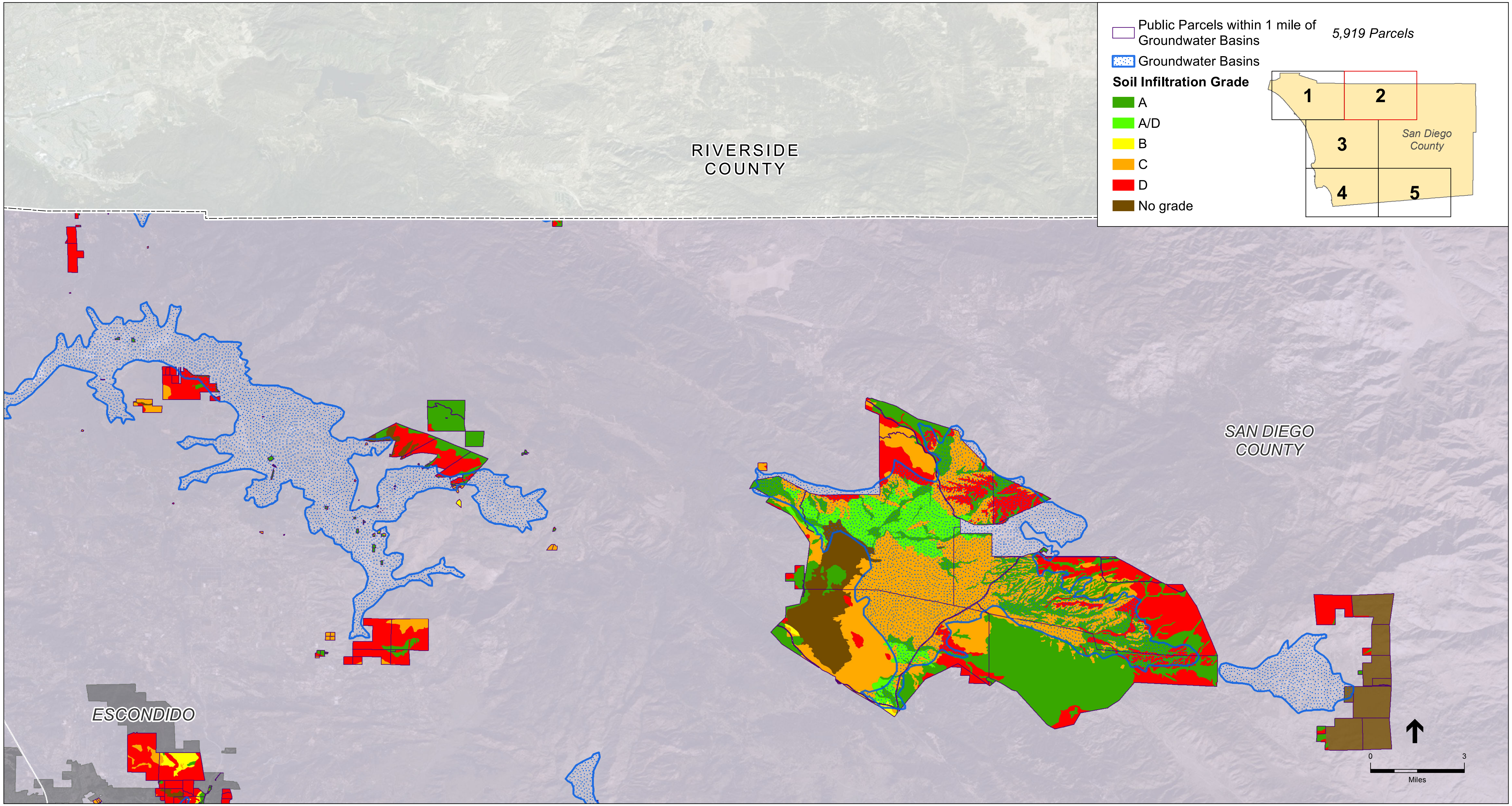


SOURCE: ESRI, 2016;SanGIS, 2016; NRCS, 2016

SWRP . 160618

Figure 2-a

Public Parcels Within a Mile Of a Groundwater Basin

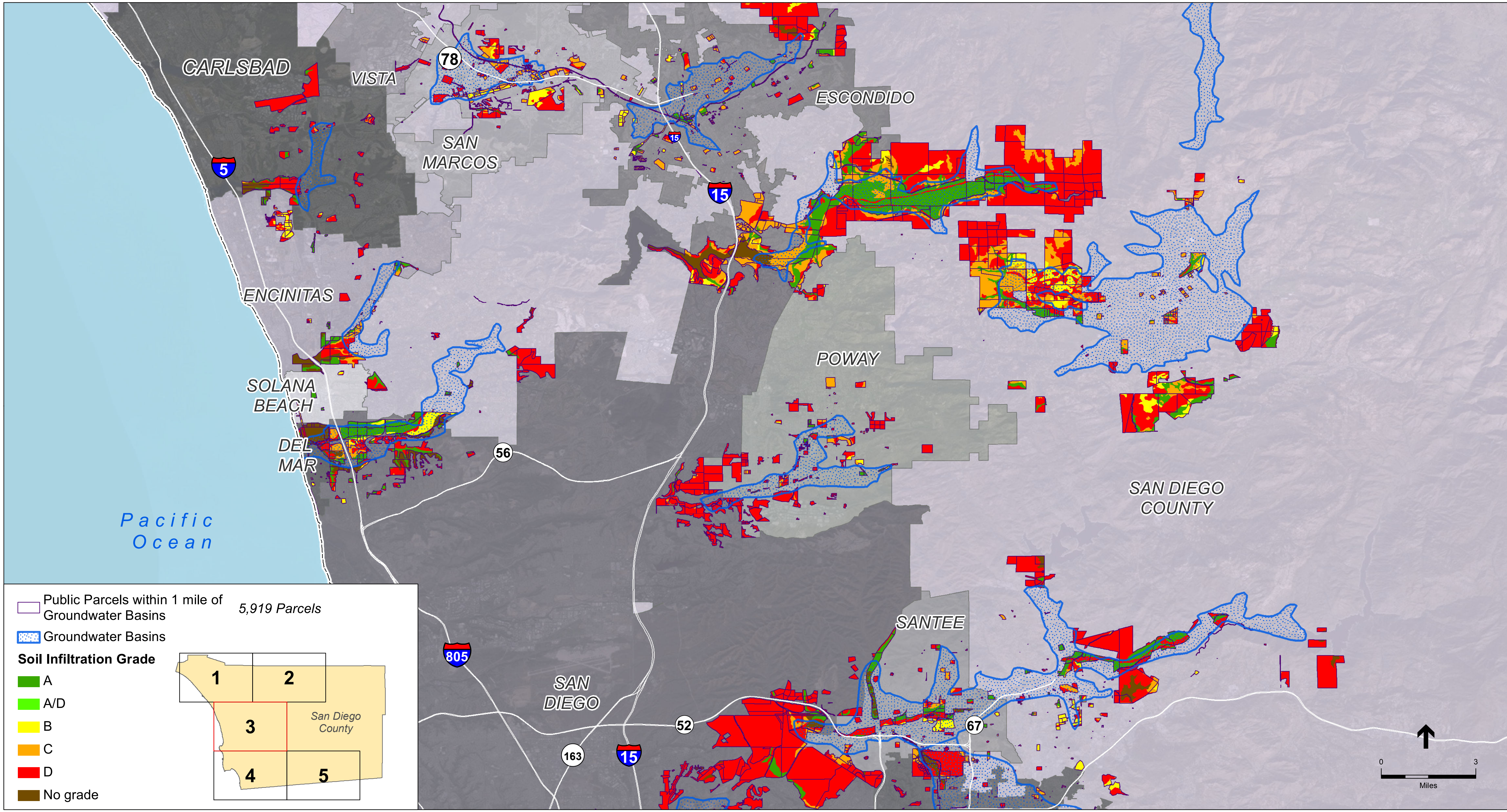


SOURCE: ESRI, 2016;SanGIS, 2016; NRCS, 2016

SWRP . 160618

Figure 2-b

Public Parcels with Major MS4 Outfalls Located Within ¼ Mile of Green Space



SOURCE: ESRI, 2016;SanGIS, 2016; NRCS, 2016

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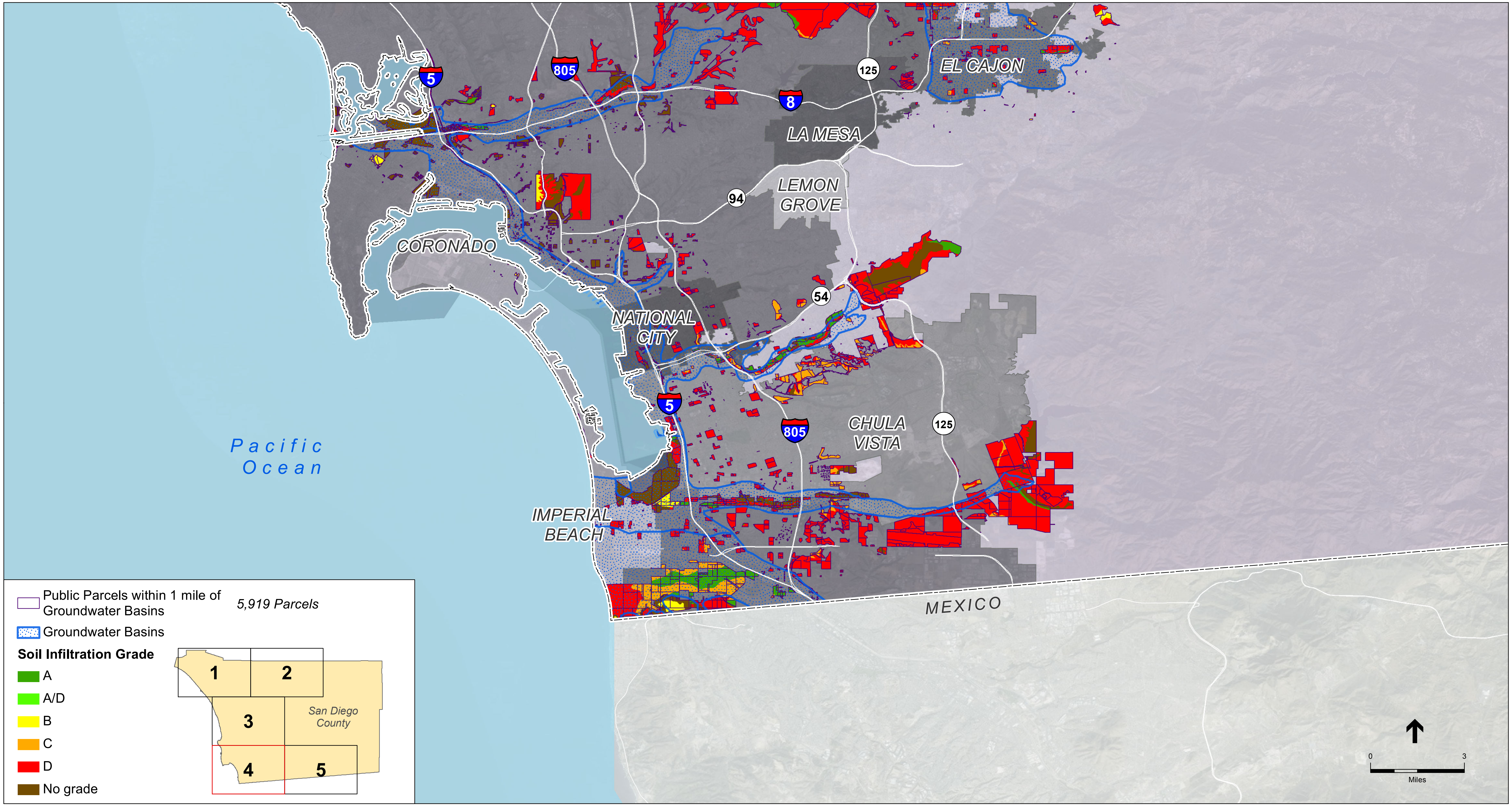
Figure 2-c

Public Parcels Within a Mile Of a Groundwater Basin



SOURCE: ESRI, 2016;SanGIS, 2016; NRCS, 2016

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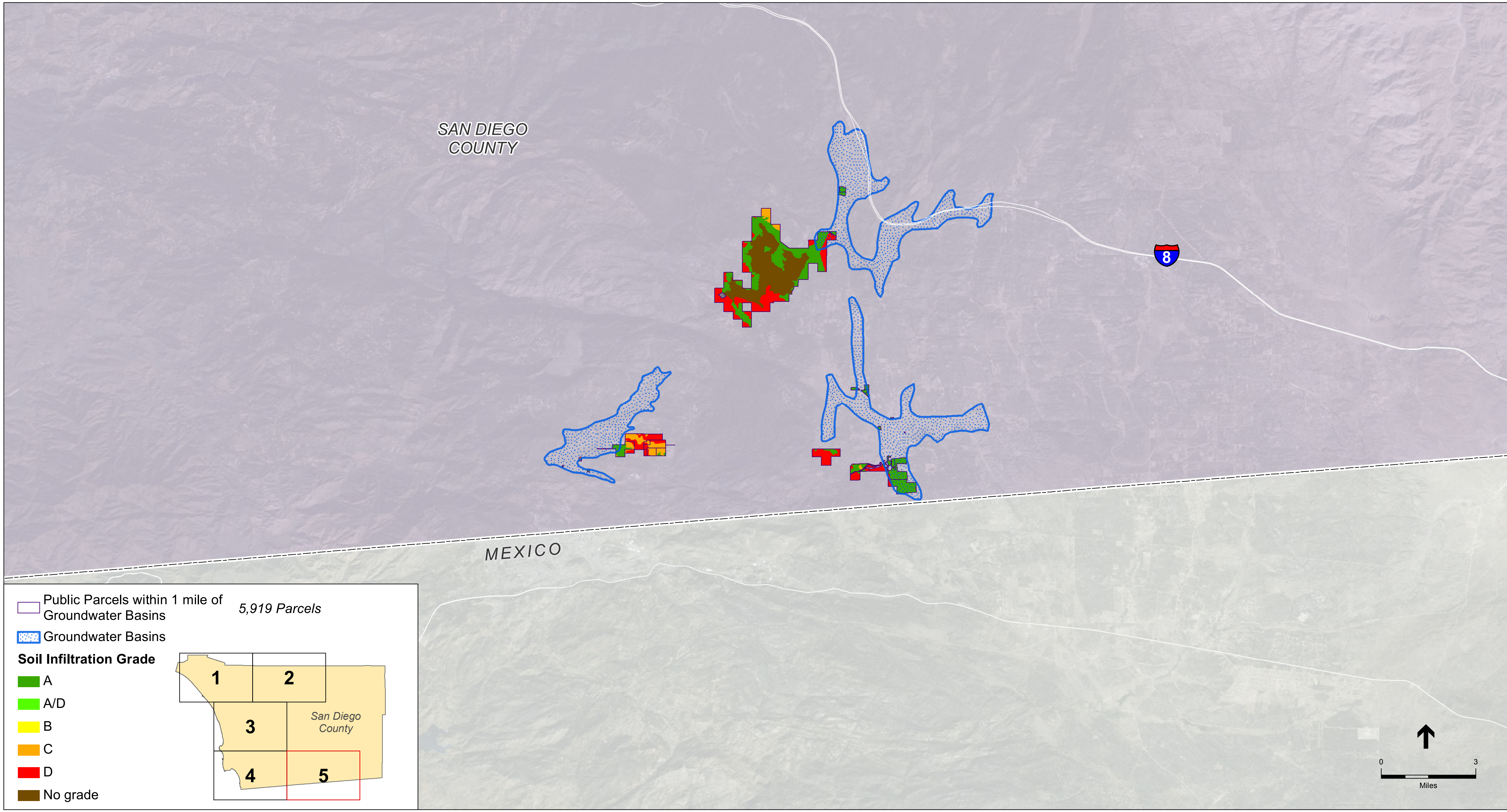
Figure 2-d

Public Parcels Within a Mile Of a Groundwater Basin



SOURCE: ESRI, 2016;SanGIS, 2016; NRCS, 2016

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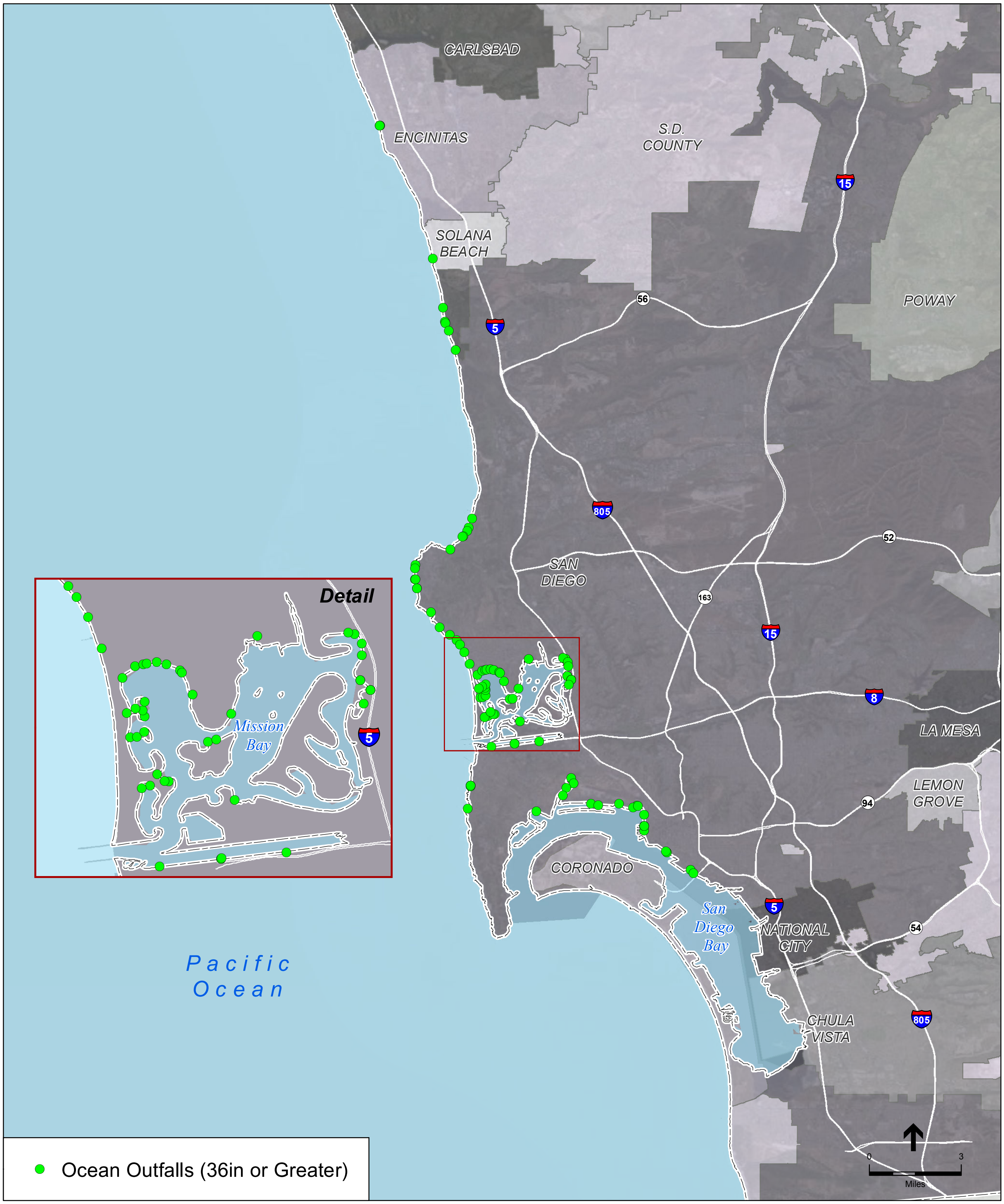
Figure 2-e

Public Parcels Within a Mile Of a Groundwater Basin



SOURCE: ESRI, 2016; SanGIS, 2016; IRWM, 2016

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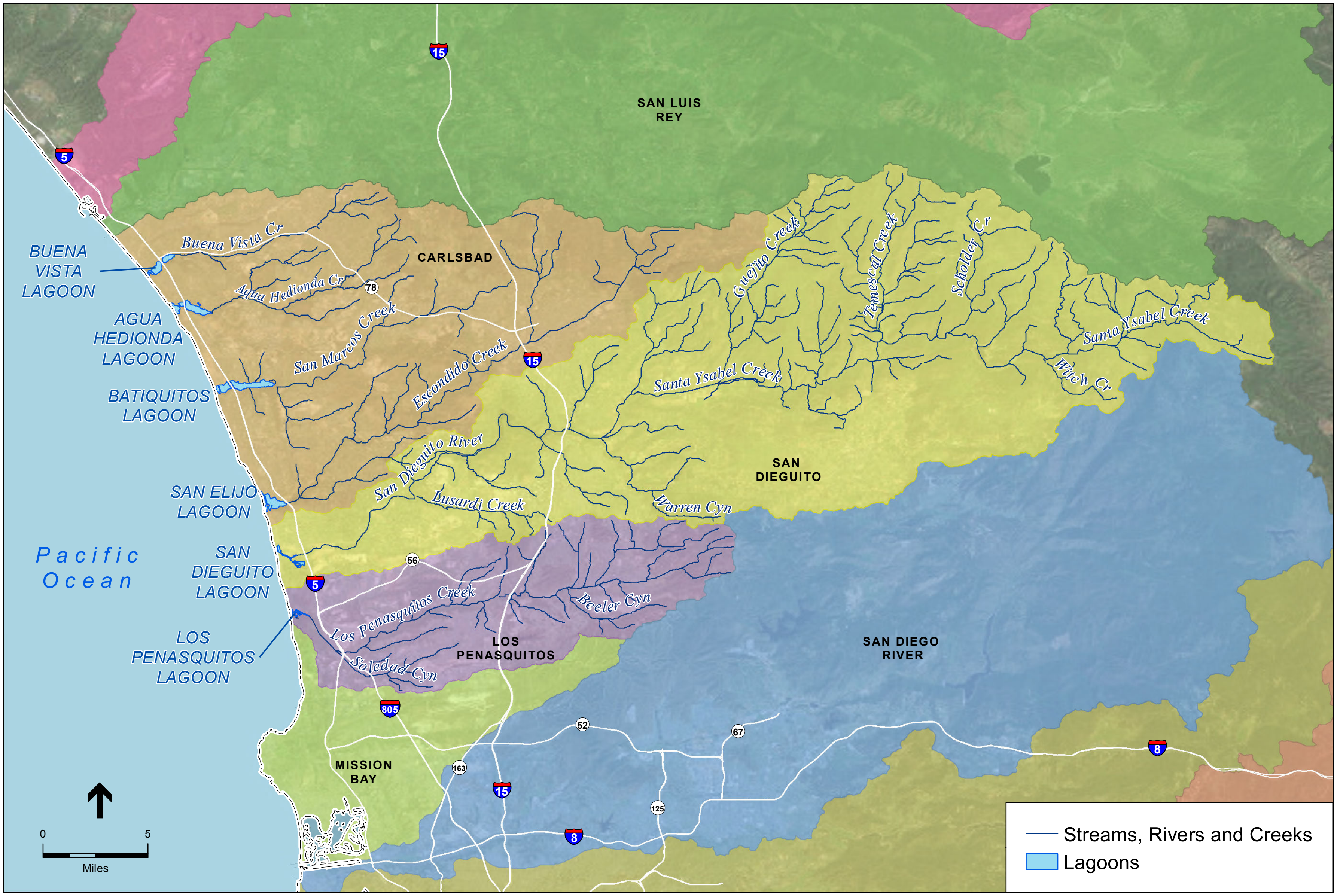
Figure 3

Major MS4 Outfalls to the Ocean



SOURCE: ESRI, 2016; SanGIS, 2016

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Figure 4

Creeks Systems with Lagoon Outlets

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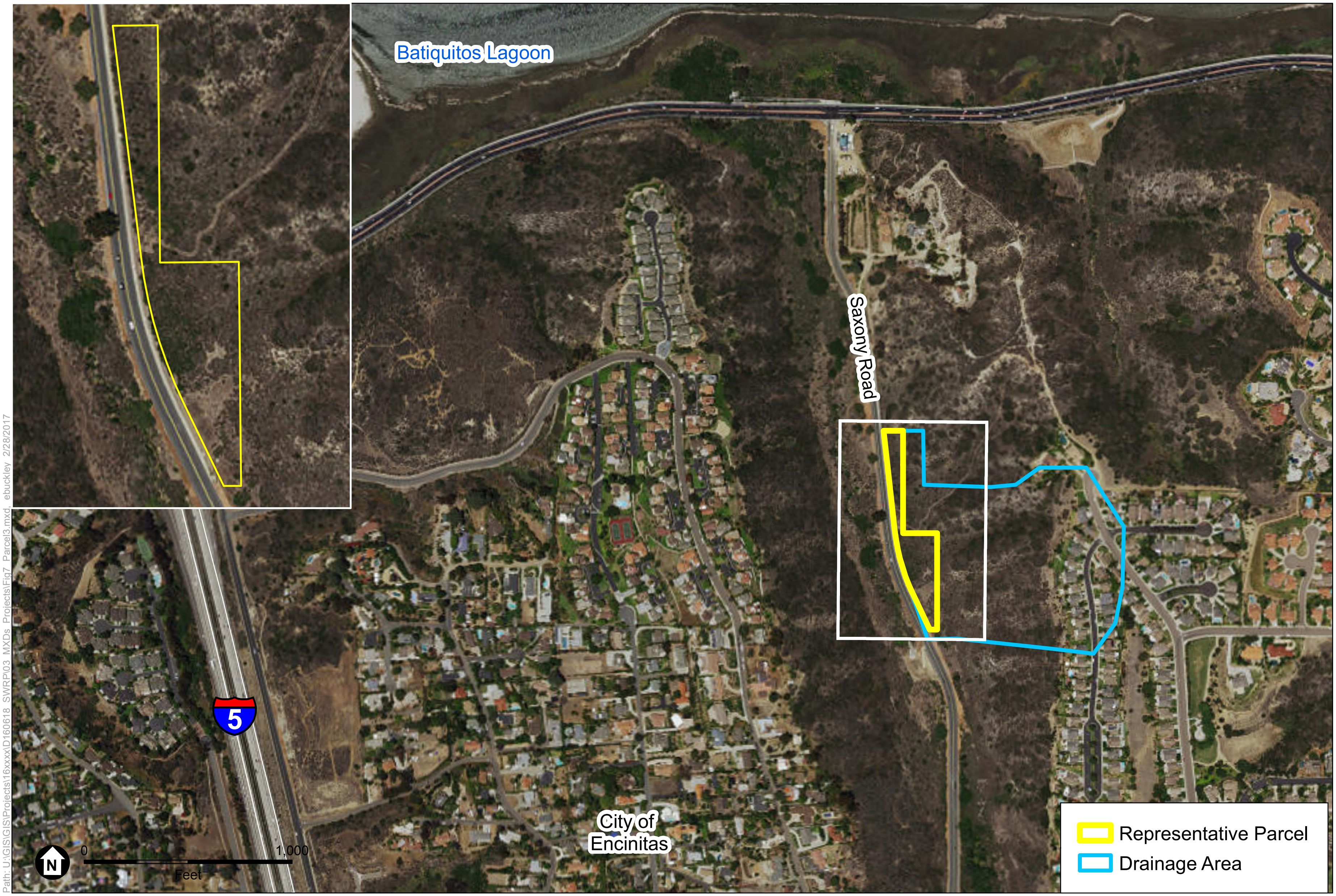
Figure 5
Site #1

ESA

SWRP . 160618
Figure 6
Site #2

ESA



SWRP . 160618
Figure 7
Site #3

ESA

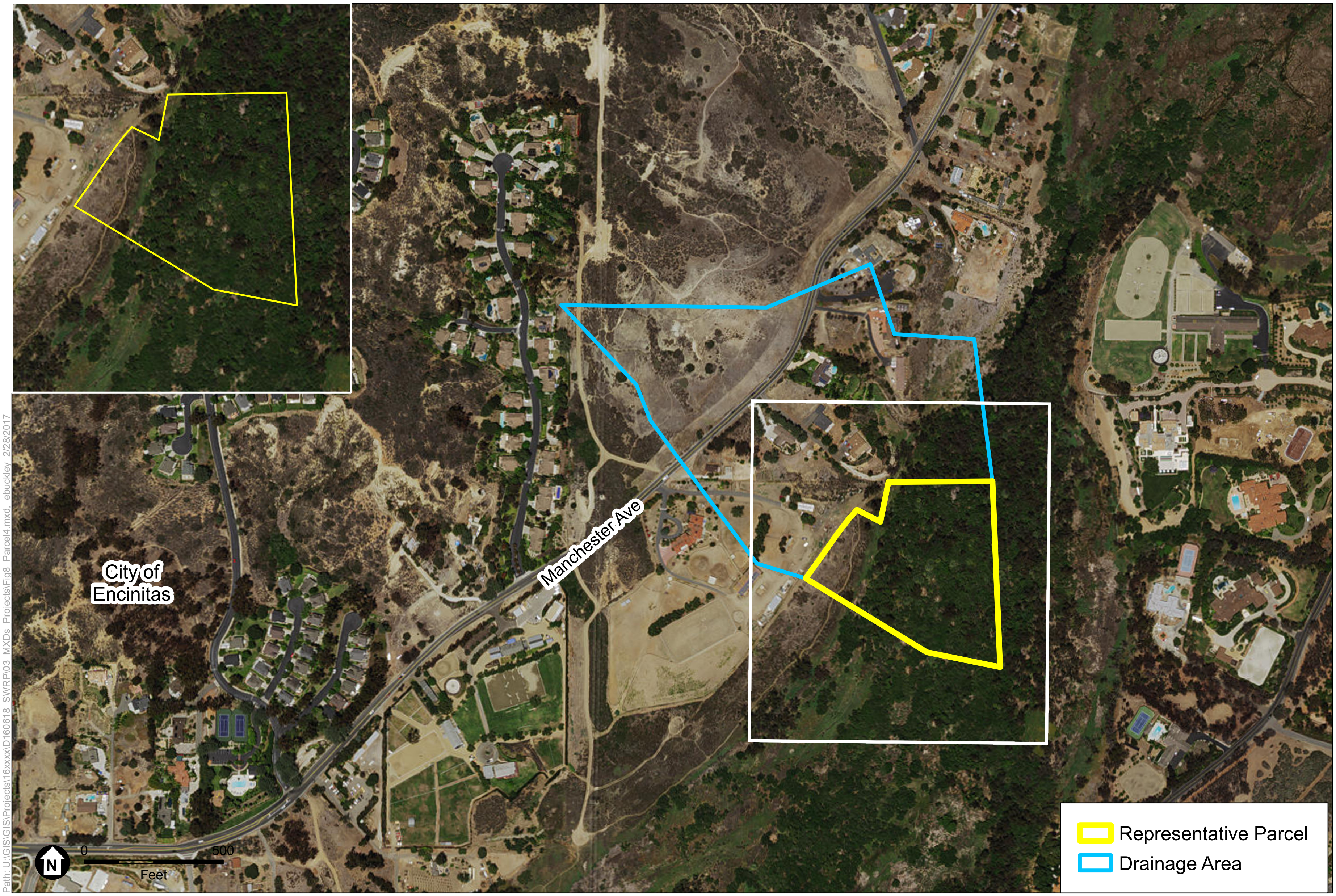


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Figure 8

Site #4

ESA

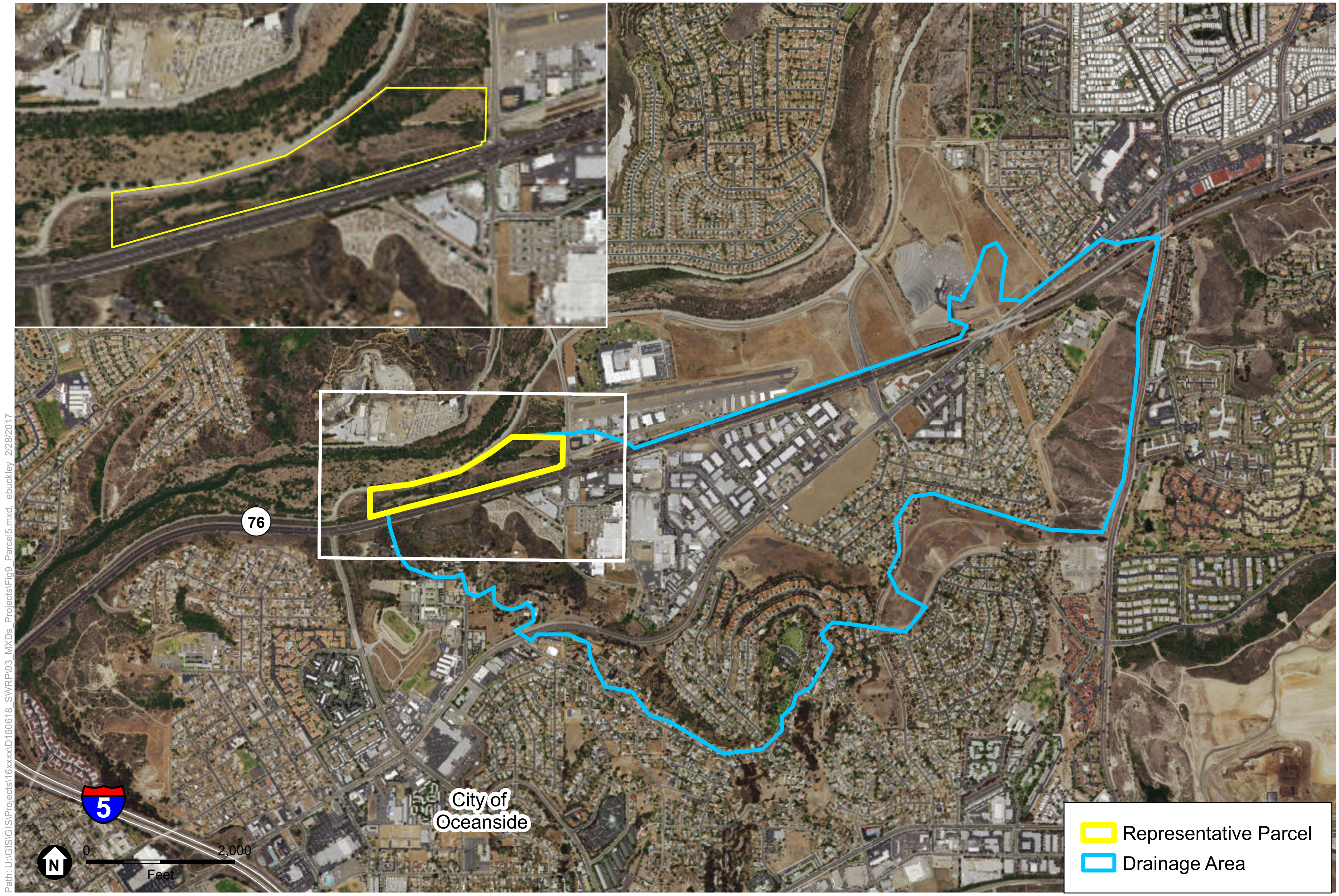

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Figure 9

Site #5

ESA

APPENDIX I

Prioritized Projects, Metrics, and Conceptual Projects

San Diego Regional SWRP Project List

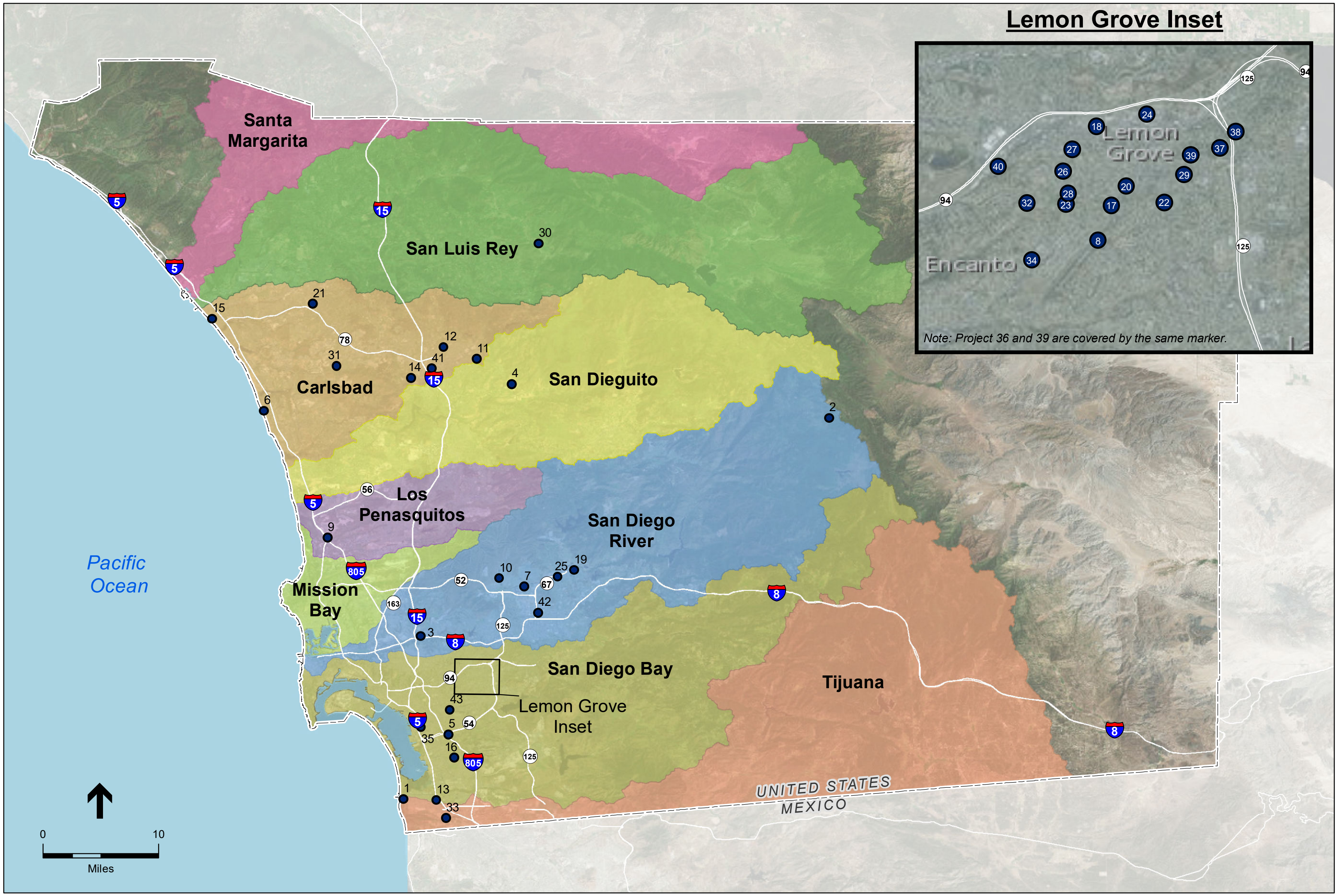
Project Number	Watershed	Project Title	Sponsor Organization	Is Project Eligible?	Water Quality Score	Water Supply Score	Flood Management Score	Environmental Score	Community Score	Total Score
41	Carlsbad	Spruce Street Channel Improvement Project	City of Escondido	Yes	38	25	5	12	28	108
11	Carlsbad	Alternative Compliance Retrofit Project Mountain View Park, Escondido	City of Escondido	**Yes**	26	40	25	1	15	107
21	Carlsbad	South Santa Fe Green Street Project	City of Vista	Yes	38	5	5	9	34	91
31	Carlsbad	San Marino Drive Green Street and Dry Weather Flow Management	County of San Diego	Yes	24	25	5	7	10	71
15	Carlsbad	City of Oceanside Loma Alta Slough Restoration Project	City of Oceanside	Yes	32	0	0	10	19	61
6	Carlsbad	Leucadia Roadside Park Stormwater Capture/Reuse Project	City of Encinitas	Yes	0	15	5	2	6	28
12	Carlsbad	Alternative Compliance Retrofit Project El Norte Parkway and Rincon Villa Drive, Escondido	City of Escondido	**Yes**	10	0	0	0	5	15
14	Carlsbad	Alternative Compliance Retrofit Project Avenida Del Diablo Park, Escondido	City of Escondido	**Yes**	0	0	0	0	0	0
13	Otay	Nestor Creek Channel Restoration	Earth Island Institute/Alter Terra	Yes	26	40	15	23	32	136
9	Penasquitos	Pure Water -Los Peñasquitos Creek Urban Dry-Weather Water Harvesting	City of San Diego Public Utilities Department	Yes	18	40	10	7	7	82
17	Pueblo	Main Street Promenade Extension	City of Lemon Grove	Yes	38	25	0	15	34	112
22	San Deigo Bay, Pueblo	Skyline Dr and Kempt St Green Streets	City of Lemon Grove	Yes	36	40	30	28	32	166
34	San Deigo Bay, Pueblo	Madera St Green Street	City of Lemon Grove	**Yes**	26	35	15	19	29	124
36	San Deigo Bay, Pueblo	Canton Dr Green Street	City of Lemon Grove	Yes	34	0	20	23	32	109
8	San Deigo Bay, Pueblo	Bakersfield Street and San Altos Channel Restoration	City of Lemon Grove	Yes	38	25	5	10	28	106

San Diego Regional SWRP Project List, Continued

Project Number	Watershed	Project Title	Sponsor Organization	Is Project Eligible?	Water Quality Score	Water Supply Score	Flood Management Score	Environmental Score	Community Score	Total Score
43	San Diego Bay, Pueblo	Paradise Valley Creek Water Quality and Community Enhancement	City of National City	Yes	38	5	30	11	20	104
32	San Deigo Bay, Pueblo	69th St Green Street	City of Lemon Grove	Yes	36	10	10	15	26	97
20	San Deigo Bay, Pueblo	Lemon Grove Avenue Green Streets	City of Lemon Grove	Yes	36	10	10	15	25	96
38	San Deigo Bay, Pueblo	Sweetwater Rd Green Street	City of Lemon Grove	Yes	38	5	5	10	34	92
27	San Deigo Bay, Pueblo	Central Avenue Green Street	City of Lemon Grove	Yes	38	5	5	9	34	91
28	San Deigo Bay, Pueblo	Mt. Vernon St Green Street	City of Lemon Grove	Yes	38	5	5	9	34	91
29	San Deigo Bay, Pueblo	Palm St Green Street	City of Lemon Grove	Yes	38	5	5	9	34	91
35	San Deigo Bay, Pueblo	Paradise Creek Restoration Phase II	City of National City	Yes	38	5	5	9	34	91
37	San Deigo Bay, Pueblo	Golden Ave Green Street	City of Lemon Grove	Yes	38	5	5	9	34	91
40	San Deigo Bay, Pueblo	Federal Blvd Channel	City of Lemon Grove	Yes	38	5	5	9	34	91
18	San Deigo Bay, Pueblo	Broadway/Federal Blvd Green Street	City of Lemon Grove	Yes	32	15	5	9	29	90
24	San Deigo Bay, Pueblo	North Ave and Grove Green Street	City of Lemon Grove	Yes	38	5	5	9	31	88
23	San Deigo Bay, Pueblo	Massachusetts Blvd Green Street	City of Lemon Grove	Yes	38	5	0	9	34	86
39	San Deigo Bay, Pueblo	Lincoln St Green Street	City of Lemon Grove	Yes	34	5	0	9	34	82
26	San Deigo Bay, Pueblo	San Miguel Green Street	City of Lemon Grove	Yes	32	0	5	17	26	80

San Diego Regional SWRP Project List, Continued

Project Number	Watershed	Project Title	Sponsor Organization	Is Project Eligible?	Water Quality Score	Water Supply Score	Flood Management Score	Environmental Score	Community Score	Total Score
19	San Diego River	Mapleview Street - Green Infrastructure and Stormwater Quality Improvement Project	County of San Diego	Yes	38	5	5	9	34	91
25	San Diego River	Woodside Avenue Complete Green Street	County of San Diego	Yes	38	5	5	9	34	91
42	San Diego River	Broadway Channel Flood Risk Reduction and Water Quality Improvements	City of El Cajon	Yes	38	0	20	11	20	89
3	San Diego River	Storm water Capture off San Diego River along Alvarado Canyon and Fairmont Canyon to Fish and Wildlife site	City of San Diego Public Utilities Department	Yes	8	25	5	4	7	49
7	San Diego River	Las Colinas Channel Improvements	City of Santee	Yes	10	5	5	14	12	46
10	San Diego River	Sycamore Creek Restoration	City of Santee	Yes	10	5	5	14	0	34
2	San Dieguito	Safari Park Storm Water Capture and Reuse Project	Zoological Society of San Diego	Yes	36	70	30	21	31	188
4	San Dieguito	Safari Park Water Reuse Sustainability and Watershed Protection Project	Zoological Society of San Diego	Yes	30	70	30	18	27	175
30	San Luis Rey	Storm Water Management Phase I: Feasibility Study and Conceptual Design for the Capture and Beneficial Use of Storm Water on the Rincon Band of Luiseno Indians Reservation	Rincon Band of Luiseno Indians	Yes	38	5	5	9	34	91
16	Sweetwater	Telegraph Canyon Channel Improvement Project	City of Chula Vista	Yes	38	5	25	24	27	119
5	Sweetwater	Sweetwater River Park Bioretention	City of National City	Yes	24	25	10	15	30	104
1	Tijuana	Low Impact Development Urban Runoff Control Projects for the Tijuana Estuary	City of Imperial Beach	Yes	36	40	10	12	29	127
33	Tijuana	Tijuana River Floating Trash Capture System	Earth Island Institute/Alter Terra	Yes	38	5	5	9	34	91



SOURCE: ESRI, 2016; SanGIS, 2016

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Figure I-1

San Diego Region SWRP Project Locations

San Diego Regional SWRP Projects - Quantified Metrics, Continued

				Step 2: Project Metrics - Water Quality Benefits									Step 2: Project Metrics - Water Supply Benefit		
Project Number	Watershed	Project Title	Sponsor Organization	(WQ.3) Fecal Coliform MPN/yr	(WQ.3) TSS lbs/yr	(WQ.3) Total Phosphorus lbs/yr	(WQ.3) Total Nitrogen lbs/yr	(WQ.3) Copper lbs/yr	(WQ.3) Lead lbs/yr	(WQ.3) Zinc lbs/yr	(WQ.3) Selenium lbs/yr	(WQ.3) Stormwater Runoff gallons/yr	(WS.5) Water Stored/Conserved (AF/yr)	(WS.7) Water Infiltrattion Volume (Direct Basin Use) (AF/yr)	(WS.9) Water Infiltrattion Volume (Non-Direct Basin Use) (AF/yr)
1	Tijuana	Low Impact Development Urban Runoff Control Projects for the Tijuana Estuary	City of Imperial Beach	2.06E+12								972,468			3.0
2	San Dieguito	Safari Park Storm Water Capture and Reuse Project	Zoological Society of San Diego		1270							185,735	5.15	0.57	
3	San Diego River	Storm water Capture off San Diego River along Alvarado Canyon and Fairmont Canyon to Fish and Wildlife site	City of San Diego Public Utilities Department												
4	San Dieguito	Safari Park Water Reuse Sustainability and Watershed Protection Project	Zoological Society of San Diego		5474	3	62						14.96	3.74	
5	Sweetwater	Sweetwater River Park Bioretention	City of National City		5,856	12	86.8	1.96	1.03	13	0.12	7,233,892	22.2	20.3	
6	Carlsbad	Leucadia Roadside Park Stormwater Capture/Reuse Project	City of Encinitas												
7	San Diego River	Las Colinas Channel Improvements	City of Santee												
8	San Diego Bay, Pueblo	Bakersfield Street and San Altos Channel Restoration	City of Lemon Grove	4.62E+13								3,785,163	11.62		
9	Penasquitos	Pure Water -Los Peñasquitos Creek Urban Dry-Weather Water Harvesting	City of San Diego Public Utilities Department												
10	San Diego River	Sycamore Creek Restoration	City of Santee												
11	Carlsbad	Alternative Compliance Retrofit Project Mountain View Park, Escondido	City of Escondido												
12	Carlsbad	Alternative Compliance Retrofit Project El Norte Parkway and Rincon Villa Drive, Escondido	City of Escondido												
13	Otay	Nestor Creek Channel Restoration	Earth Island Institute/Alter Terra												
14	San Dieguito	Alternative Compliance Retrofit Project Avenida Del Diablo Park, Escondido	City of Escondido												
15	Carlsbad	City of Oceanside Loma Alta Slough Restoration Project	City of Oceanside			10.7	828								
16	San Diego Bay	Telegraph Canyon Channel Improvement Project	City of Chula Vista		3000			2	2	5	0.05	2,000,000			
17	San Diego Bay, Pueblo	Main Street Promenade Extension	City of Lemon Grove	5.06E+13				5.25	1.9	38.01		71,412,102	22.75		
18	Carlsbad	Spruce Street Channel Improvement Project	City of Escondido												
19	San Diego Bay, Pueblo	Broadway/Federal Blvd Green Street	City of Lemon Grove	7.77E+12				8.06	2.92	58.35					
20	San Diego River	Mapleview Street - Green Infrastructure and Stormwater Quality Improvement Project	County of San Diego	2.90E+11								3,663,373			0.21
21	San Diego Bay, Pueblo	Lemon Grove Avenue Green Streets	City of Lemon Grove	4.87E+13				5.05	1.83	36.57		800,000			
22	Carlsbad	South Santa Fe Green Street Project	City of Vista									2,295,935			
23	San Diego Bay, Pueblo	Skyline Dr and Kempt St Green Streets	City of Lemon Grove	4.09E+13				4.24	1.54	30.71					
24	San Diego Bay, Pueblo	Massachusetts Blvd Green Street	City of Lemon Grove	4.12E+13				4.27	1.55	30.94		1,928,274			
25	San Diego Bay, Pueblo	North Ave and Grove Green Street	City of Lemon Grove	3.29E+13				3.41	1.24	24.7		1,942,339			
26	San Diego River	Woodside Avenue Complete Green Street	County of San Diego									1,550,818			
27	San Diego Bay, Pueblo	San Miguel Green Street	City of Lemon Grove	3.49E+12				3.62	1.31	26.2					
28	San Diego Bay, Pueblo	Central Avenue Green Street	City of Lemon Grove	3.30E+13				3.42	1.24	24.75		1,645,009			
29	San Diego Bay, Pueblo	Mt. Vernon St Green Street	City of Lemon Grove	4.26E+13				4.42	1.6	32.02		1,554,124			
30	San Diego Bay, Pueblo	Palm St Green Street	City of Lemon Grove	1.66E+13				1.72	0.62	12.46		2,010,063			
31	San Luis Rey	Storm Water Management Phase I: Feasibility Study and Conceptual Design for the Capture and Beneficial Use of Storm Water on the Rincon	Rincon Band of Luiseno Indians									782,245			
32	Carlsbad	San Marino Drive Green Street and Dry Weather Flow Management	County of San Diego			4.27	18.6								2.45
33	San Diego Bay, Pueblo	69th St Green Street	City of Lemon Grove	3.09E+12				0.32	0.12	2.32		459,603			
34	Tijuana	Tijuana River Floating Trash Capture System	Earth Island Institute/Alter Terra									145,673			
35	San Diego Bay, Pueblo	Madera St Green Street	City of Lemon Grove	1.63E+13				1.69	0.61	12.25					
36	San Diego Bay, Pueblo	Paradise Creek Restoration Phase II	City of National City		3000	1	7	1	1	1	0.01	2,000,000			
37	San Diego Bay, Pueblo	Canton Dr Green Street	City of Lemon Grove	2.32E+13				2.41	0.87	17.41					
38	San Diego Bay, Pueblo	Golden Ave Green Street	City of Lemon Grove	1.47E+14				15.26	5.53	110.46		1,092,871			
39	San Diego Bay, Pueblo	Sweetwater Rd Green Street	City of Lemon Grove	1.27E+13				1.32	0.48	9.56		6,935,057			
40	San Diego Bay, Pueblo	Lincoln St Green Street	City of Lemon Grove	1.64E+13				1.71	0.62	12.34		599,989			
41	San Diego Bay, Pueblo	Federal Blvd Channel	City of Lemon Grove	1.91E+13								103,576	3.03		
42	San Diego River	Broadway Channel Flood Risk Reduction and Water Quality Improvements	City of El Cajon		2000			1	1	2		998,203			
43	San Diego Bay, Pueblo	Paradise Valley Creek Water Quality and Community Enhancement	City of National City		5000							100,000			
Total				6.04E+14	25,600	31	1,002	72	29	500	0	116,196,512	80	25	6

RP Projects - Quantified Metrics, Continued

Project Title	Sponsor Organization	(FM.2) Peak Flow Reduction	(FM.3) Infiltration Volume	(FM.4) Onsite Storage Volume	(EB.2) Habitat Area Created/Protected	(EB.4) Change in Peak Flow Timing	(EB.5) Reduction in Flow	(EB.9) Reduction in Energy Use or GHG Emissions (or inc. GHG Storage)	(EB.11) Area of Urban Green Space	(CB.2) Created Recreational and Public Areas	(CB.4) Number of Community Members Involved	(CB.6) Number of Jobs Created
		Step 2: Project Metrics - Flood Management Benefit			Step 2: Project Metrics - Environmental Benefit					Step 2: Project Metrics - Community Benefit		
Low Impact Development Urban Runoff Control Projects for the Tijuana Estuary	City of Imperial Beach	NA	NA	4,919 CF	NA	NA	NA	NA	316 SF	NA	NA	NA
Safari Park Storm Water Capture and Reuse Project	Zoological Society of San Diego	Yes, details available from sponsor	0.57 AC/yr will be infiltrated.	5.15 AC/yr.	NA	NA	Return PeriodPeak Volume (ft3)Reduced Volume (ft3)	NA	NA	NA	More than 1,500,000 individuals each year.	NA
Storm water Capture off San Diego River along Alvarado Canyon and Fairmont Canyon to Fish and Wildlife site	City of San Diego Public Utilities Department	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Safari Park Water Reuse Sustainability and Watershed Protection Project	Zoological Society of San Diego	Yes, details available from sponsor	3.74 AC/yr will be infiltrated.	14.96 AC/yr.	NA	NA	Return PeriodPeak Volume (ft3)Reduced Volume (ft3) 25	NA	NA	NA	1.5 million	NA
Sweetwater River Park Bioretention	City of National City	NA	6,614,774 gallons/year	NA	3.44	NA	NA	NA	3.44 acrse	4.3 acres	5	5
Leucadia Roadside Park Stormwater Capture/Reuse Project	City of Encinitas	NA	NA	NA	NA	NA	NA	NA	NA	4,400	NA	NA
Las Colinas Channel Improvements	City of Santee	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bakersfield Street and San Altos Channel Restoration	City of Lemon Grove	NA	NA	NA	3.82 acres	NA	NA	NA	NA	NA	15	15
Pure Water -Los Peñasquitos Creek Urban Dry-Weather Water Harvesting	City of San Diego Public Utilities Department	NA	1.5 cfs	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sycamore Creek Restoration	City of Santee	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alternative Compliance Retrofit Project Mountain View Park, Escondido	City of Escondido	NA			NA	NA		NA	NA	NA	NA	NA
Alternative Compliance Retrofit Project El Norte Parkway and Rincon Villa Drive, Escondido	City of Escondido	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nestor Creek Channel Restoration	Earth Island Institute/Alter Terra	NA	NA	NA	2,500 linear feet of creek channel restored	NA	NA	NA	2,500 linear feet	2,500 linear feet	NA	NA
Alternative Compliance Retrofit Project Avenida Del Diablo Park, Escondido	City of Escondido	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
City of Oceanside Loma Alta Slough Restoration Project	City of Oceanside	NA	NA	NA	1.8	NA	NA	NA	1.8	<1 acre	NA	NA
Telegraph Canyon Channel Improvement Project	City of Chula Vista		2,000,000 gals/yr	NA			NA	NA			NA	NA
Main Street Promenade Extension	City of Lemon Grove	NA	NA	NA	5.34 acres	NA	NA	NA	NA	14.96 acres	15	15
Spruce Street Channel Improvement Project	City of Escondido	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA
Broadway/Federal Blvd Green Street	City of Lemon Grove	NA	NA	NA	NA	NA	NA	NA	NA	8.15 acres	15	15
Mapleview Street - Green Infrastructure and Stormwater Quality Improvement Project	County of San Diego	NA	20466701 gals/yr	NA	NA	NA	NA	NA	20000 sq. ft of green infrastructure (tree wlls,	1000 sq. ft. of new sidewalk	15	NA
Lemon Grove Avenue Green Streets	City of Lemon Grove	NA	NA	NA	NA	NA	NA	NA	NA	4.97 acres	10	10
South Santa Fe Green Street Project	City of Vista	5.3 AFY	18.5 AFY	18.5 AFY	NA	See Prop 1 application	See TRWE Report	790 lbs/yr	9,500 SF	See Prop 1	NA	NA
Skyline Dr and Kempt St Green Streets	City of Lemon Grove	NA	NA	NA	NA	NA	NA	NA	NA	3.59 acres	10	10
Massachusetts Blvd Green Street	City of Lemon Grove	NA	NA	NA	NA	NA	NA	NA	NA	3.37 acres	15	15
North Ave and Grove Green Street	City of Lemon Grove	NA	NA	NA	NA	NA	NA	NA	NA	1.42 acres	15	15
Woodside Avenue Complete Green Street	County of San Diego	NA	NA	NA	NA	NA	NA	NA	NA	NA	50	NA
San Miguel Green Street	City of Lemon Grove	NA	NA	NA	NA	NA	NA	NA	NA	1.65 acres	15	15
Central Avenue Green Street	City of Lemon Grove	NA	NA	NA	NA	NA	NA	NA	NA	1.40 acres	15	15
Mt. Vernon St Green Street	City of Lemon Grove	NA	NA	NA	NA	NA	NA	NA	NA	1.89 acres	15	15
Palm St Green Street	City of Lemon Grove	NA	NA	NA	NA	NA	NA	NA	NA	1.51 acres	15	15
Storm Water Management Phase I: Feasibility Study and Conceptual Design for the Capture and Beneficial Use of Storm Water on the Rincon	Rincon Band of Luiseno Indians	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
San Marino Drive Green Street and Dry Weather Flow Management	County of San Diego	NA	NA	NA	NA	NA	NA	NA	2781 sq. ft. of trees wells	NA	30	NA
69th St Green Street	City of Lemon Grove	NA	NA	NA	NA	NA	NA	NA	NA	0.12 acres	15	15
Tijuana River Floating Trash Capture System	Earth Island Institute/Alter Terra	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Madera St Green Street	City of Lemon Grove	NA	NA	NA	NA	NA	NA	NA	NA	1.21 acres	10	10
Paradise Creek Restoration Phase II	City of National City	NA	2,000,000 gals/yr	NA	7 acres	NA	NA	NA	3 acres	3 arces	NA	NA
Canton Dr Green Street	City of Lemon Grove	NA	NA	NA	NA	NA	NA	NA	NA	1.31 acres	15	15
Golden Ave Green Street	City of Lemon Grove	NA	NA	NA	1.44 acres	NA	NA	NA	NA	1.44 acres	15	15
Sweetwater Rd Green Street	City of Lemon Grove	NA	NA	NA	NA	NA	NA	NA	NA	1.07 acres	10	10
Lincoln St Green Street	City of Lemon Grove	NA	NA	NA	NA	NA	NA	NA	NA	0.71 acres	10	10
Federal Blvd Channel	City of Lemon Grove	NA	NA	NA	NA	NA	NA	NA	NA	NA	15	15
Broadway Channel Flood Risk Reduction and Water Quality Improvements	City of El Cajon	NA	1,500,000 gals/yr	NA	NA	NA	NA	NA	NA	NA	NA	NA
Paradise Valley Creek Water Quality and Community Enhancement	City of National City		100,000	100,000	NA	NA	NA	NA	NA	NA	NA	NA

San Diego IRWM Conceptual Stormwater Projects

The following are conceptual stormwater projects from the IRWM San Diego Regional Database which have not gone through the SWRP online OPTI eligibility checklist and, therefore are not quantified or prioritized. Project sponsors are encouraged to enter information through the SWRP online OPTI checklist to determine project eligibility, quantification and prioritization for placement on the project list.

Watershed	Project Title	Sponsor Organization	Conceptual Project Summary
Carlsbad, San Dieguito River, Penasquitos, San Diego River, Tijuana River	San Diego County Beaches Wet Weather Contamination Assessment	San Diego Coastkeeper	The San Diego County Beaches Wet Weather Contamination Assessment project will measure FIB, document the human input, if any, and remove trash. Sample collection will focus on rain events to accurately measure ocean water quality impacted by stormwater. Data will be sent to the state and Heal The Bay, allowing the public to access more accurate wet weather water quality data and grades.
San Dieguito River	East and West Riparian Corridor Project	Zoological Society of San Diego	The Wild Animal Park will create riparian corridors throughout the Park's East and West valley exhibits to enhance the water quality for on-grounds use by filtering out pollutants. Grant funds would be used to conduct the planning phase of the project and complete the construction documents that will be used to bid out the final project.
San Dieguito River	Safari Park Storm Water Runoff Management Project	Zoological Society of San Diego	The Zoological Society proposes to design and install a storm water management system at the Safari Park and demonstrate effective management of storm water runoff from parking lots. The system will be designed to slow down rain water, clean it through permeable pavers and biofiltration wetlands, and enable the water to soak into the soil. It will also reduce the amount of storm water and pollutants leaving the Safari Park property and entering local San Diego waterways that flow into the Pacific Ocean.
Penasquitos	Bannock Avenue Neighborhood Streetscape Improvements & Bacteria Treatment for Tecolote Creek Watershed Protection	City of San Diego - Storm Water	Streetscape improved will include installation of 6 pervious concrete sidewalk, one hydrodynamic separator, 550 bio-retention cells at two each residence, one high volume bacterial filtration storm water and perforated storm drain pipe connecting BMPs. This system will be designed to capture the storm water runoff from the first 0.25 inch of rainfall to increase storage/infiltration capacity for the bio-retention areas.
Penasquitos	City of San Diego - Mt. Abernathy Green Street Project	City of San Diego - Storm Water	Three types of landscaped vegetated bio-infiltration and bio-filtration areas will be constructed between existing curb and sidewalk areas which will be planted with drought-tolerant plants. Existing sidewalks will be replaced with pervious concrete designed to capture the storm water runoff from the first 0.25 inch of rainfall to increase storage/infiltration capacity for the bioretention areas.
San Deigo Bay, Pueblo	Phase I-Chollas Creek Integration Project/Part C	University of California	The project will administer and support the existing IPM education and outreach program know as Healthy Garden-Healthy Home. Program will include conducting Community Workshops and participating in community events, developing new materials, and adding additional workshops in Spanish.
San Deigo Bay, Pueblo	San Diego Green School Yard Alliance	San Diego Coastkeeper	The Project will work with schools to replace existing hardscapes with low impact development features to capture and slow runoff. Schoolyards typically represent large areas of impervious surfaces in communities. Reducing the amount of hardscape in schoolyards can help prevent pollution while providing several non-stormwater benefits to schools.
San Dieguito River	East Riparian Corridor Project Phase-1	Zoological Society of San Diego	The Wild Animal Park will create water corridors through the Park's East valley exhibit to increase water quality for on-grounds use. These new water corridors will also reduce pollution during storm events when the water is discharged off property into local San Diego waterways.
San Deigo Bay, Pueblo	Southcrest Park Green Lot Infiltration	City of San Diego - Storm Water	The grant-funded portion of the project includes porous pavement in parking lots in Southcrest Park. The creek enhancement component will remove invasive species, enhance access views and trails, remove accumulated trash and incorporate outreach and educational elements. Three parking lots under design for re-pavement using porous materials will be constructed to capture the storm water runoff.

San Diego IRWM Conceptual Stormwater Projects, Continued

The following are conceptual stormwater projects from the IRWM San Diego Regional Database which have not gone through the SWRP online OPTI eligibility checklist and, therefore are not quantified or prioritized. Project sponsors are encouraged to enter information through the SWRP online OPTI checklist to determine project eligibility, quantification and prioritization for placement on the project list.

Watershed	Project Title	Sponsor Organization	Conceptual Project Summary
San Dieguito River, Penasquitos, San Diego River	Evaluation and Replacement of Deteriorated Corrugated Metal Pipe Flood Control Infrastructure	City of Poway	The Corrugated Metal Pipe (CMP) Study will provide the City of Poway with an inventory of all existing CMP, documenting location, size, diameter, condition, and prioritization for rehabilitation. Results of the study will be used to identify rehabilitation projects, which will be completed as part of the City's Capital Improvement Program or as maintenance projects for the Stormwater Division.
Santa Margarita River	Implementing Nutrient Management in the Santa Margarita River Watershed - Phase I	County of San Diego	This project will use a scientific, stakeholder-based process to set nutrient WQOs for the watershed and implement nutrient reduction and water conservation practices. Benefits include: 1) reduction of NPS runoff & eutrophication, 2) water conservation, 3) habitat/open space protection/restoration, 4) proof-of-concept for a science-based approach to establish nutrient WQOs, and 5) stakeholder buy-in.
Santa Margarita River	Implementing Nutrient Management in the Santa Margarita River Watershed - Phase II	County of San Diego	This project is a continuation of the Implementing Nutrient Management in the Santa Margarita River Watershed Phase I Project. The project aims to continue to facilitate the Stakeholder Advisory Group (begun during Phase I), continue the core monitoring and special studies to address data gaps identified by stakeholders to achieve project objectives, and to partner with the RWQCB staff in the development of nutrient WQOs for the Santa Margarita River and Estuary.
San Dieguito River	Lake Hodges Water Quality Improvements	San Diego County Water Authority	This project encompasses a feasibility study and has the potential for limited design and implementation of effective and efficient methods to improve water quality at Lake Hodges with the aim of both increased source water usability and reduced operational costs. It focuses on capital assets that can be installed within the reservoir, pump station, and an adjacent river.
San Dieguito River	San Pasqual Academy Water Quality Control & Stormwater Management Program	SD County Dept. of General Services	The project will be implemented in 3 phases: Phase 1 includes planning, design, feasibility & environmental assessment studies; Phases 2 and 3 include project construction/implementation for nine improvement/conservation elements at San Pasqual Academy. Project will include hydrologic & hydraulic studies as well as an Environmental Assessment (EA). The EA will consider stream bed analysis and alternative designs, impacts of low impact development BMPs, soils, an upgrade to the package treatment plant, assessment of alternative sites for the spray fields; and potential areas for habitat restoration.
Carlsbad	Upper San Marcos Creek/Lake San Marcos Nutrient Diagnostic and Cleanup Project - Phases 1,2 and 3	City of San Marcos	The project proposes to investigate nutrient sources of the upstream watershed and the lake through water quality diagnostics, modeling, preparation of a water budget, and a nutrient budget. It will also identify feasible remediation to address the nutrient impairment of the lake to restore beneficial uses, and implement a pilot remediation project.
Carlsbad, San Dieguito River	North San Diego County Cooperative Demineralization Project	San Elijo Joint Powers Authority	The North San Diego County Cooperative Demineralization Project will construct advanced water treatment at the SEWRF for salinity management, production expansion, stormwater treatment and pollution mitigation. The SEWRF demineralization facility will provide integral logistics and technical data to assist OMWD with planning and design efforts for a future brackish water desalination facility.
San Dieguito River	Lake Hodges Water Quality and Quagga Mitigation Measures	San Diego County Water Authority	This project will complete a feasibility study, conceptual design, and limited implementation of capital improvements and preventive maintenance measures for quagga control and water quality improvements at Lake Hodges, Olivenhain Reservoir, San Dieguito Reservoir, interconnected pipelines and facilities. The main goals of this project are increased regional source water usability and reduced operating costs.
San Deigo Bay, Pueblo	PLNU Water Management	Point Loma Nazarene University	Sunset Cliffs Natural Park could be preserved using various Low Impact Development (LID) techniques. Reducing stormwater volume will reduce park erosion and pollutants within the runoff that flows into the ocean. Because of the public use, this would be a highly visible demonstration site for integrated water management concepts. LID elements will achieve multiple environmental, social and economic benefits.

San Diego IRWM Conceptual Stormwater Projects, Continued

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Watershed	Project Title	Sponsor Organization	Conceptual Project Summary
Sweetwater River	Chollas Creek Integration Project Phase II	Jacobs Center for Neighborhood Innovation	Chollas Creek Integration Project Phase 2 completes construction activities and habitat restoration delineated in Phase 1 at Northwest Village. The project improves water quality through: engineering modifications to slow creek flow and prevent erosion and flooding; contaminate uptake and natural filtration through restoration with native species of six acres; obtaining a streamlined process for CEQA and regional permittimg that supports the on-going, long-term invasives removal and restoration; community engagement in social values research, citizen science and water quality sampling.
San Dieguito River	San Pasqual Academy	County of San Diego, General Services	The proposed project includes constructing a sedimentation basin at the base of Schoolhouse Canyon Creek located south of the San Pasqual Academy (the project site) where runoff enters the project site, and constructing a vegetated channel that will include a series of bio-retention basins that promote filtration and infiltration, as well as provide for groundwater recharge. Construction of the channel includes; demolition of an existing dual 36 culvert system, gabion, concrete channel and associated structures.
San Diego River	San Diego RiverNet	San Diego State University	The San Diego RiverNet program will create a watershed-wide outdoor laboratory and classroom dedicated to understanding the diverse factors that influence a watershed. The project will deploy a network of sensors for real-time monitoring of the environment, targeting water quality, weather, and other factors (e.g. radiation PAR, and hydrocarbons). This project will collect data, track changes, and help agencies understand the environment at a large temporal and spatial scale.
Tijuana River	Tijuana River - Smugglers Gulch Sediment Basin	City of San Diego - Storm Water	To help reduce the impacts of the pollutants (including sediment and trash) in the Tijuana River Valley, the City of San Diego will construct a sediment basin adjacent to the Smugglers Gulch channel. The proposed project will build on an existing feasibility study and entails hydrology and hydraulics studies, site selection, preliminary engineering and the development of preliminary CEQA documentation to construct a sediment basin for Smugglers Gulch.
Tijuana River	Tijuana River Valley Sediment Management Plan	City of San Diego - Storm Water	The City of San Diego is proposing to develop an integrated Sediment Management Plan (SMP) for the Tijuana River Valley. The SMP will be a resource tool to consider the suite of sediment management needs in the valley, evaluate potential management alternatives and provide a framework for cost-efficient sediment management activities to improve flood conveyance capacity and water quality. The SMP will allow for efficient use of available resources to address sediment management needs.
San Dieguito River	Hodges Reservoir Natural Treatment System	City of San Diego Public Utilities Department	The Project will use the recommendations of two existing studies to identify an approach to reducing nutrient loading and cycling in the Hodges Reservoir and design and construct a natural treatment system (NTS). The primary goal is the improvement of water quality and reduction of treatment costs. Secondary goals include providing habitat and species conservation benefits, minimizing land use conflicts, and streamlining regulatory compliance.
Carlsbad	Spruce Street Channel	City of Escondido	The Project will include clearing, excavation to restore gradient, and bank stabilization of the earth-lined channel between Escondido Creek and West Valley Parkway, as well as construction of a new, safe pedestrian walkway, and clearing vegetation and excavating sediment in the earth-lined channel between West Valley Parkway and Grand Avenue. The work will also include the removal of deposited sediment from the concrete-lined channel, installation of an additional box culvert, and the construction of new concrete wingwall structures to improve the water flow in the remaining channelized portions to further improve the overall health of the
San Luis Rey River,Carlsbad,San Dieguito River,Penasquitos,San Diego	San Diego County Water Quality Assessment & Education	San Diego Coastkeeper	San Diego Coastkeeper will train and manage volunteers to collect and analyze water samples throughout the county. The program will establish baseline ambient conditions, and seeks to move toward targeted, question-based sampling. Through trainings, sampling events and communication of water quality data and information in a way that is accessible to both public members as well as water quality managers, the project will enhance the knowledge and stewardship of water quality in San Diego County.
Santa Margarita River	Implementing Nutrient Management in the Santa Margarita River Watershed Phase III	Southern California Coastal Water Research Project	This project is the third phase of the overall Implementing Nutrient Management in the Santa Margarita River Watershed project. Phase III will involve continued monitoring that would include selected tributaries to the main stem of SMR, conducting additional modeling studies to refine nutrient WQGs in these tributaries and identify areas where nutrient reduction activities would be the most productive. It will also include implementation consisting of agricultural irrigation evaluations and residential and equestrian conservation plans to identify nutrient reducing BMPs, conducting public workshops, and a rebate program for irrigation system

San Diego IRWM Conceptual Stormwater Projects, Continued

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Watershed	Project Title	Sponsor Organization	Conceptual Project Summary
Carlsbad	VWD Stanley Mahr Reservoir Water Quality Improvement Project	Vallecitos Water District	The Project will improve quality of stored recycled water and increase the usable capacity of the reservoir. It will construct a 385,000 square-foot (SF) porous asphalic-cement or polypropylene liner and a 350,000 SF weight-tensioned, polypropylene cover on the existing 54 MG (166 AF) recycled water reservoir to improve quality of the stored recycled water. In addition, the Project will involve the construction of a sodium hypochlorite system and six more aerators for the reservoir.
San Diego River	Recycled Water Plant Upgrades and Water Quality Improvements	Ramona Municipal Water District	-

San Diego Regional SWRP Project List

Project Number	Watershed	Project Title	Sponsor Organization	Is Project Eligible?	Water Quality Score	Water Supply Score	Flood Management Score	Environmental Score	Community Score	Total Score
41	Carlsbad	Spruce Street Channel Improvement Project	City of Escondido	Yes	38	25	5	12	28	108
11	Carlsbad	Alternative Compliance Retrofit Project Mountain View Park, Escondido	City of Escondido	**Yes**	26	40	25	1	15	107
21	Carlsbad	South Santa Fe Green Street Project	City of Vista	Yes	38	5	5	9	34	91
31	Carlsbad	San Marino Drive Green Street and Dry Weather Flow Management	County of San Diego	Yes	24	25	5	7	10	71
15	Carlsbad	City of Oceanside Loma Alta Slough Restoration Project	City of Oceanside	Yes	32	0	0	10	19	61
6	Carlsbad	Leucadia Roadside Park Stormwater Capture/Reuse Project	City of Encinitas	Yes	0	15	5	2	6	28
12	Carlsbad	Alternative Compliance Retrofit Project El Norte Parkway and Rincon Villa Drive, Escondido	City of Escondido	**Yes**	10	0	0	0	5	15
14	Carlsbad	Alternative Compliance Retrofit Project Avenida Del Diablo Park, Escondido	City of Escondido	**Yes**	0	0	0	0	0	0
13	Otay	Nestor Creek Channel Restoration	Earth Island Institute/Alter Terra	Yes	26	40	15	23	32	136
9	Penasquitos	Pure Water -Los Peñasquitos Creek Urban Dry-Weather Water Harvesting	City of San Diego Public Utilities Department	Yes	18	40	10	7	7	82
17	Pueblo	Main Street Promenade Extension	City of Lemon Grove	Yes	38	25	0	15	34	112
22	San Deigo Bay, Pueblo	Skyline Dr and Kempt St Green Streets	City of Lemon Grove	Yes	36	40	30	28	32	166
34	San Deigo Bay, Pueblo	Madera St Green Street	City of Lemon Grove	**Yes**	26	35	15	19	29	124
36	San Deigo Bay, Pueblo	Canton Dr Green Street	City of Lemon Grove	Yes	34	0	20	23	32	109
8	San Deigo Bay, Pueblo	Bakersfield Street and San Altos Channel Restoration	City of Lemon Grove	Yes	38	25	5	10	28	106

San Diego Regional SWRP Project List, Continued

Project Number	Watershed	Project Title	Sponsor Organization	Is Project Eligible?	Water Quality Score	Water Supply Score	Flood Management Score	Environmental Score	Community Score	Total Score
43	San Diego Bay, Pueblo	Paradise Valley Creek Water Quality and Community Enhancement	City of National City	Yes	38	5	30	11	20	104
32	San Deigo Bay, Pueblo	69th St Green Street	City of Lemon Grove	Yes	36	10	10	15	26	97
20	San Deigo Bay, Pueblo	Lemon Grove Avenue Green Streets	City of Lemon Grove	Yes	36	10	10	15	25	96
38	San Deigo Bay, Pueblo	Sweetwater Rd Green Street	City of Lemon Grove	Yes	38	5	5	10	34	92
27	San Deigo Bay, Pueblo	Central Avenue Green Street	City of Lemon Grove	Yes	38	5	5	9	34	91
28	San Deigo Bay, Pueblo	Mt. Vernon St Green Street	City of Lemon Grove	Yes	38	5	5	9	34	91
29	San Deigo Bay, Pueblo	Palm St Green Street	City of Lemon Grove	Yes	38	5	5	9	34	91
35	San Deigo Bay, Pueblo	Paradise Creek Restoration Phase II	City of National City	Yes	38	5	5	9	34	91
37	San Deigo Bay, Pueblo	Golden Ave Green Street	City of Lemon Grove	Yes	38	5	5	9	34	91
40	San Deigo Bay, Pueblo	Federal Blvd Channel	City of Lemon Grove	Yes	38	5	5	9	34	91
18	San Deigo Bay, Pueblo	Broadway/Federal Blvd Green Street	City of Lemon Grove	Yes	32	15	5	9	29	90
24	San Deigo Bay, Pueblo	North Ave and Grove Green Street	City of Lemon Grove	Yes	38	5	5	9	31	88
23	San Deigo Bay, Pueblo	Massachusetts Blvd Green Street	City of Lemon Grove	Yes	38	5	0	9	34	86
39	San Deigo Bay, Pueblo	Lincoln St Green Street	City of Lemon Grove	Yes	34	5	0	9	34	82
26	San Deigo Bay, Pueblo	San Miguel Green Street	City of Lemon Grove	Yes	32	0	5	17	26	80

San Diego Regional SWRP Project List, Continued

Project Number	Watershed	Project Title	Sponsor Organization	Is Project Eligible?	Water Quality Score	Water Supply Score	Flood Management Score	Environmental Score	Community Score	Total Score
19	San Diego River	Mapleview Street - Green Infrastructure and Stormwater Quality Improvement Project	County of San Diego	Yes	38	5	5	9	34	91
25	San Diego River	Woodside Avenue Complete Green Street	County of San Diego	Yes	38	5	5	9	34	91
42	San Diego River	Broadway Channel Flood Risk Reduction and Water Quality Improvements	City of El Cajon	Yes	38	0	20	11	20	89
3	San Diego River	Storm water Capture off San Diego River along Alvarado Canyon and Fairmont Canyon to Fish and Wildlife site	City of San Diego Public Utilities Department	Yes	8	25	5	4	7	49
7	San Diego River	Las Colinas Channel Improvements	City of Santee	Yes	10	5	5	14	12	46
10	San Diego River	Sycamore Creek Restoration	City of Santee	Yes	10	5	5	14	0	34
2	San Dieguito	Safari Park Storm Water Capture and Reuse Project	Zoological Society of San Diego	Yes	36	70	30	21	31	188
4	San Dieguito	Safari Park Water Reuse Sustainability and Watershed Protection Project	Zoological Society of San Diego	Yes	30	70	30	18	27	175
30	San Luis Rey	Storm Water Management Phase I: Feasibility Study and Conceptual Design for the Capture and Beneficial Use of Storm Water on the Rincon Band of Luiseno Indians Reservation	Rincon Band of Luiseno Indians	Yes	38	5	5	9	34	91
16	Sweetwater	Telegraph Canyon Channel Improvement Project	City of Chula Vista	Yes	38	5	25	24	27	119
5	Sweetwater	Sweetwater River Park Bioretention	City of National City	Yes	24	25	10	15	30	104
1	Tijuana	Low Impact Development Urban Runoff Control Projects for the Tijuana Estuary	City of Imperial Beach	Yes	36	40	10	12	29	127
33	Tijuana	Tijuana River Floating Trash Capture System	Earth Island Institute/Alter Terra	Yes	38	5	5	9	34	91

San Diego Regional SWRP Projects - Quantified Metrics, Continued

				Step 2: Project Metrics - Water Quality Benefits									Step 2: Project Metrics - Water Supply Benefit		
Project Number	Watershed	Project Title	Sponsor Organization	(WQ.3) Fecal Coliform MPN/yr	(WQ.3) TSS lbs/yr	(WQ.3) Total Phosphorus lbs/yr	(WQ.3) Total Nitrogen lbs/yr	(WQ.3) Copper lbs/yr	(WQ.3) Lead lbs/yr	(WQ.3) Zinc lbs/yr	(WQ.3) Selenium lbs/yr	(WQ.3) Stormwater Runoff gallons/yr	(WS.5) Water Stored/Conserved (AF/yr)	(WS.7) Water Infiltrattion Volume (Direct Basin Use) (AF/yr)	(WS.9) Water Infiltrattion Volume (Non-Direct Basin Use) (AF/yr)
1	Tijuana	Low Impact Development Urban Runoff Control Projects for the Tijuana Estuary	City of Imperial Beach	2.06E+12								972,468			3.0
2	San Dieguito	Safari Park Storm Water Capture and Reuse Project	Zoological Society of San Diego		1270							185,735	5.15	0.57	
3	San Diego River	Storm water Capture off San Diego River along Alvarado Canyon and Fairmont Canyon to Fish and Wildlife site	City of San Diego Public Utilities Department												
4	San Dieguito	Safari Park Water Reuse Sustainability and Watershed Protection Project	Zoological Society of San Diego		5474	3	62						14.96	3.74	
5	Sweetwater	Sweetwater River Park Bioretention	City of National City		5,856	12	86.8	1.96	1.03	13	0.12	7,233,892	22.2	20.3	
6	Carlsbad	Leucadia Roadside Park Stormwater Capture/Reuse Project	City of Encinitas												
7	San Diego River	Las Colinas Channel Improvements	City of Santee												
8	San Diego Bay, Pueblo	Bakersfield Street and San Altos Channel Restoration	City of Lemon Grove	4.62E+13								3,785,163	11.62		
9	Penasquitos	Pure Water -Los Peñasquitos Creek Urban Dry-Weather Water Harvesting	City of San Diego Public Utilities Department												
10	San Diego River	Sycamore Creek Restoration	City of Santee												
11	Carlsbad	Alternative Compliance Retrofit Project Mountain View Park, Escondido	City of Escondido												
12	Carlsbad	Alternative Compliance Retrofit Project El Norte Parkway and Rincon Villa Drive, Escondido	City of Escondido												
13	Otay	Nestor Creek Channel Restoration	Earth Island Institute/Alter Terra												
14	San Dieguito	Alternative Compliance Retrofit Project Avenida Del Diablo Park, Escondido	City of Escondido												
15	Carlsbad	City of Oceanside Loma Alta Slough Restoration Project	City of Oceanside			10.7	828								
16	San Diego Bay	Telegraph Canyon Channel Improvement Project	City of Chula Vista		3000			2	2	5	0.05	2,000,000			
17	San Diego Bay, Pueblo	Main Street Promenade Extension	City of Lemon Grove	5.06E+13				5.25	1.9	38.01		71,412,102	22.75		
18	Carlsbad	Spruce Street Channel Improvement Project	City of Escondido												
19	San Diego Bay, Pueblo	Broadway/Federal Blvd Green Street	City of Lemon Grove	7.77E+12				8.06	2.92	58.35					
20	San Diego River	Mapleview Street - Green Infrastructure and Stormwater Quality Improvement Project	County of San Diego	2.90E+11								3,663,373			0.21
21	San Diego Bay, Pueblo	Lemon Grove Avenue Green Streets	City of Lemon Grove	4.87E+13				5.05	1.83	36.57		800,000			
22	Carlsbad	South Santa Fe Green Street Project	City of Vista									2,295,935			
23	San Diego Bay, Pueblo	Skyline Dr and Kempt St Green Streets	City of Lemon Grove	4.09E+13				4.24	1.54	30.71					
24	San Diego Bay, Pueblo	Massachusetts Blvd Green Street	City of Lemon Grove	4.12E+13				4.27	1.55	30.94		1,928,274			
25	San Diego Bay, Pueblo	North Ave and Grove Green Street	City of Lemon Grove	3.29E+13				3.41	1.24	24.7		1,942,339			
26	San Diego River	Woodside Avenue Complete Green Street	County of San Diego									1,550,818			
27	San Diego Bay, Pueblo	San Miguel Green Street	City of Lemon Grove	3.49E+12				3.62	1.31	26.2					
28	San Diego Bay, Pueblo	Central Avenue Green Street	City of Lemon Grove	3.30E+13				3.42	1.24	24.75		1,645,009			
29	San Diego Bay, Pueblo	Mt. Vernon St Green Street	City of Lemon Grove	4.26E+13				4.42	1.6	32.02		1,554,124			
30	San Diego Bay, Pueblo	Palm St Green Street	City of Lemon Grove	1.66E+13				1.72	0.62	12.46		2,010,063			
31	San Luis Rey	Storm Water Management Phase I: Feasibility Study and Conceptual Design for the Capture and Beneficial Use of Storm Water on the Rincon	Rincon Band of Luiseno Indians									782,245			
32	Carlsbad	San Marino Drive Green Street and Dry Weather Flow Management	County of San Diego			4.27	18.6								2.45
33	San Diego Bay, Pueblo	69th St Green Street	City of Lemon Grove	3.09E+12				0.32	0.12	2.32		459,603			
34	Tijuana	Tijuana River Floating Trash Capture System	Earth Island Institute/Alter Terra									145,673			
35	San Diego Bay, Pueblo	Madera St Green Street	City of Lemon Grove	1.63E+13				1.69	0.61	12.25					
36	San Diego Bay, Pueblo	Paradise Creek Restoration Phase II	City of National City		3000	1	7	1	1	1	0.01	2,000,000			
37	San Diego Bay, Pueblo	Canton Dr Green Street	City of Lemon Grove	2.32E+13				2.41	0.87	17.41					
38	San Diego Bay, Pueblo	Golden Ave Green Street	City of Lemon Grove	1.47E+14				15.26	5.53	110.46		1,092,871			
39	San Diego Bay, Pueblo	Sweetwater Rd Green Street	City of Lemon Grove	1.27E+13				1.32	0.48	9.56		6,935,057			
40	San Diego Bay, Pueblo	Lincoln St Green Street	City of Lemon Grove	1.64E+13				1.71	0.62	12.34		599,989			
41	San Diego Bay, Pueblo	Federal Blvd Channel	City of Lemon Grove	1.91E+13								103,576	3.03		
42	San Diego River	Broadway Channel Flood Risk Reduction and Water Quality Improvements	City of El Cajon		2000			1	1	2		998,203			
43	San Diego Bay, Pueblo	Paradise Valley Creek Water Quality and Community Enhancement	City of National City		5000							100,000			
Total				6.04E+14	25,600	31	1,002	72	29	500	0	116,196,512	80	25	6

RP Projects - Quantified Metrics, Continued

Project Title	Sponsor Organization	Step 2: Project Metrics - Flood Management Benefit			Step 2: Project Metrics - Environmental Benefit					Step 2: Project Metrics - Community Benefit		
		(FM.2) Peak Flow Reduction	(FM.3) Infiltration Volume	(FM.4) Onsite Storage Volume	(EB.2) Habitat Area Created/Protected	(EB.4) Change in Peak Flow Timing	(EB.5) Reduction in Flow	(EB.9) Reduction in Energy Use or GHG Emissions (or inc. GHG Storage)	(EB.11) Area of Urban Green Space	(CB.2) Created Recreational and Public Areas	(CB.4) Number of Community Members Involved	(CB.6) Number of Jobs Created
Low Impact Development Urban Runoff Control Projects for the Tijuana Estuary	City of Imperial Beach	NA	NA	4,919 CF	NA	NA	NA	NA	316 SF	NA	NA	NA
Safari Park Storm Water Capture and Reuse Project	Zoological Society of San Diego	Yes, details available from sponsor	0.57 AC/yr will be infiltrated.	5.15 AC/yr.	NA	NA	Return PeriodPeak Volume (ft3)Reduced Volume (ft3)	NA	NA	NA	More than 1,500,000 individuals each year.	NA
Storm water Capture off San Diego River along Alvarado Canyon and Fairmont Canyon to Fish and Wildlife site	City of San Diego Public Utilities Department	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Safari Park Water Reuse Sustainability and Watershed Protection Project	Zoological Society of San Diego	Yes, details available from sponsor	3.74 AC/yr will be infiltrated.	14.96 AC/yr.	NA	NA	Return PeriodPeak Volume (ft3)Reduced Volume (ft3) 25	NA	NA	NA	1.5 million	NA
Sweetwater River Park Bioretention	City of National City	NA	6,614,774 gallons/year	NA	3.44	NA	NA	NA	3.44 acrse	4.3 acres	5	5
Leucadia Roadside Park Stormwater Capture/Reuse Project	City of Encinitas	NA	NA	NA	NA	NA	NA	NA	NA	4,400	NA	NA
Las Colinas Channel Improvements	City of Santee	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bakersfield Street and San Altos Channel Restoration	City of Lemon Grove	NA	NA	NA	3.82 acres	NA	NA	NA	NA	NA	15	15
Pure Water -Los Peñasquitos Creek Urban Dry-Weather Water Harvesting	City of San Diego Public Utilities Department	NA	1.5 cfs	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sycamore Creek Restoration	City of Santee	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alternative Compliance Retrofit Project Mountain View Park, Escondido	City of Escondido	NA			NA	NA		NA	NA	NA	NA	NA
Alternative Compliance Retrofit Project El Norte Parkway and Rincon Villa Drive, Escondido	City of Escondido	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nestor Creek Channel Restoration	Earth Island Institute/Alter Terra	NA	NA	NA	2,500 linear feet of creek channel restored	NA	NA	NA	2,500 linear feet	2,500 linear feet	NA	NA
Alternative Compliance Retrofit Project Avenida Del Diablo Park, Escondido	City of Escondido	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
City of Oceanside Loma Alta Slough Restoration Project	City of Oceanside	NA	NA	NA	1.8	NA	NA	NA	1.8	<1 acre	NA	NA
Telegraph Canyon Channel Improvement Project	City of Chula Vista		2,000,000 gals/yr	NA			NA	NA			NA	NA
Main Street Promenade Extension	City of Lemon Grove	NA	NA	NA	5.34 acres	NA	NA	NA	NA	14.96 acres	15	15
Spruce Street Channel Improvement Project	City of Escondido	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA
Broadway/Federal Blvd Green Street	City of Lemon Grove	NA	NA	NA	NA	NA	NA	NA	NA	8.15 acres	15	15
Mapleview Street - Green Infrastructure and Stormwater Quality Improvement Project	County of San Diego	NA	20466701 gals/yr	NA	NA	NA	NA	NA	20000 sq. ft of green infrastructure (tree wlls,	1000 sq. ft. of new sidewalk	15	NA
Lemon Grove Avenue Green Streets	City of Lemon Grove	NA	NA	NA	NA	NA	NA	NA	NA	4.97 acres	10	10
South Santa Fe Green Street Project	City of Vista	5.3 AFY	18.5 AFY	18.5 AFY	NA	See Prop 1 application	See TRWE Report	790 lbs/yr	9,500 SF	See Prop 1	NA	NA
Skyline Dr and Kempt St Green Streets	City of Lemon Grove	NA	NA	NA	NA	NA	NA	NA	NA	3.59 acres	10	10
Massachusetts Blvd Green Street	City of Lemon Grove	NA	NA	NA	NA	NA	NA	NA	NA	3.37 acres	15	15
North Ave and Grove Green Street	City of Lemon Grove	NA	NA	NA	NA	NA	NA	NA	NA	1.42 acres	15	15
Woodside Avenue Complete Green Street	County of San Diego	NA	NA	NA	NA	NA	NA	NA	NA	NA	50	NA
San Miguel Green Street	City of Lemon Grove	NA	NA	NA	NA	NA	NA	NA	NA	1.65 acres	15	15
Central Avenue Green Street	City of Lemon Grove	NA	NA	NA	NA	NA	NA	NA	NA	1.40 acres	15	15
Mt. Vernon St Green Street	City of Lemon Grove	NA	NA	NA	NA	NA	NA	NA	NA	1.89 acres	15	15
Palm St Green Street	City of Lemon Grove	NA	NA	NA	NA	NA	NA	NA	NA	1.51 acres	15	15
Storm Water Management Phase I: Feasibility Study and Conceptual Design for the Capture and Beneficial Use of Storm Water on the Rincon	Rincon Band of Luiseno Indians	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
San Marino Drive Green Street and Dry Weather Flow Management	County of San Diego	NA	NA	NA	NA	NA	NA	NA	2781 sq. ft. of trees wells	NA	30	NA
69th St Green Street	City of Lemon Grove	NA	NA	NA	NA	NA	NA	NA	NA	0.12 acres	15	15
Tijuana River Floating Trash Capture System	Earth Island Institute/Alter Terra	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Madera St Green Street	City of Lemon Grove	NA	NA	NA	NA	NA	NA	NA	NA	1.21 acres	10	10
Paradise Creek Restoration Phase II	City of National City	NA	2,000,000 gals/yr	NA	7 acres	NA	NA	NA	3 acres	3 arces	NA	NA
Canton Dr Green Street	City of Lemon Grove	NA	NA	NA	NA	NA	NA	NA	NA	1.31 acres	15	15
Golden Ave Green Street	City of Lemon Grove	NA	NA	NA	1.44 acres	NA	NA	NA	NA	1.44 acres	15	15
Sweetwater Rd Green Street	City of Lemon Grove	NA	NA	NA	NA	NA	NA	NA	NA	1.07 acres	10	10
Lincoln St Green Street	City of Lemon Grove	NA	NA	NA	NA	NA	NA	NA	NA	0.71 acres	10	10
Federal Blvd Channel	City of Lemon Grove	NA	NA	NA	NA	NA	NA	NA	NA	NA	15	15
Broadway Channel Flood Risk Reduction and Water Quality Improvements	City of El Cajon	NA	1,500,000 gals/yr	NA	NA	NA	NA	NA	NA	NA	NA	NA
Paradise Valley Creek Water Quality and Community Enhancement	City of National City		100,000	100,000	NA	NA	NA	NA	NA	NA	NA	NA

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Watershed	Project Title	Sponsor Organization	Conceptual Project Summary
Carlsbad, San Dieguito River, Penasquitos, San Diego River, Tijuana River	San Diego County Beaches Wet Weather Contamination Assessment	San Diego Coastkeeper	The San Diego County Beaches Wet Weather Contamination Assessment project will measure FIB, document the human input, if any, and remove trash. Sample collection will focus on rain events to accurately measure ocean water quality impacted by stormwater. Data will be sent to the state and Heal The Bay, allowing the public to access more accurate wet weather water quality data and grades.
San Dieguito River	East and West Riparian Corridor Project	Zoological Society of San Diego	The Wild Animal Park will create riparian corridors throughout the Park's East and West valley exhibits to enhance the water quality for on-grounds use by filtering out pollutants. Grant funds would be used to conduct the planning phase of the project and complete the construction documents that will be used to bid out the final project.
San Dieguito River	Safari Park Storm Water Runoff Management Project	Zoological Society of San Diego	The Zoological Society proposes to design and install a storm water management system at the Safari Park and demonstrate effective management of storm water runoff from parking lots. The system will be designed to slow down rain water, clean it through permeable pavers and biofiltration wetlands, and enable the water to soak into the soil. It will also reduce the amount of storm water and pollutants leaving the Safari Park property and entering local San Diego waterways that flow into the Pacific Ocean.
Penasquitos	Bannock Avenue Neighborhood Streetscape Improvements & Bacteria Treatment for Tecolote Creek Watershed Protection	City of San Diego - Storm Water	Streetscape improved will include installation of 6 pervious concrete sidewalk, one hydrodynamic separator, 550 bio-retention cells at two each residence, one high volume bacterial filtration storm water and perforated storm drain pipe connecting BMPs. This system will be designed to capture the storm water runoff from the first 0.25 inch of rainfall to increase storage/infiltration capacity for the bio-retention areas.
Penasquitos	City of San Diego - Mt. Abernathy Green Street Project	City of San Diego - Storm Water	Three types of landscaped vegetated bio-infiltration and bio-filtration areas will be constructed between existing curb and sidewalk areas which will be planted with drought-tolerant plants. Existing sidewalks will be replaced with pervious concrete designed to capture the storm water runoff from the first 0.25 inch of rainfall to increase storage/infiltration capacity for the bioretention areas.
San Deigo Bay, Pueblo	Phase I-Chollas Creek Integration Project/Part C	University of California	The project will administer and support the existing IPM education and outreach program know as Healthy Garden-Healthy Home. Program will include conducting Community Workshops and participating in community events, developing new materials, and adding additional workshops in Spanish.
San Deigo Bay, Pueblo	San Diego Green School Yard Alliance	San Diego Coastkeeper	The Project will work with schools to replace existing hardscapes with low impact development features to capture and slow runoff. Schoolyards typically represent large areas of impervious surfaces in communities. Reducing the amount of hardscape in schoolyards can help prevent pollution while providing several non-stormwater benefits to schools.
San Dieguito River	East Riparian Corridor Project Phase-1	Zoological Society of San Diego	The Wild Animal Park will create water corridors through the Park's East valley exhibit to increase water quality for on-grounds use. These new water corridors will also reduce pollution during storm events when the water is discharged off property into local San Diego waterways.
San Deigo Bay, Pueblo	Southcrest Park Green Lot Infiltration	City of San Diego - Storm Water	The grant-funded portion of the project includes porous pavement in parking lots in Southcrest Park. The creek enhancement component will remove invasive species, enhance access views and trails, remove accumulated trash and incorporate outreach and educational elements. Three parking lots under design for re-pavement using porous materials will be constructed to capture the storm water runoff.

San Diego IRWM Conceptual Stormwater Projects, Continued

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Watershed	Project Title	Sponsor Organization	Conceptual Project Summary
San Dieguito River, Penasquitos, San Diego River	Evaluation and Replacement of Deteriorated Corrugated Metal Pipe Flood Control Infrastructure	City of Poway	The Corrugated Metal Pipe (CMP) Study will provide the City of Poway with an inventory of all existing CMP, documenting location, size, diameter, condition, and prioritization for rehabilitation. Results of the study will be used to identify rehabilitation projects, which will be completed as part of the City's Capital Improvement Program or as maintenance projects for the Stormwater Division.
Santa Margarita River	Implementing Nutrient Management in the Santa Margarita River Watershed - Phase I	County of San Diego	This project will use a scientific, stakeholder-based process to set nutrient WQOs for the watershed and implement nutrient reduction and water conservation practices. Benefits include: 1) reduction of NPS runoff & eutrophication, 2) water conservation, 3) habitat/open space protection/restoration, 4) proof-of-concept for a science-based approach to establish nutrient WQOs, and 5) stakeholder buy-in.
Santa Margarita River	Implementing Nutrient Management in the Santa Margarita River Watershed - Phase II	County of San Diego	This project is a continuation of the Implementing Nutrient Management in the Santa Margarita River Watershed Phase I Project. The project aims to continue to facilitate the Stakeholder Advisory Group (begun during Phase I), continue the core monitoring and special studies to address data gaps identified by stakeholders to achieve project objectives, and to partner with the RWQCB staff in the development of nutrient WQOs for the Santa Margarita River and Estuary.
San Dieguito River	Lake Hodges Water Quality Improvements	San Diego County Water Authority	This project encompasses a feasibility study and has the potential for limited design and implementation of effective and efficient methods to improve water quality at Lake Hodges with the aim of both increased source water usability and reduced operational costs. It focuses on capital assets that can be installed within the reservoir, pump station, and an adjacent river.
San Dieguito River	San Pasqual Academy Water Quality Control & Stormwater Management Program	SD County Dept. of General Services	The project will be implemented in 3 phases: Phase 1 includes planning, design, feasibility & environmental assessment studies; Phases 2 and 3 include project construction/implementation for nine improvement/conservation elements at San Pasqual Academy. Project will include hydrologic & hydraulic studies as well as an Environmental Assessment (EA). The EA will consider stream bed analysis and alternative designs, impacts of low impact development BMPs, soils, an upgrade to the package treatment plant, assessment of alternative sites for the spray fields; and potential areas for habitat restoration.
Carlsbad	Upper San Marcos Creek/Lake San Marcos Nutrient Diagnostic and Cleanup Project - Phases 1,2 and 3	City of San Marcos	The project proposes to investigate nutrient sources of the upstream watershed and the lake through water quality diagnostics, modeling, preparation of a water budget, and a nutrient budget. It will also identify feasible remediation to address the nutrient impairment of the lake to restore beneficial uses, and implement a pilot remediation project.
Carlsbad, San Dieguito River	North San Diego County Cooperative Demineralization Project	San Elijo Joint Powers Authority	The North San Diego County Cooperative Demineralization Project will construct advanced water treatment at the SEWRF for salinity management, production expansion, stormwater treatment and pollution mitigation. The SEWRF demineralization facility will provide integral logistics and technical data to assist OMWD with planning and design efforts for a future brackish water desalination facility.
San Dieguito River	Lake Hodges Water Quality and Quagga Mitigation Measures	San Diego County Water Authority	This project will complete a feasibility study, conceptual design, and limited implementation of capital improvements and preventive maintenance measures for quagga control and water quality improvements at Lake Hodges, Olivenhain Reservoir, San Dieguito Reservoir, interconnected pipelines and facilities. The main goals of this project are increased regional source water usability and reduced operating costs.
San Deigo Bay, Pueblo	PLNU Water Management	Point Loma Nazarene University	Sunset Cliffs Natural Park could be preserved using various Low Impact Development (LID) techniques. Reducing stormwater volume will reduce park erosion and pollutants within the runoff that flows into the ocean. Because of the public use, this would be a highly visible demonstration site for integrated water management concepts. LID elements will achieve multiple environmental, social and economic benefits.

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Watershed	Project Title	Sponsor Organization	Conceptual Project Summary
Sweetwater River	Chollas Creek Integration Project Phase II	Jacobs Center for Neighborhood Innovation	Chollas Creek Integration Project Phase 2 completes construction activities and habitat restoration delineated in Phase 1 at Northwest Village. The project improves water quality through: engineering modifications to slow creek flow and prevent erosion and flooding; contaminate uptake and natural filtration through restoration with native species of six acres; obtaining a streamlined process for CEQA and regional permittimg that supports the on-going, long-term invasives removal and restoration; community engagement in social values research, citizen science and water quality sampling.
San Dieguito River	San Pasqual Academy	County of San Diego, General Services	The proposed project includes constructing a sedimentation basin at the base of Schoolhouse Canyon Creek located south of the San Pasqual Academy (the project site) where runoff enters the project site, and constructing a vegetated channel that will include a series of bio-retention basins that promote filtration and infiltration, as well as provide for groundwater recharge. Construction of the channel includes; demolition of an existing dual 36 culvert system, gabion, concrete channel and associated structures.
San Diego River	San Diego RiverNet	San Diego State University	The San Diego RiverNet program will create a watershed-wide outdoor laboratory and classroom dedicated to understanding the diverse factors that influence a watershed. The project will deploy a network of sensors for real-time monitoring of the environment, targeting water quality, weather, and other factors (e.g. radiation PAR, and hydrocarbons). This project will collect data, track changes, and help agencies understand the environment at a large temporal and spatial scale.
Tijuana River	Tijuana River - Smugglers Gulch Sediment Basin	City of San Diego - Storm Water	To help reduce the impacts of the pollutants (including sediment and trash) in the Tijuana River Valley, the City of San Diego will construct a sediment basin adjacent to the Smugglers Gulch channel. The proposed project will build on an existing feasibility study and entails hydrology and hydraulics studies, site selection, preliminary engineering and the development of preliminary CEQA documentation to construct a sediment basin for Smugglers Gulch.
Tijuana River	Tijuana River Valley Sediment Management Plan	City of San Diego - Storm Water	The City of San Diego is proposing to develop an integrated Sediment Management Plan (SMP) for the Tijuana River Valley. The SMP will be a resource tool to consider the suite of sediment management needs in the valley, evaluate potential management alternatives and provide a framework for cost-efficient sediment management activities to improve flood conveyance capacity and water quality. The SMP will allow for efficient use of available resources to address sediment management needs.
San Dieguito River	Hodges Reservoir Natural Treatment System	City of San Diego Public Utilities Department	The Project will use the recommendations of two existing studies to identify an approach to reducing nutrient loading and cycling in the Hodges Reservoir and design and construct a natural treatment system (NTS). The primary goal is the improvement of water quality and reduction of treatment costs. Secondary goals include providing habitat and species conservation benefits, minimizing land use conflicts, and streamlining regulatory compliance.
Carlsbad	Spruce Street Channel	City of Escondido	The Project will include clearing, excavation to restore gradient, and bank stabilization of the earth-lined channel between Escondido Creek and West Valley Parkway, as well as construction of a new, safe pedestrian walkway, and clearing vegetation and excavating sediment in the earth-lined channel between West Valley Parkway and Grand Avenue. The work will also include the removal of deposited sediment from the concrete-lined channel, installation of an additional box culvert, and the construction of new concrete wingwall structures to improve the water flow in the remaining channelized portions to further improve the overall health of the
San Luis Rey River,Carlsbad,San Dieguito River,Penasquitos,San Diego	San Diego County Water Quality Assessment & Education	San Diego Coastkeeper	San Diego Coastkeeper will train and manage volunteers to collect and analyze water samples throughout the county. The program will establish baseline ambient conditions, and seeks to move toward targeted, question-based sampling. Through trainings, sampling events and communication of water quality data and information in a way that is accessible to both public members as well as water quality managers, the project will enhance the knowledge and stewardship of water quality in San Diego County.
Santa Margarita River	Implementing Nutrient Management in the Santa Margarita River Watershed Phase III	Southern California Coastal Water Research Project	This project is the third phase of the overall Implementing Nutrient Management in the Santa Margarita River Watershed project. Phase III will involve continued monitoring that would include selected tributaries to the main stem of SMR, conducting additional modeling studies to refine nutrient WQGs in these tributaries and identify areas where nutrient reduction activities would be the most productive. It will also include implementation consisting of agricultural irrigation evaluations and residential and equestrian conservation plans to identify nutrient reducing BMPs, conducting public workshops, and a rebate program for irrigation system

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Watershed	Project Title	Sponsor Organization	Conceptual Project Summary
Carlsbad	VWD Stanley Mahr Reservoir Water Quality Improvement Project	Vallecitos Water District	The Project will improve quality of stored recycled water and increase the usable capacity of the reservoir. It will construct a 385,000 square-foot (SF) porous asphalic-cement or polypropylene liner and a 350,000 SF weight-tensioned, polypropylene cover on the existing 54 MG (166 AF) recycled water reservoir to improve quality of the stored recycled water. In addition, the Project will involve the construction of a sodium hypochlorite system and six more aerators for the reservoir.
San Diego River	Recycled Water Plant Upgrades and Water Quality Improvements	Ramona Municipal Water District	-