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

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.)

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, agencies, and stakeholders to identify and develop multi-benefit projects that provide the greatest measurable 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.

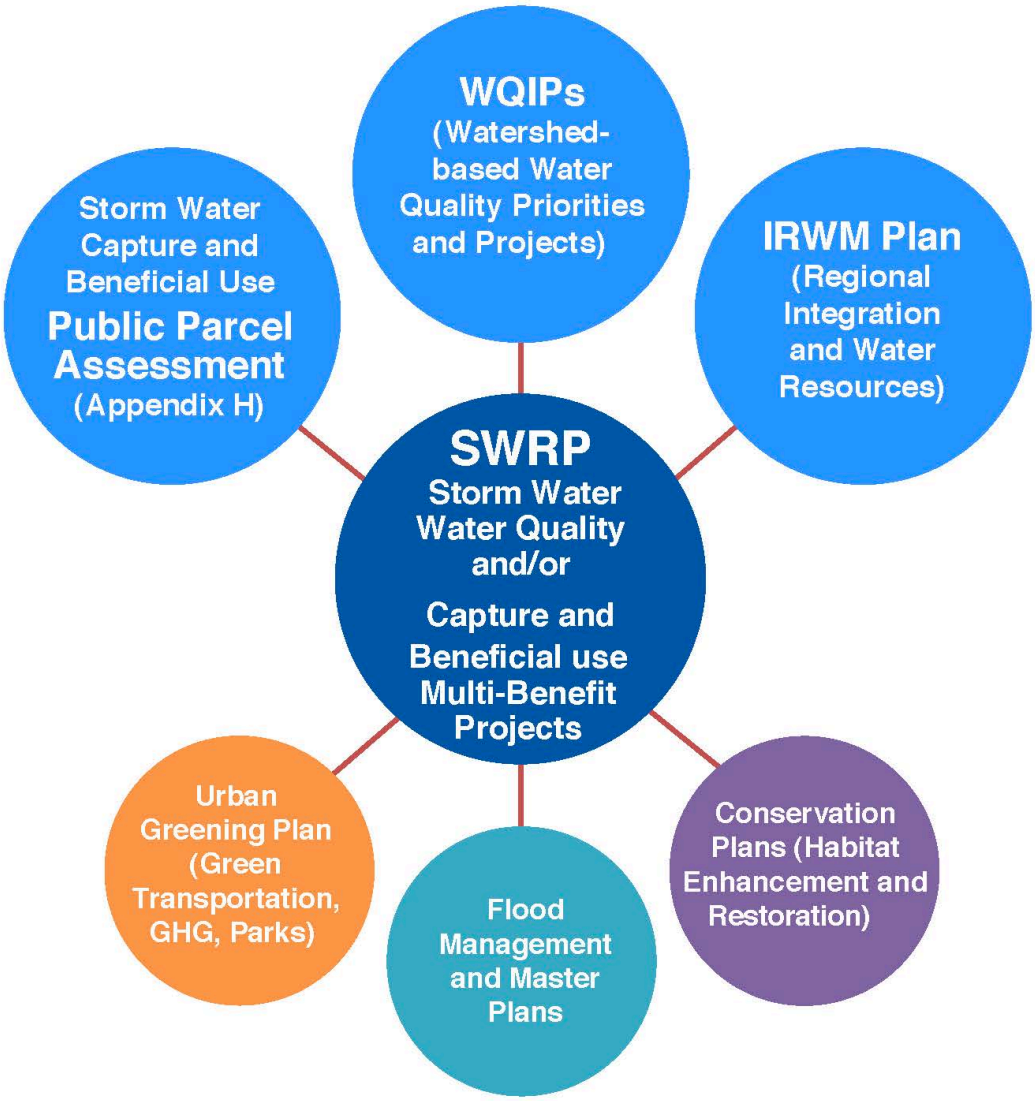

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Figure 5-1
Functionally Equivalent SWRP –
Builds on Existing and Future Watershed and Regional Plans

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.

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.

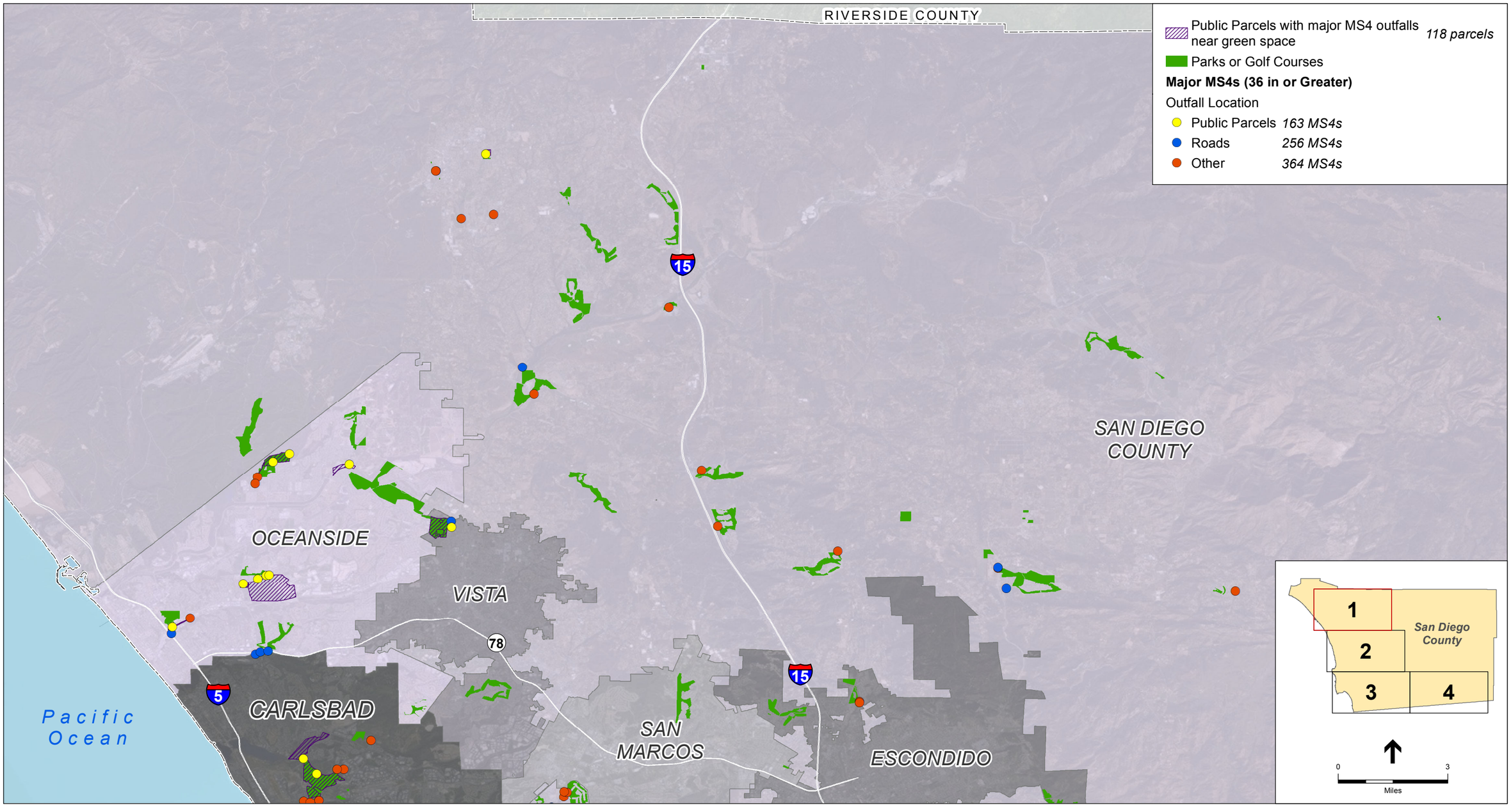
Some cities within San Diego County have Urban Greening Plans that outline opportunities for the city to increase and enhance public green areas. These documents can inspire projects to integrate green streets, community connectivity and transportation, and urban forestry design into project proposals.

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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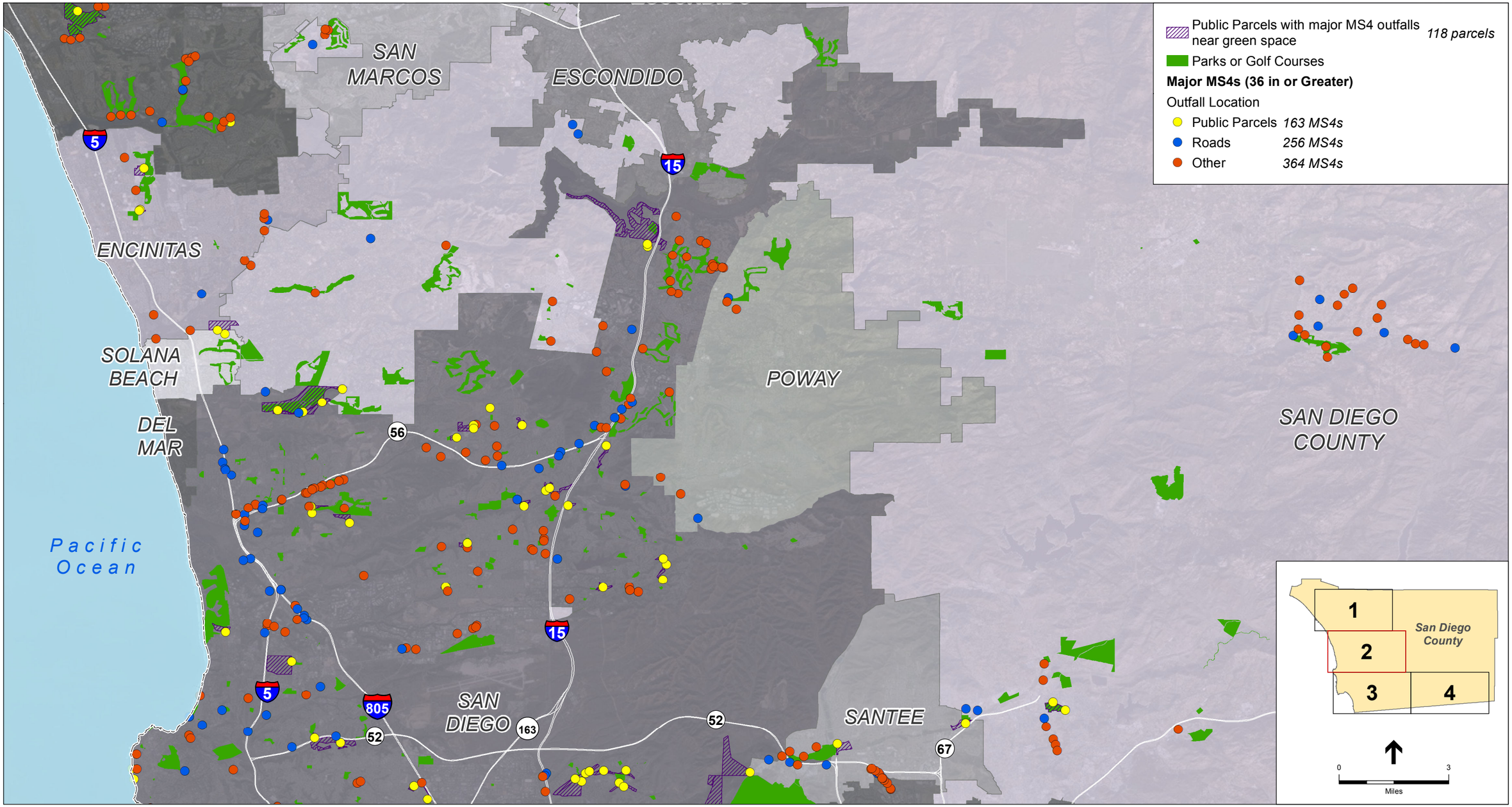
Figure 5-1

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



SOURCE: ESRI, 2016; SanGIS, 2016

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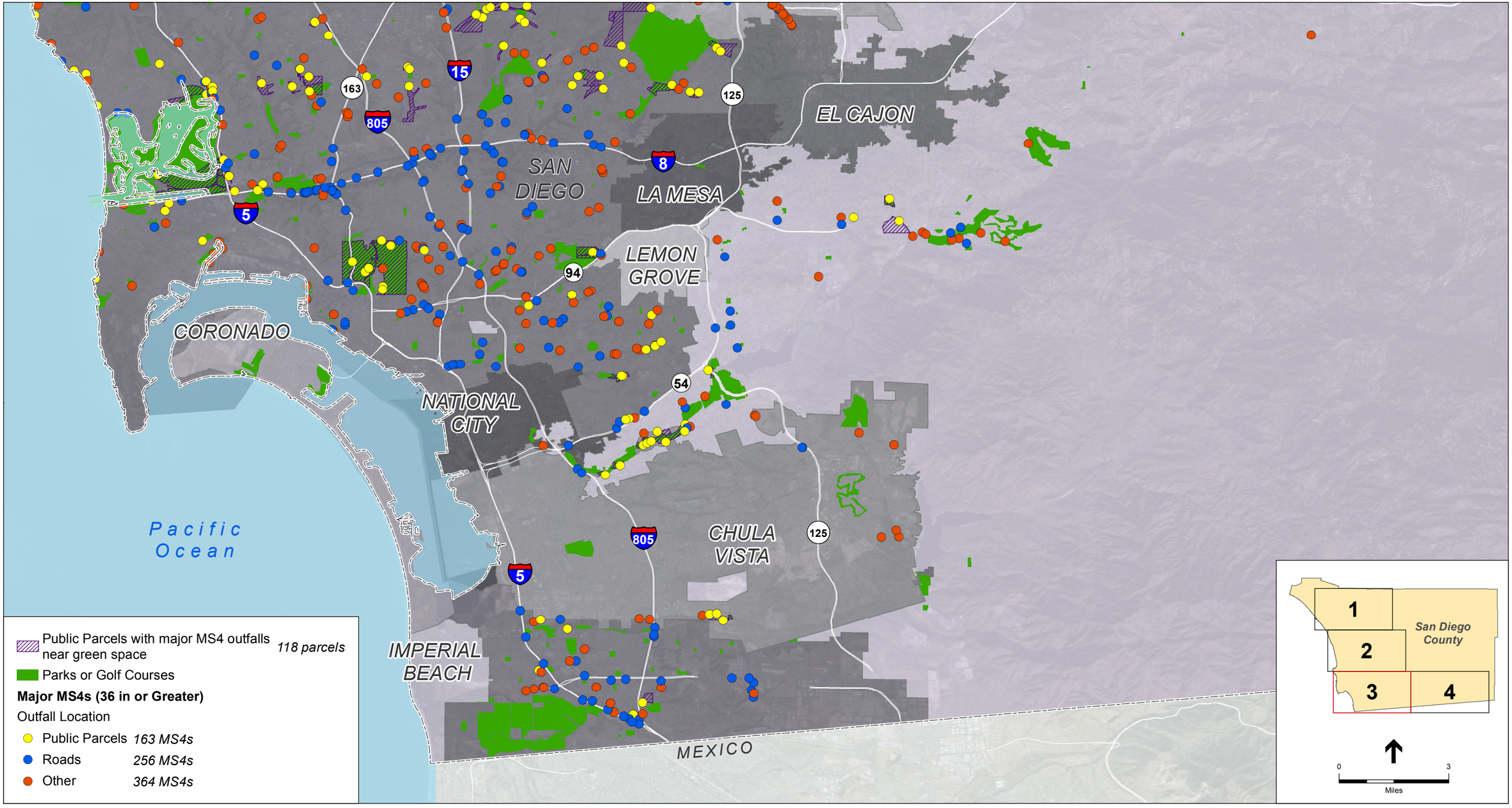
Figure 5-2b

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

Public Parcels with major MS4 outfalls near green space *118 parcels*

Parks or Golf Courses

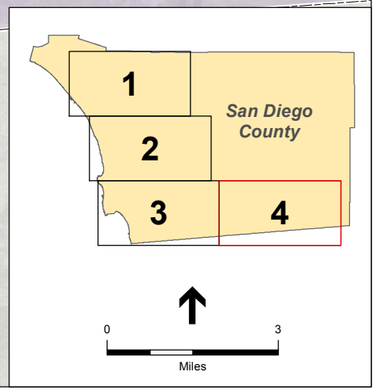
Major MS4s (36 in or Greater)

Outfall Location

- Public Parcels *163 MS4s*
- Roads *256 MS4s*
- Other *364 MS4s*

8

MEXICO



SOURCE: ESRI, 2016; SanGIS, 2016

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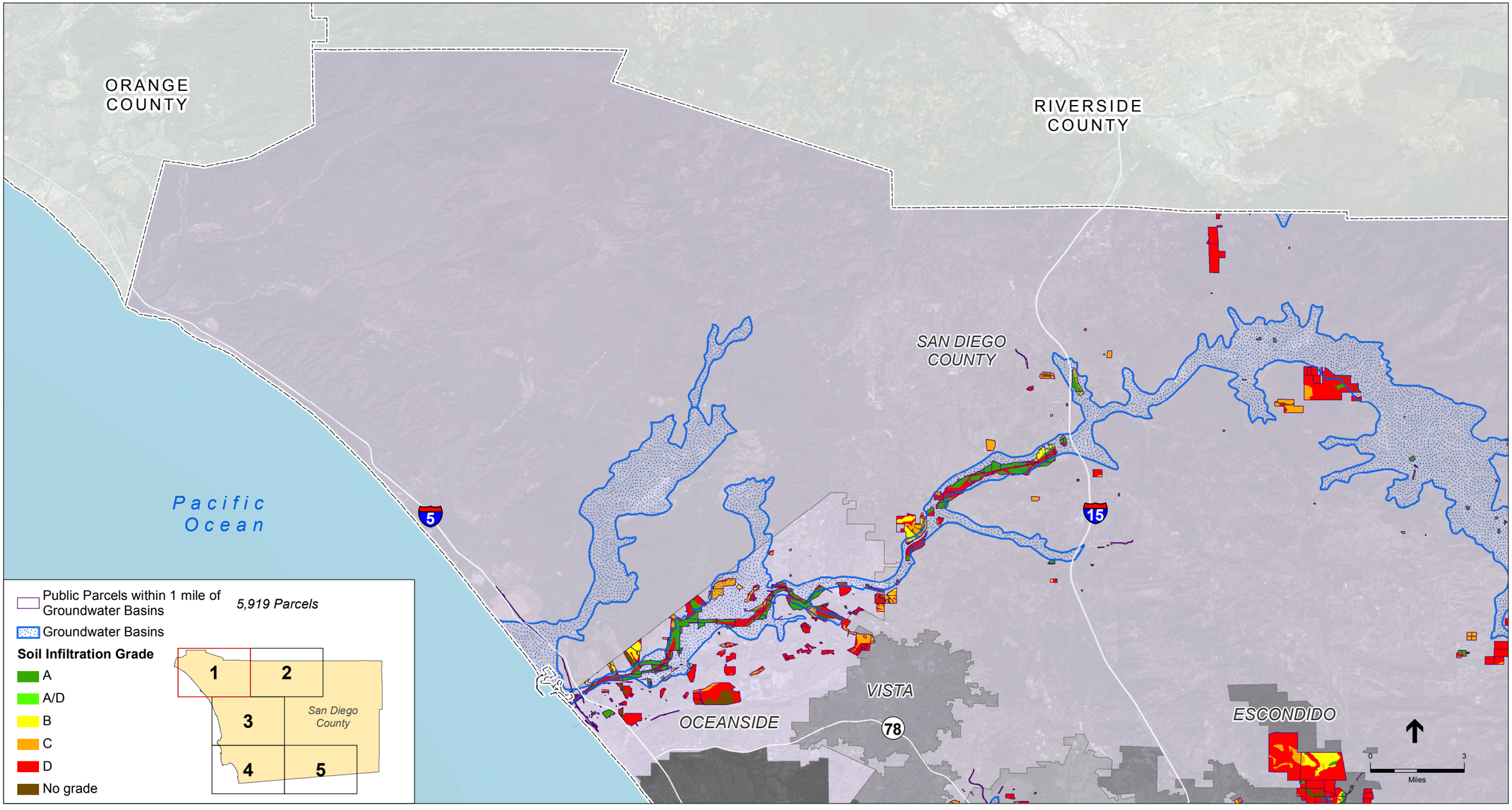
Figure 5-2d

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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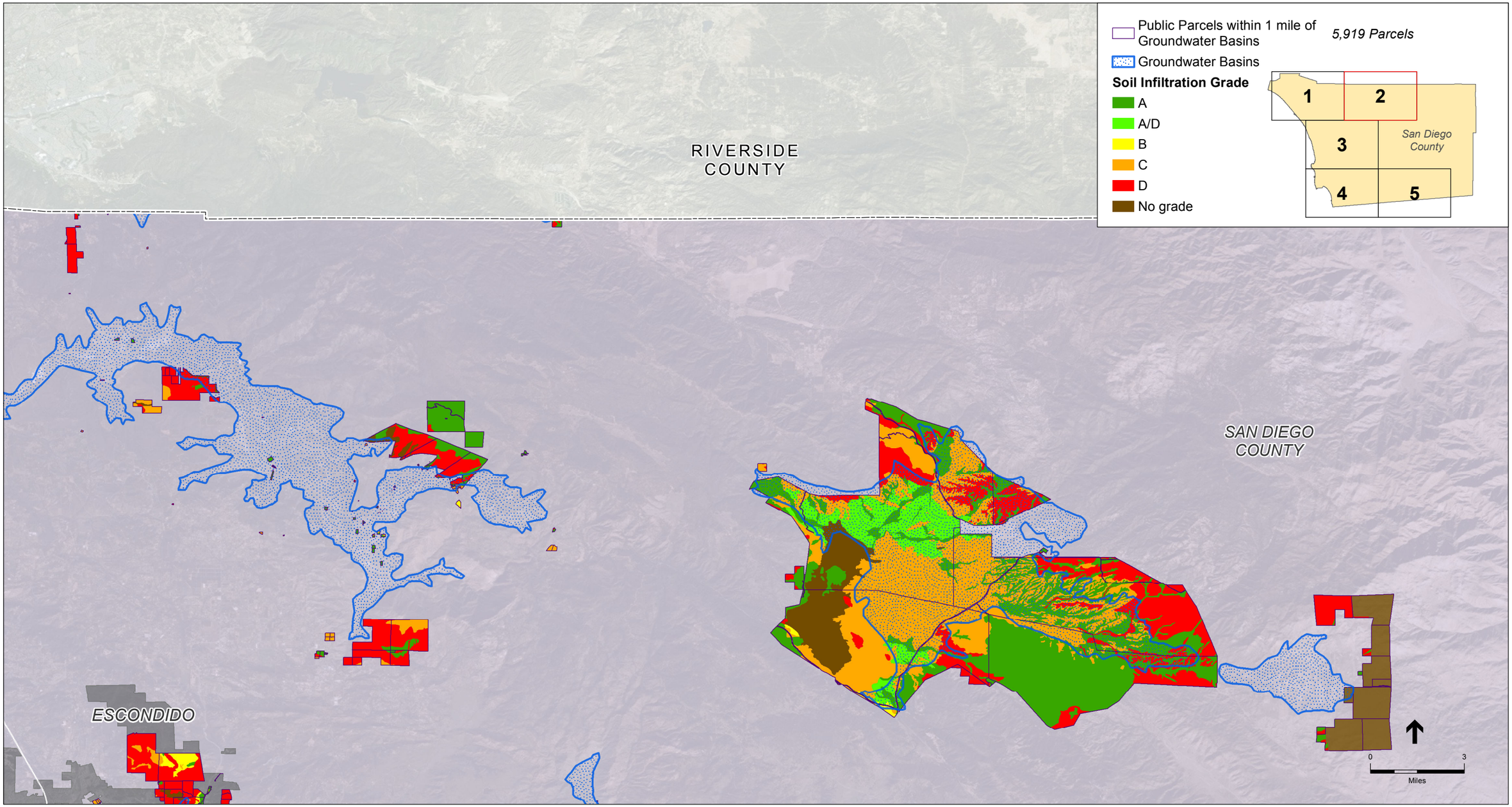
Figure 5-3a

Public Parcels Within a Mile Of a Groundwater Basin



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

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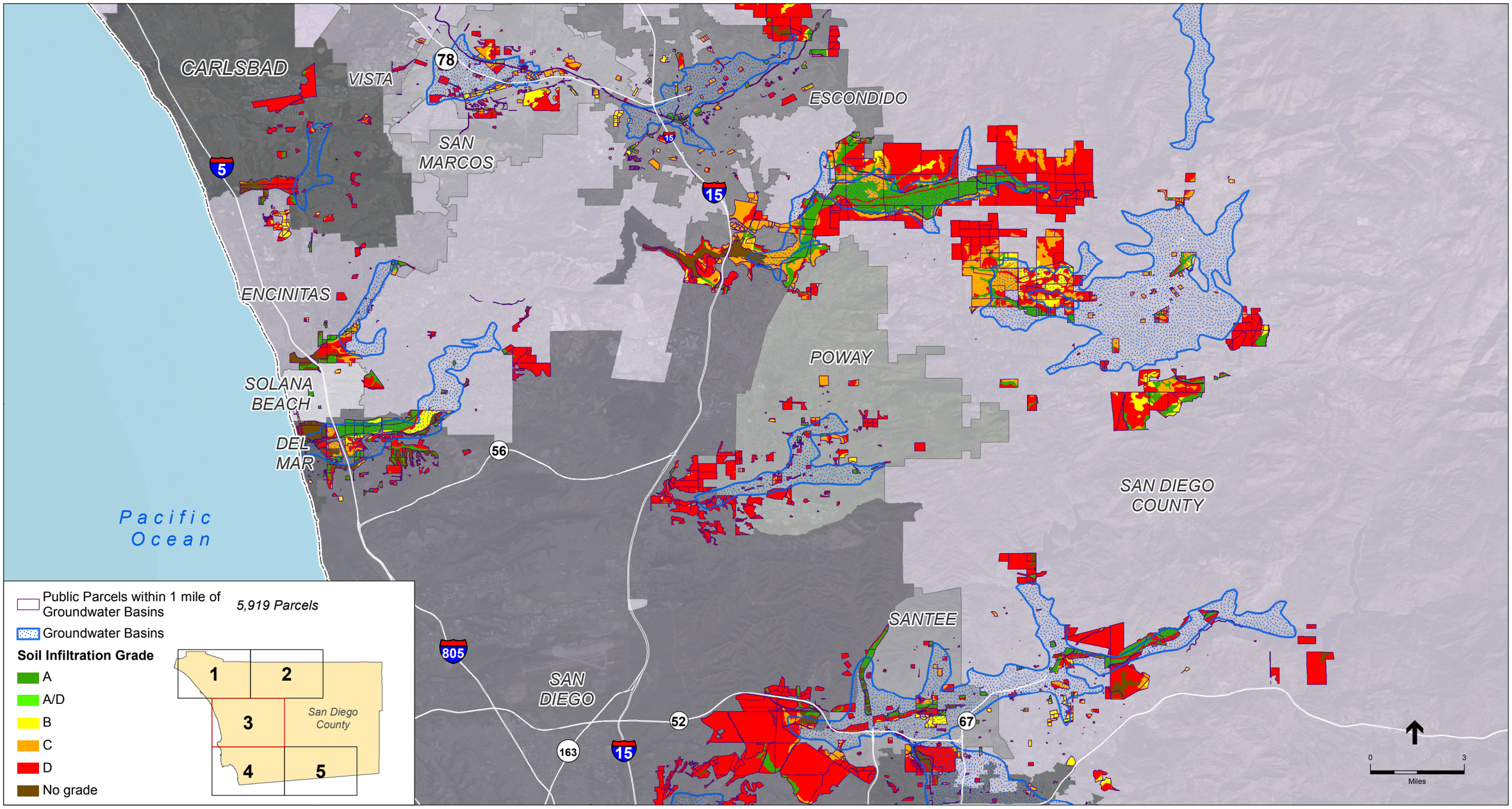
Figure 5-3b

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



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

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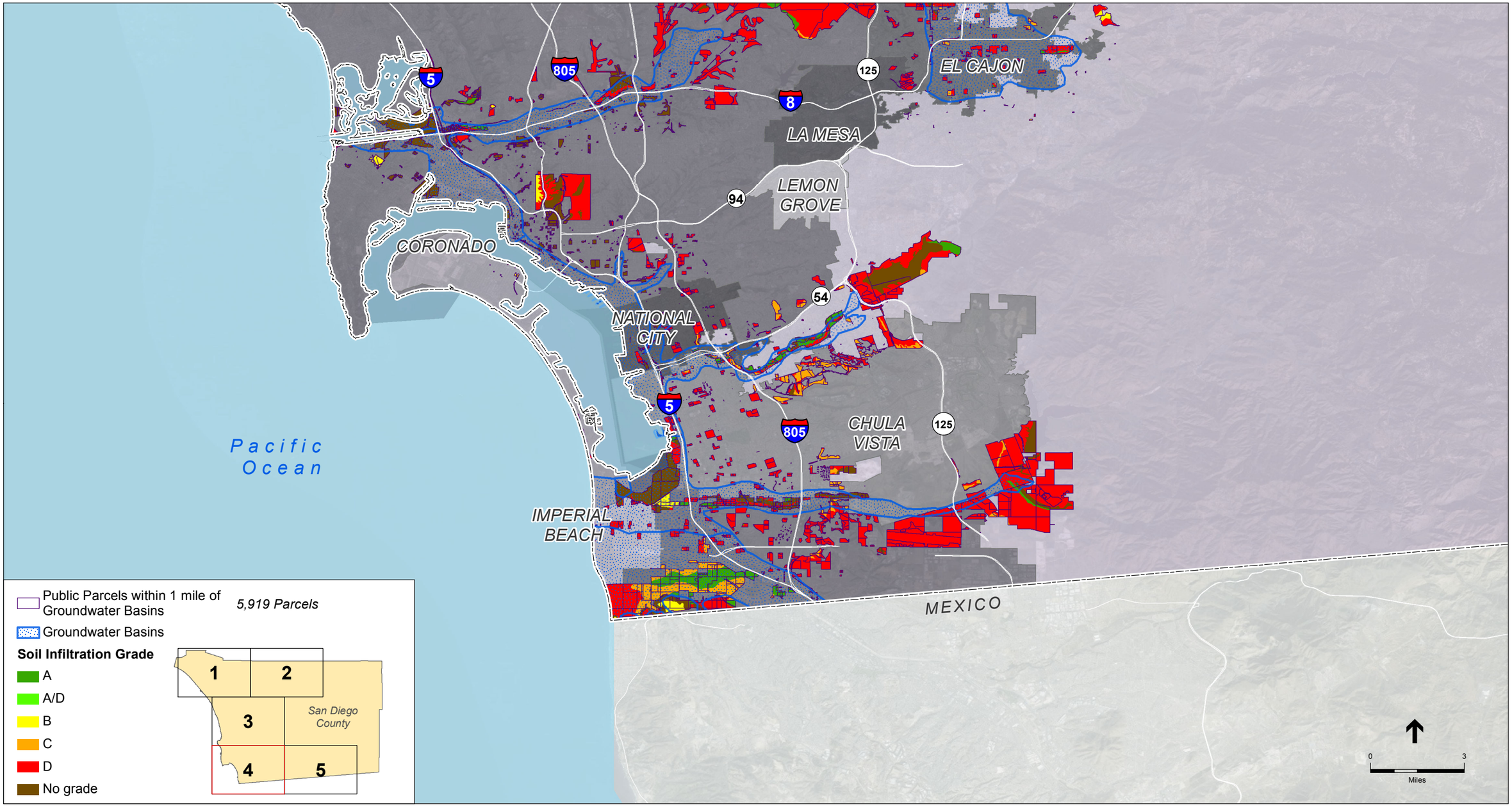
Figure 5-3c

Public Parcels Within a Mile Of a Groundwater Basin



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

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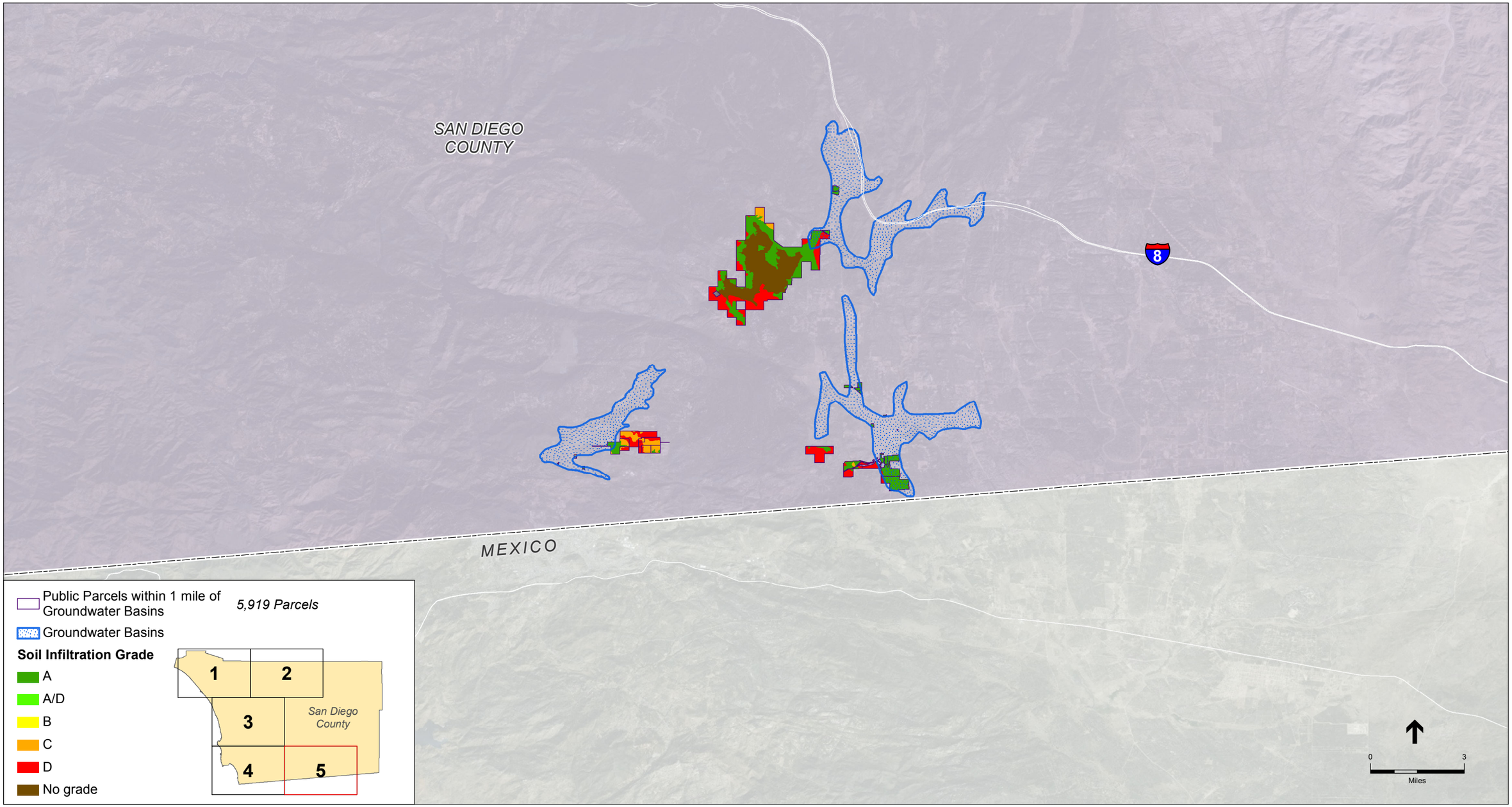
Figure 5-3d

Public Parcels Within a Mile Of a Groundwater Basin



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

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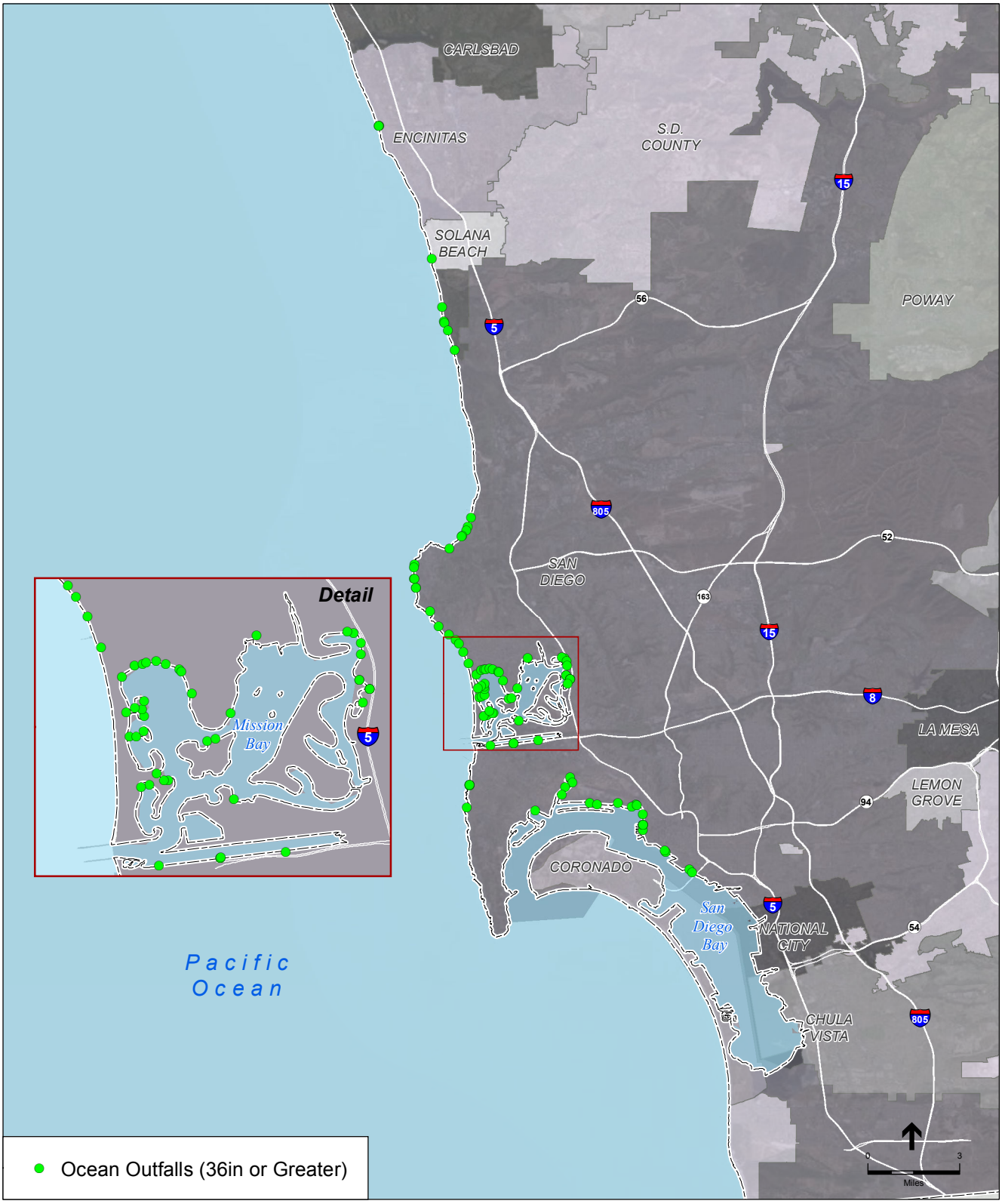
Figure 5-3e

Public Parcels Within a Mile Of a Groundwater Basin



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

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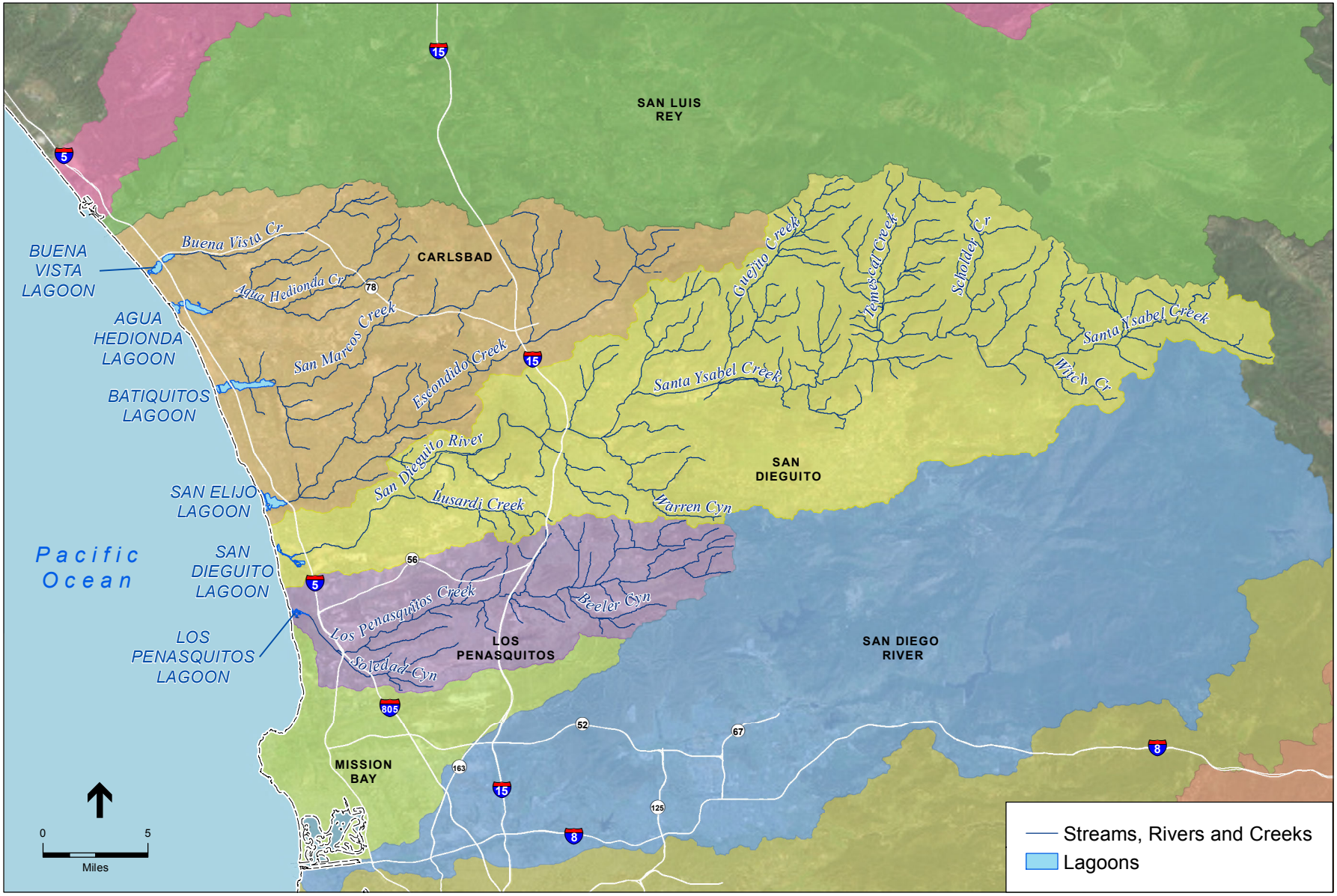
Figure 5-4

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.

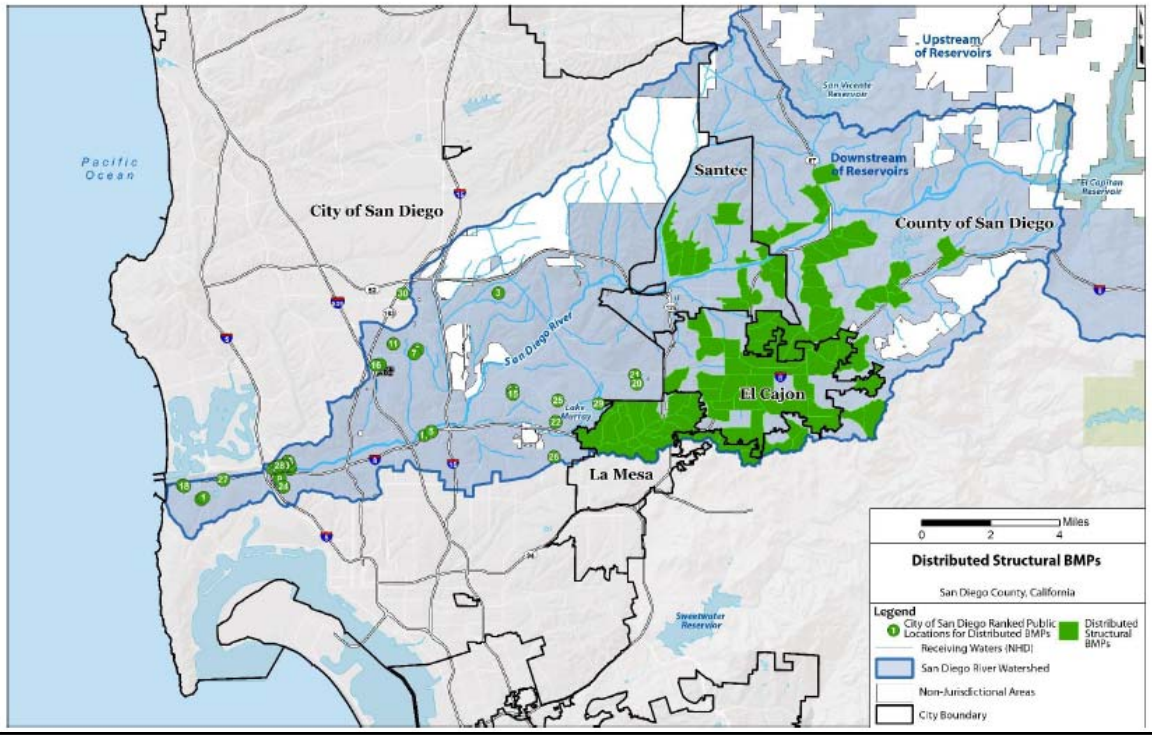

TABLE 5-1
PRIORITY WATERSHED STRATEGIES

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
San Dieguito	City of Del Mar		X	X	X												X
	City of Escondido	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
	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
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

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
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 must 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.

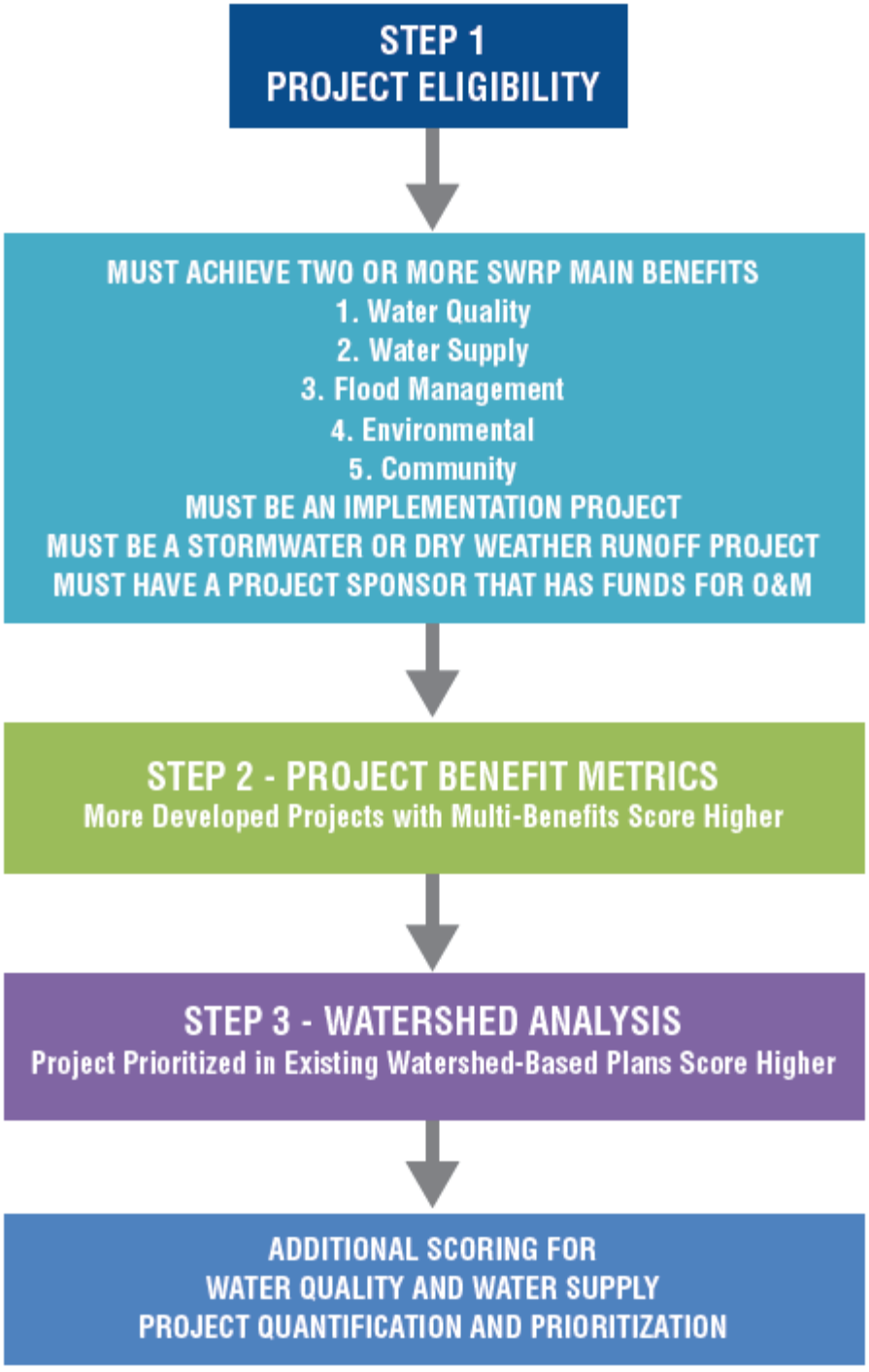

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Figure 5-6
Project Prioritization Process

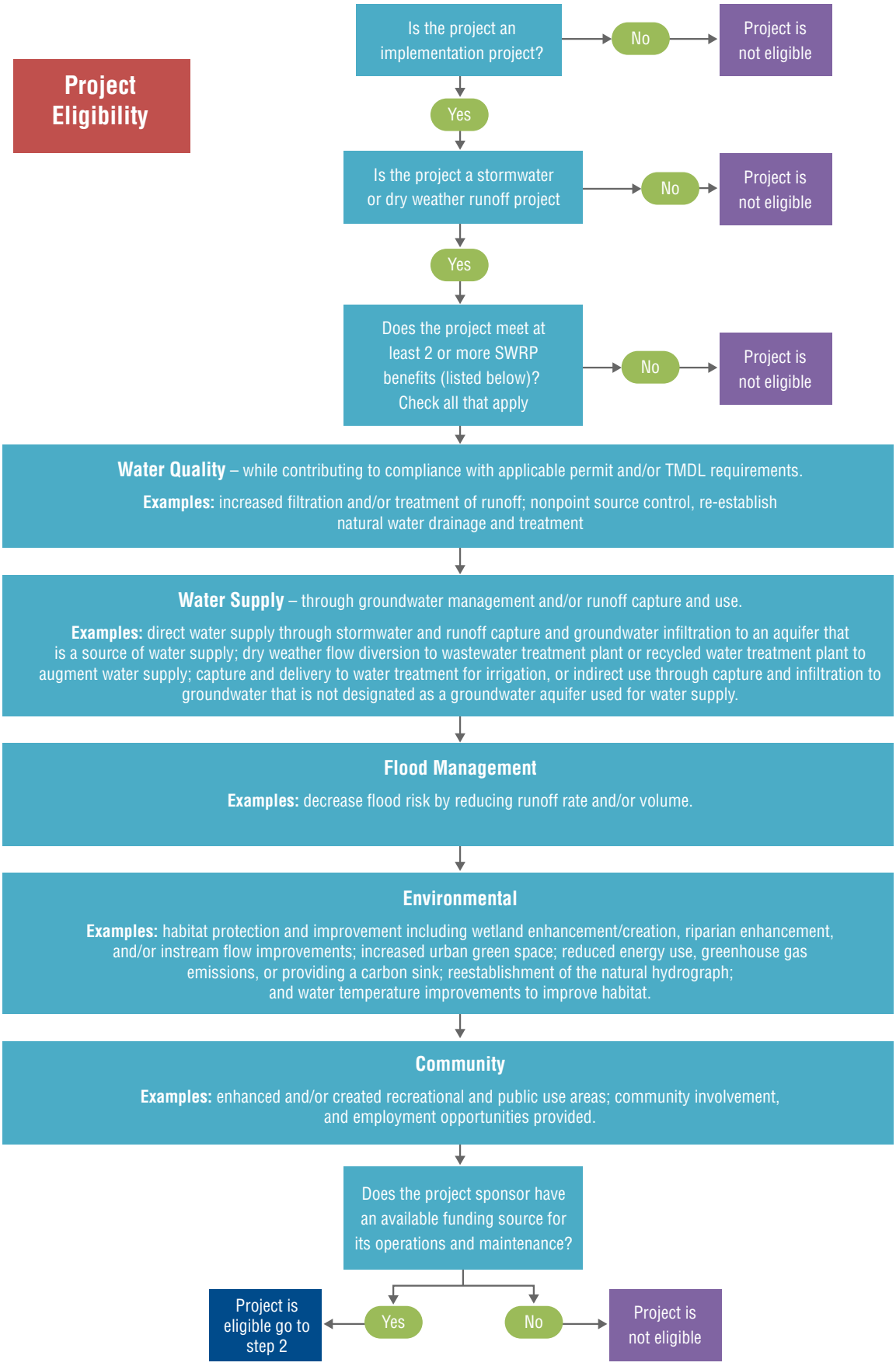

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Figure 5-7
Project Eligibility Flow Chart

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. An excel-based calculator has been developed to assist project sponsors with calculating some of their water supply, flood management, and environmental benefits. This calculator is available on the San Diego IRWM website here: http://www.sdirwmp.org/2017-swrp.

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

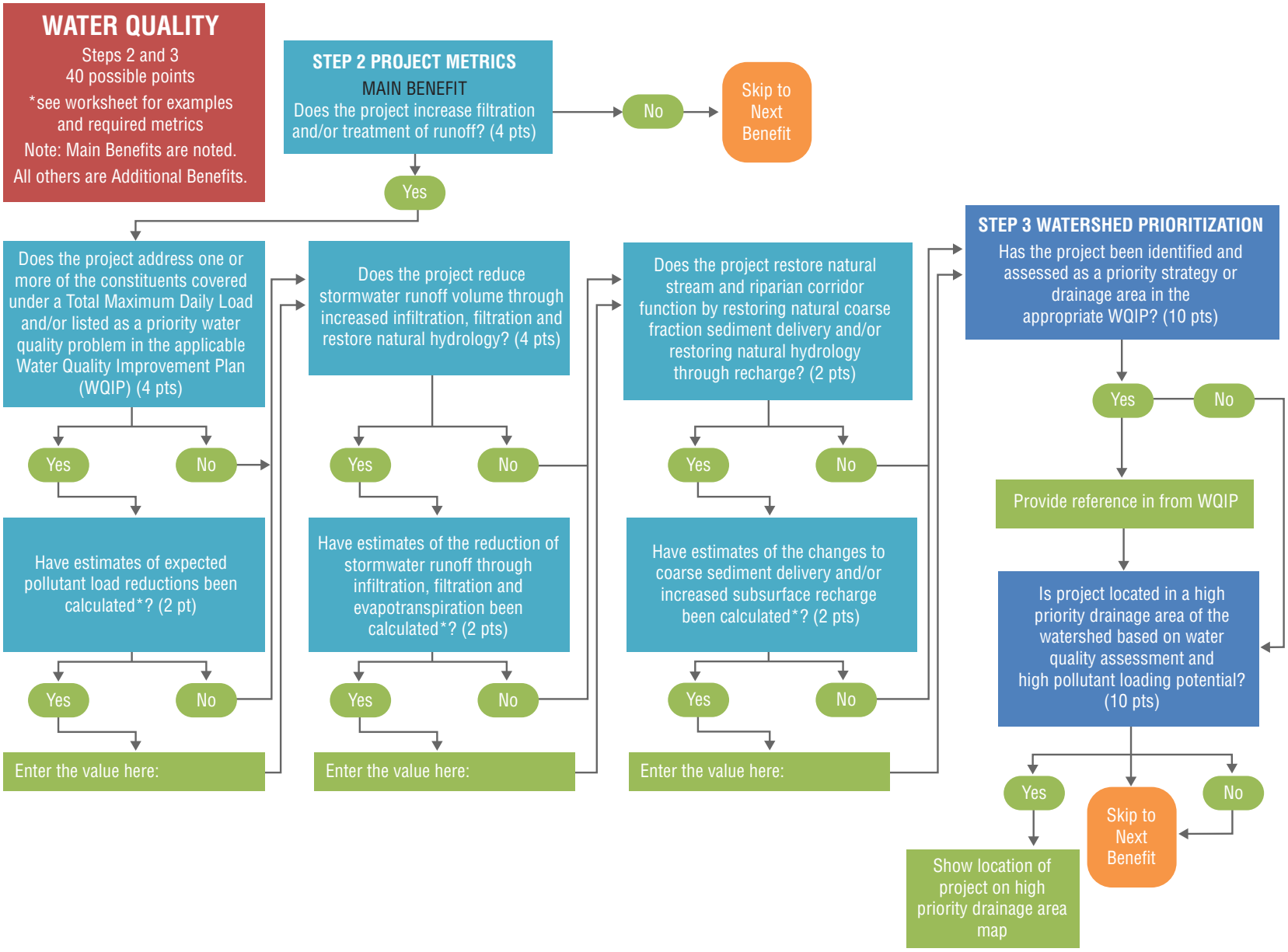
weather flows. Projects that achieve water supply benefits can be assigned bonus points above the 20 points for project benefit metrics (Step 2) by addressing more than one type of beneficial use of captured storm water and dry weather flows. For example, a project will receive bonus points when it captures 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 storm water runoff, and restoring natural sediment transport by reducing storm water 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. Storm water 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.



SOURCE: ESA

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Figure 5-8

Water Quality Benefit Flow Chart

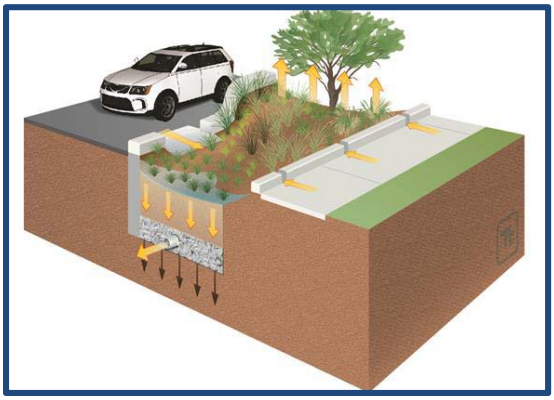
The project would receive a total of 14 points under Project Metrics (Step 2), as it increases filtration and infiltration to remove pollutants (4 points), including the high priority water quality condition of excess sediment to the lagoon under the Sediment TMDL (4 points); restores the natural hydrology by reducing storm water 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, storm water 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. Storm water 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

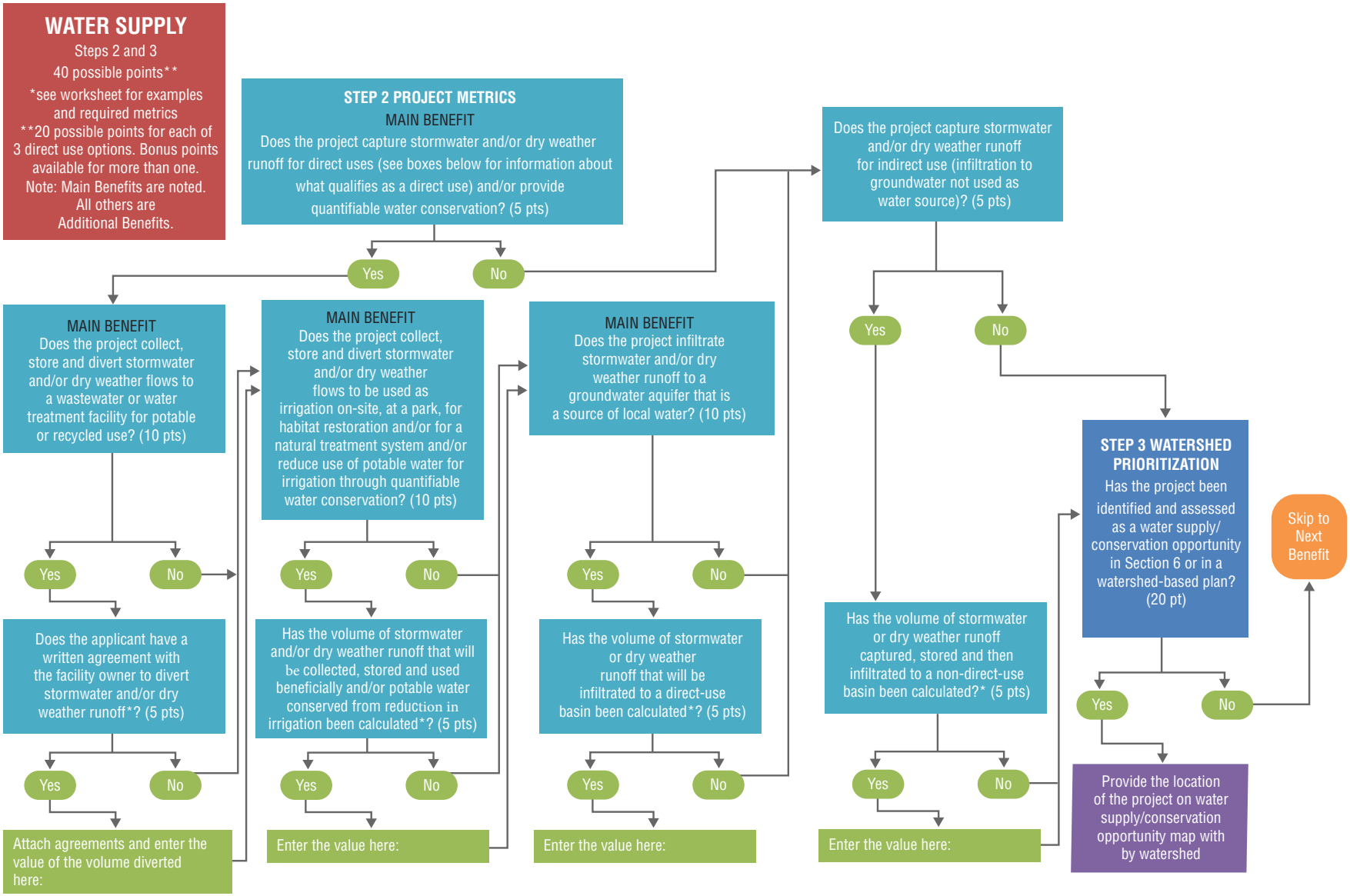
The programmatic project increases filtration and infiltration to remove pollutants (4 points), including the high priority water quality condition, FIB, under the Bacteria TMDL (4 points); restores the natural hydrology by reducing storm water runoff peak flows and volume through infiltration, filtration, 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, storm water 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 storm water 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 storm water 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



SOURCE: ESA

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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.

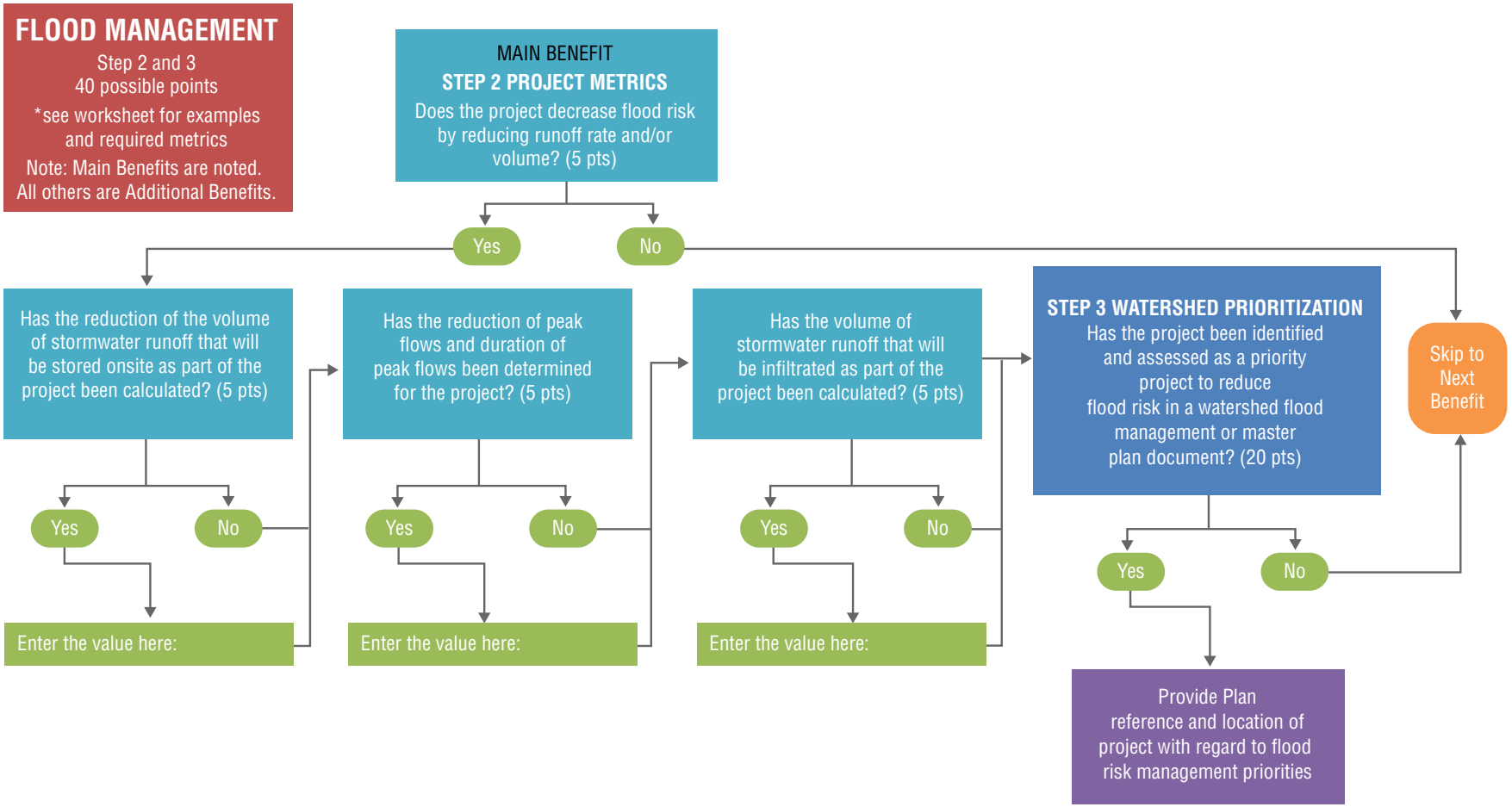

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Figure 5-10

Flood Management Benefit Flow Chart

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:

Flood Control Retention Basin Example Project

- 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.

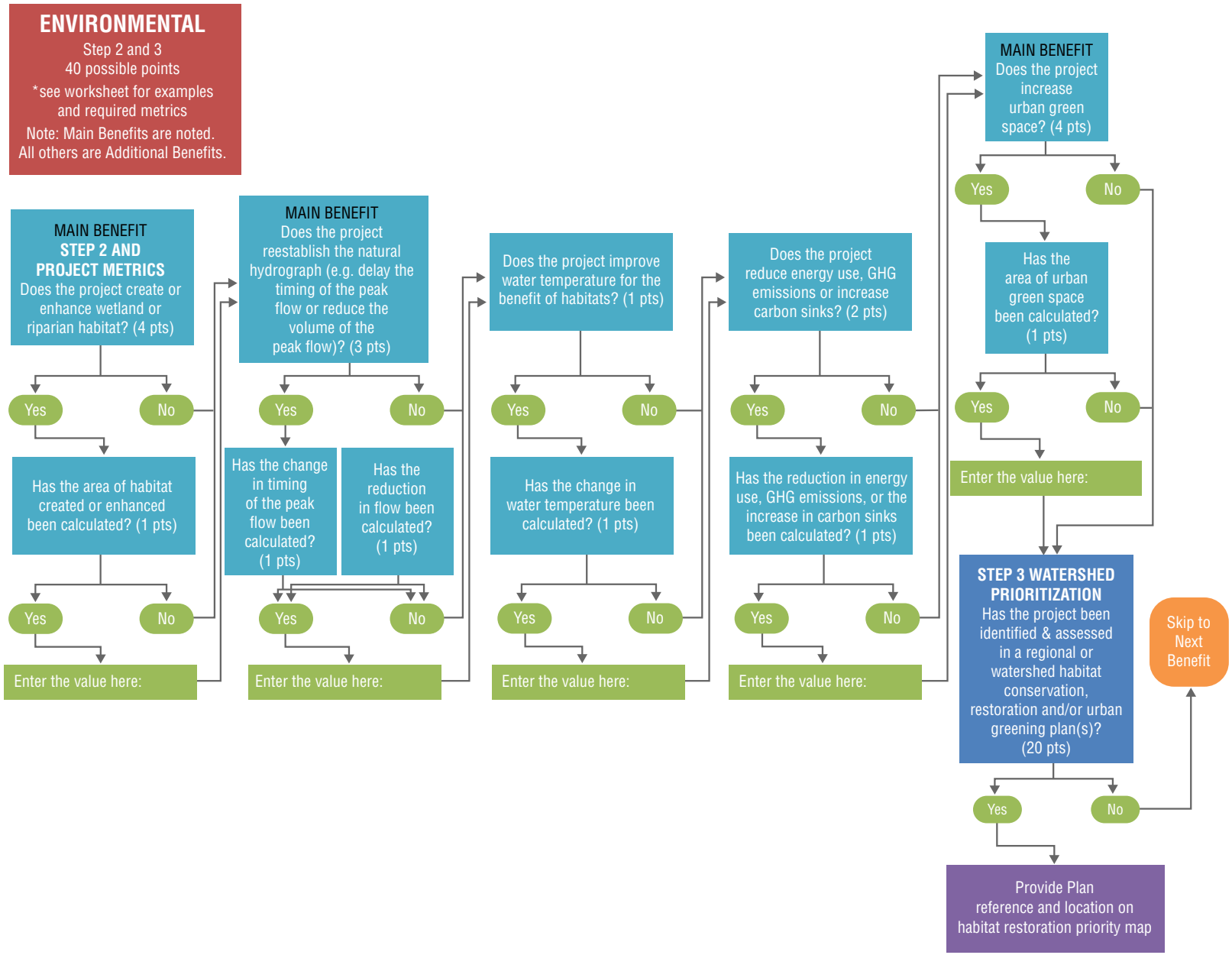

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Figure 5-11
Environmental Benefit Flow Chart

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

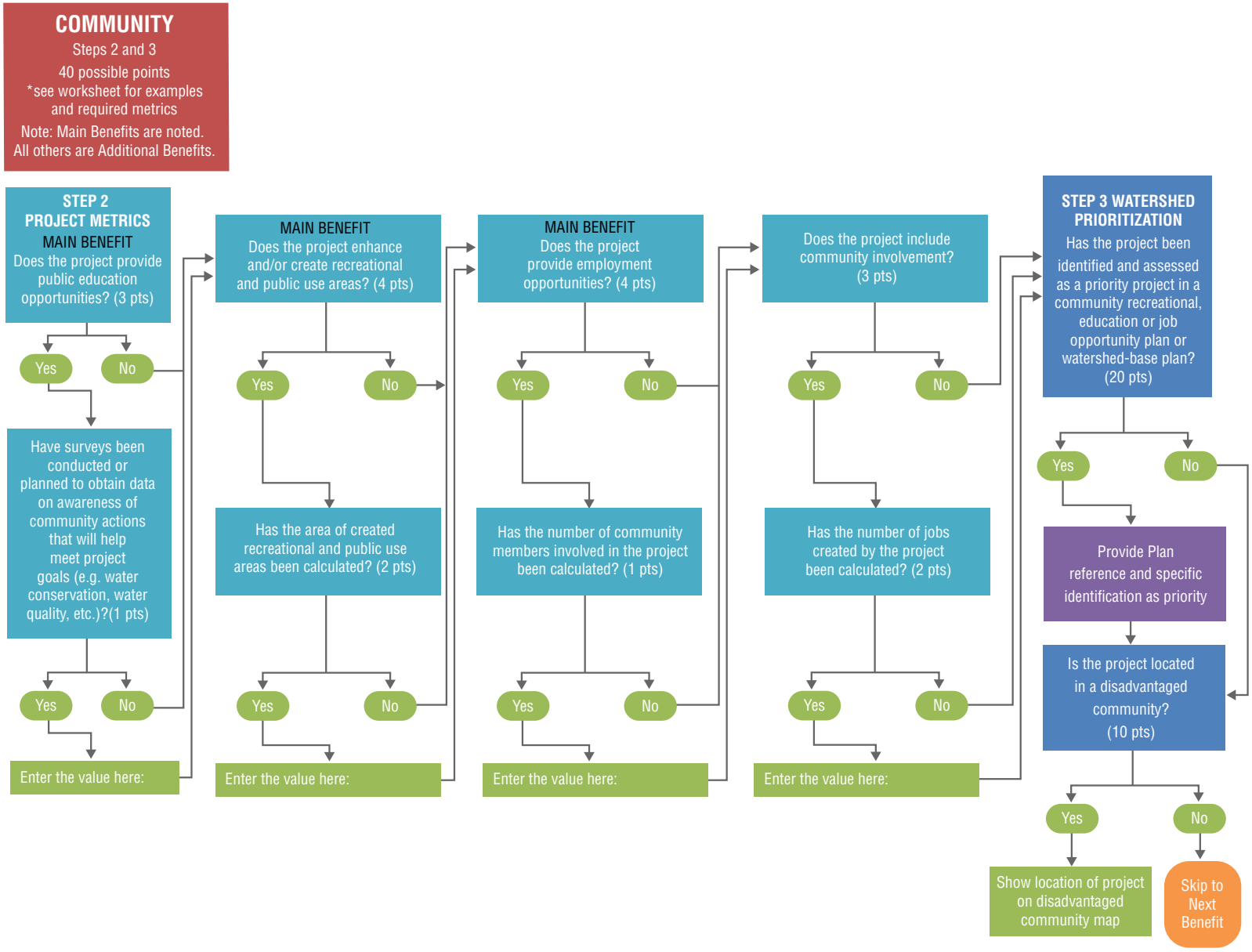
5.4.2.5 Community

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

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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. Storm water 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 storm water 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 storm water 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 storm water 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 storm water 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 storm water capture and use is to maximize the quantity of storm water 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 storm water 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. The quantification ranking using the criteria and color score is 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 chapter.

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.