SEPTEMBER 2017

MARIN COUNTY STORMWATER POLLUTION PREVENTION PROGRAM

Storm Water Resource Plan Functionally Equivalent Document

prepared by

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engineers | scientists | innovators

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List of Acronyms

ASBS	Area of Biological Significance
BASMAA	Bay Area Stormwater Management Agencies Association
BCPUD	Bolinas Community Public Utility District
BMP	Best Management Practice
CAC	Citizen Advisory Committee
CIP	Capital Improvement Project
COW	Conserving Our Watersheds
DACs	Disadvantaged Communities
EMC	Event Mean Concentration
GIS	Geographic Information System
ICWMP	Integrated Coastal Watershed Management Plan
LGVSD	Las Gallinas Valley Sanitary District
LID	Low Impact Development
MCSTOPPP	Marin County Stormwater Pollution Prevention Program
MMWD	Marin Municipal Water District
MRCD	Marin Resource Conservation District
MS4	Municipal Separate Storm Sewer System
NCEI	National Center for Environmental Information
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NWPRR	Northwest Pacific Railroad
PAHs	Polycyclic Aromatic Hydrocarbons
ROW	Right-of-Way
SFRWQCB	San Francisco Bay Regional Water Quality Control Board
SWRCB	State Water Resources Control Board
SWRP	Storm Water Resource Plan
TBWC	Tomales Bay Watershed Council
TMDL	Total Maximum Daily Load
TSS	Total Suspended Sediment
URL	Uniform Resource Locators
WLA	Waste Load Allocation

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1. Introduction

Pursuant to Senate Bill 985 (SB 985), which amended the Stormwater Resource Planning Act, an agency must have a Storm Water Resource Plan (SWRP) in order to receive grant funds[1] for stormwater and dry weather runoff capture projects. The intent of SB 985 is to encourage the use of stormwater and dry weather runoff as a resource to improve water quality, reduce localized flooding, and increase water supplies for beneficial uses and the environment.[2]

The SWRP must be consistent with the State Water Resources Control Board's (SWRCB's) Storm Water Resource Plan Guidelines (December 2015) (Guidelines) and may be developed as:

- A standalone document; or
- A collection of one or more existing documents, plans, and /or local ordinances (i.e., a functionally equivalent SWRP).

In either case, the document must meet all of the requirements as described within Appendix A of the Guidelines (Checklist and Self-Certification).

This document, a functionally equivalent SWRP (herein called SWRP), has been prepared for the Marin County Flood Control and Water Conservation District and the Marin County Stormwater Pollution Prevention Program (MCSTOPPP) (collectively, "Marin County") with the objective of identifying and prioritizing projects within the MCSTOPPP agency's jurisdictions that are designed to capture, treat and increase infiltration capacity, and/or use stormwater in ways that provide multiple benefits. This document was prepared consistent with the SB 985 requirements and, as referenced in **Appendix A**, demonstrates that the collection of existing planning documents, as summarized within this document, meets the requirements of a functionally equivalent SWRP. This document relies on existing regional and local plans, such as the Bay Area Integrated Regional Water Management Plan (IRWMP) and watershed management plans. **Appendix B** lists the references used to prepare this SWRP and provides the uniform resource locators (URL) to enable online access to each reference.

1.1 ORGANIZATION OF REPORT

This SWRP is comprised of the following sections[3]:

- Section 2 - Organization, Coordination, Collaboration

  This section describes the processes associated with the SWRP development, including stakeholder/public participation outreach efforts; decisions that must be made at the local, state or federal level to implement the projects identified in this SWRP; stormwater and dry weather runoff management objectives; and the relationship of this SWRP to other plans.

[1] This applies to bond acts approved by voters after January 1, 2014.
[2] http://www.waterboards.ca.gov/water_issues/programs/grants_loans/swgp/prop1/, visited June 8, 2017.
[3] The authors of this report wish to acknowledge the *Final San Diego Regional Storm Water Resource Plan*, March 2017, which provided a thoughtful and logical structure to the SWRP (http://www.sdirwmp.org/2017-swrp). It is this structure upon which the Marin County SWRP was based.

- Section 3 - Watershed Identification

  This section describes the watershed and sub-watershed delineations within Marin County as well as the internal boundaries within each of the watersheds, the water quality priorities, and the general quality of surface and groundwater resources.

- Section 4 - Water Quality Compliance

  This section identifies how the Marin County SWRP addresses compliance with applicable permits and plans and includes a discussion of pollutant-generating activities.

- Section 5 - Quantitative Methods and Identification and Prioritization of Projects

  This section defines the methodology used to identify and prioritize potential multi-benefit projects in Marin County and presents the highest-priority projects that were selected for implementation.

- Section 6 - Implementation Strategy and Schedule

  This section describes the implementation strategy and schedule and includes a discussion of project resources, project design and implementation, and a schedule for initial public engagement and education.

- Section 7 - Education, Outreach, Participation

  This section describes education, outreach and public participation opportunities to engage the public throughout SWRP implementation.

2. Organization, Coordination, Collaboration (Guidelines Section VI.B)

2.1 STAKEHOLDER/PUBLIC PARTICIPATION AND OUTREACH EFFORTS

Regional and local public agencies led the effort to develop the Marin County SWRP. Community participation was encouraged and local agencies and nongovernmental organizations were consulted during the development of the Marin County SWRP.

Participants involved in the SWRP development included regional and local water management agencies and affected stakeholders, including watershed groups, local municipalities, regulatory agencies, public and private utilities, nongovernmental organizations, special interest groups, and the interested public. These groups were engaged in the meetings described in this section.

Input was solicited through a variety of outreach efforts that included the meetings and the MCSTOPPP website described in the following sections. To the extent that they are available, meeting agendas, summaries and sign-in sheets are included in **Appendix C**. As a part of the stakeholder participation and outreach effort, MCSTOPPP will coordinate with agencies and organizations, as needed, to ensure that the necessary authorities and mandates are in place to address the stormwater and dry weather runoff management objectives of the SWRP and priority projects.

2.1.1 MCSTOPPP Monthly Agency Staff Committee Meetings

The MCSTOPPP Agency Staff Committee (ASC) includes representatives from all MCSTOPPP agencies who meet monthly to discuss common issues and identify solutions. The meetings are advertised via email and on the MCSTOPPP website.[4]

The stakeholders who participate include the following:

Marin County Flood Control and Water Conservation District	City of Novato
Marin County Department of Public Works and Watershed Programs	Town of Ross
City of Belvedere	Town of San Anselmo
Town of Corte Madera	City of San Rafael
Town of Fairfax	City of Sausalito
City of Larkspur	Town of Tiburon
City of Mill Valley	

Meetings were held on the following dates to discuss the development of the Marin County SWRP:

- March 1, 2017
- June 7, 2017
- August 2, 2017

[4] http://www.marincounty.org/~/media/files/departments/pw/mcstoppp/municipalities_only/fy1617_mcstoppp_asc_meetings.pdf?la=en

During these meetings, the MCSTOPPP member agencies were provided with an overview as to the status of the development of the SWRP, and feedback/input was requested. Agency representatives provided feedback, such as comments on documents, mapping information, and projects that should be included for consideration/ranking within the SWRP.

2.1.2 North Bay Watershed Association Board of Directors Meetings

The North Bay Watershed Association (NBWA) is a group of 18 regional and local public agencies located throughout Marin, Sonoma, and Napa Counties. The NBWA brings together regulated North Bay public agencies to address issues of common interest that cross political boundaries and to promote stewardship of the North Bay watershed resources. NBWA Board of Directors' Meetings are held once a month and are open to the public. The meetings are advertised via email and on the NBWA website.[5]

The stakeholders who participate include the following:

Bel Marin Keys Community Services District	Napa County Flood Control and Water Conservation District
Central Marin Sanitation Agency	Napa Sanitation District
City of American Canyon	North Marin Water District
City of Novato	Novato Sanitary District
City of Petaluma	Ross Valley Sanitary District
City of San Rafael	Sonoma County Water Agency
City of Sonoma	Sonoma Valley County Sanitation District
County of Marin	City of Mill Valley
County of Sonoma	Sewerage Agency of Southern Marin
Las Gallinas Valley Sanitary District	The Bay Institute
Marin County Stormwater Pollution Prevention Program (MCSTOPPP)	Tomales Bay Watershed Council
Marin Municipal Water District	

A meeting was held on July 7, 2017 to discuss the development of the Marin County SWRP. During this meeting, the NBWA Board of Directors and participants were provided with an overview as to the status of the development of the SWRP and feedback/input was requested. Some project-specific questions by the attendees were addressed. The draft SWRP will be distributed to this group during the public review process.

2.1.3 MCSTOPPP Citizen Advisory Committee (CAC) Meetings

The MCSTOPPP Citizens Advisory Committee (CAC) consists of seven Marin County residents and includes representatives from Marin businesses, Chamber of Commerce and environmental advocates. Since October 1997, the CAC has met quarterly to provide community representation and program review of MCSTOPPP. The meetings are advertised via email and participation on the CAC is solicited to interested parties through the MCSTOPPP website.

[5] http://nbwatershed.org/board_meeting/

The stakeholders who participate include the following:

Aaron Stessman, P.E., President, CSS Environmental Services	Contractors/Development Professionals
Ann Thomas, Friends of Corte Madera Creek Board Member	Environment
Chris Bartunek, E.I.T., CSW Stuber-Stroeh Engineering Group	Engineering
Betsy Bikle, M.L.A., President of Mill Valley StreamKeepers	Community
Liz Falejczyk, Environmental Services Supervisor for Veolia Water at Novato Sanitary District	Local Agency/Sanitary District
Judy Schriebman, Secretary, Gallinas Watershed Council	Environment
Katy Thompson, Vice President, Operations and Hard Goods, Sloat Garden Center	Small Business
David Franklin, Owner, EnviroTech NPDES Services	Construction Stormwater

A meeting was held on August 7, 2017 to discuss the development of the Marin County SWRP. During this meeting, the CAC and participants were provided with an overview as to the status of the development of the SWRP and feedback/input was requested. No questions were raised by the attendees. The draft SWRP will be distributed to this group during the public review process.

2.1.4 MCSTOPPP Website

The MCSTOPPP has a dedicated website that provides a wide range of information to the public about the stormwater program as well as other efforts that are underway, such as the SWRP.[6] The Draft SWRP was posted on the MCSTOPPP website to solicit public comments on August 25, 2017 through September 15, 2017.

A summary of comments received from the public, including who commented, will be posted to the website once comments are received.

2.2 REQUIRED DECISIONS THAT MUST BE MADE BY LOCAL, STATE OR FEDERAL AGENCIES

The Marin County SWRP will be coordinated and implemented within the existing governance framework of MCSTOPPP. It is not anticipated at this time that an altered governance structure will be necessary.

Decisions will be required by local, state and/or federal regulatory agencies for SWRP project selection and implementation. The types of decisions include:

- Project Prioritization – The MCSTOPPP member agencies will continue to coordinate to identify, prioritize, and select priority projects for implementation
- Permitting and Environmental Processes – Once a project is selected, the MCSTOPPP member agencies will work with the California Department of Fish and Wildlife, the San

[6] "Marin County Storm Water Resource Plan" tab; http://www.marincounty.org/depts/pw/divisions/mcstoppp/municipalities-only

Francisco Bay Regional Water Board, U.S. Fish & Wildlife, and/or the U.S. Army Corps of Engineers to obtain the necessary permits and approvals.

- Funding – The MCSTOPPP member agencies will coordinate to submit grant applications, as needed, to obtain funding for high priority projects. This will involve support/approvals from the San Francisco Bay Regional Water Board, State Water Resources Control Board, and/or the California Department of Water Resources in order to obtain grant funding. In addition, the local city or town will need to obtain approvals for any grant matches/local financial requirements.

Monitoring and visualization requirements will be project-specific. The project applicant will be responsible for fulfilling monitoring and visualization requirements contained in the grant agreement and will coordinate efforts so that monitoring programs already underway will not be duplicated. In addition, monitoring data will be integrated with datasets from other (i.e., regional) programs.

2.3 STORMWATER AND DRY WEATHER RUNOFF MANAGEMENT OBJECTIVES

Extensive coordination among stakeholder agencies and other organizations was essential for the development of the Marin County SWRP. Key stakeholders and interested parties were provided opportunities to participate and implement their own authorities and mandates to address the stormwater and dry weather runoff management objectives that are required for the SWRP. Additional details, including a list of agencies and organizations (including non-profit organizations) invited to participate in SWRP development, are provided in section 2.1.

2.4 RELATIONSHIPS TO OTHER PLANS

2.4.1 San Francisco Bay Area Integrated Regional Water Management Plan

The San Francisco Bay Area Integrated Regional Water Management Plan (IRWMP) outlines the Region's water resources management needs and objectives and presents innovative strategies and actions to help achieve the objectives. The IRWMP identifies four sub-regions East, West, South, and North. The MCSTOPPP agencies are within the North sub-region, which also includes Sonoma County, Napa County, and Solano County. The IRWMP has a Coordinating Committee that serves as the governing body for the Plan, providing oversight of the process, guiding development, and supporting implementation. The IRWMP has a wide range of stakeholders including water supply, water quality, wastewater, stormwater, flood control, watershed, municipal, environmental, and regulatory groups. The MCSTOPPP member agencies will coordinate with the San Francisco Bay Area IRWMP group as needed in order to ensure that the SWRP and IRWMP are consistent and complimentary (also see Section 2.1).

2.4.2 Other Plans

As a part of the development of the Marin County SWRP, the member agencies reviewed other, related plans, work efforts, ordinances, and programs to ensure that the SWRP is consistent and aggregates them into one planning document. Such documents include, but are not limited to, Marin County flood protection and watershed programs, the 2015 Urban Water Management Plan, the North Bay Watershed Association, the Tomales Bay Integrated Coastal Watershed Management Plan (ICWMP), and the Bay Area Integrated Regional Watershed Management Plan.

The SWRP consolidates these integrated local and regional plans with General Plans for area cities and towns, as well as numerous specific plans for stormwater treatment and control, habitat enhancement, water quality improvements, flood control, adaptation to sea level rise, and other projects, all of which are well-suited for a multi-benefit approach. A complete list of the related watershed and planning documents, programs, and ordinances is provided in **Appendix B**.

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3. Watershed Identification (Guidelines Section VI.A)

3.1 WATERSHEDS AND SUBWATERSHEDS DESCRIPTIONS

Marin County encompasses 520 square miles of land, with the majority of the development along the eastern corridor of the County. The County is bordered by the Pacific Ocean on the west and San Francisco Bay on the east. More than two-thirds of the County has been preserved as park lands by Federal, State, and local governments and can be described as three corridors: city center, inland rural, and coastal recreational. The coastal recreational corridor and most of the inland rural corridor lands drain to the Pacific Ocean. The city center corridor lands drain to San Pablo Bay, San Rafael Bay, Richardson Bay, and San Francisco Bay.[7] Marin County watersheds addressed by this SWRP are described in **Table 3-1** and illustrated in **Figure 3-1** and **Figure 3-2.**

Table 3-1. Marin County Watersheds[8]

Watershed	Drains to:	Cities, Towns, Communities in Watershed
Gallinas Creek	San Pablo Bay	San Rafael, Los Ranchitos, Santa Venetia
Miller Creek	San Pablo Bay	San Rafael, Lucas Valley, Marinwood, St. Vincent's
Novato Creek	San Pablo Bay	Novato, Black Point, Green Point, Bel Marin Keys, Indian Valley, Loma Verde, North Novato
Richardson Bay - including: • Watersheds draining to San Pablo Bay from eastern Tiburon • Arroyo Corte Madera del Presidio Watershed • Other sub watersheds within the Richardson Bay Watershed	Richardson Bay	Belvedere, Tiburon, Mill Valley, Sausalito, Almonte, Alto, Homestead Valley, Marin City, Muir Woods Park, Strawberry, Tamalpais Valley
Ross Valley	San Francisco Bay	Corte Madera, Fairfax, Larkspur, Ross, San Anselmo, Greenbrae, Greenbrae Boardwalk, Unincorporated Fairfax, Kentfield, San Quentin, Sleepy Hollow
San Rafael	San Rafael Bay	San Rafael, Bayside Acres, California Park, Country Club, Point San Pedro
Southern Coastal Creeks (Alder Creek)	Pacific Ocean	Bolinas
Stinson Beach	Bolinas Lagoon	Stinson Beach
Lagunitas Creek	Tomales Bay	Forest Knolls, Inverness Park, Lagunitas, Nicasio, Olema, Point Reyes Station, San Geronimo, Tocaloma, Woodacre

[7] Appendix B, Reference ID 1a. Page 2
[8] Appendix B, Reference ID 1c. Map

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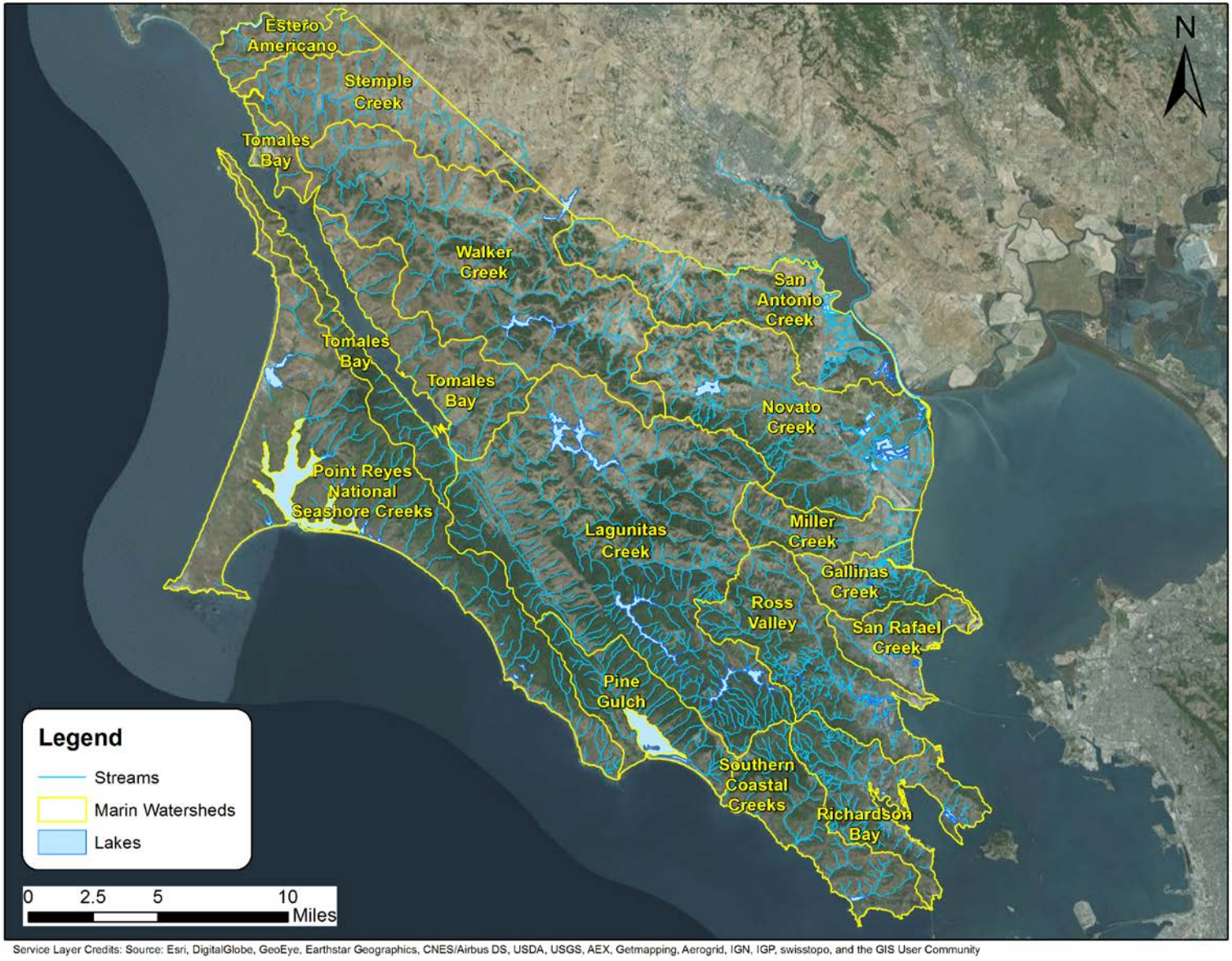

Figure 3-1. Marin County Watersheds and Streams

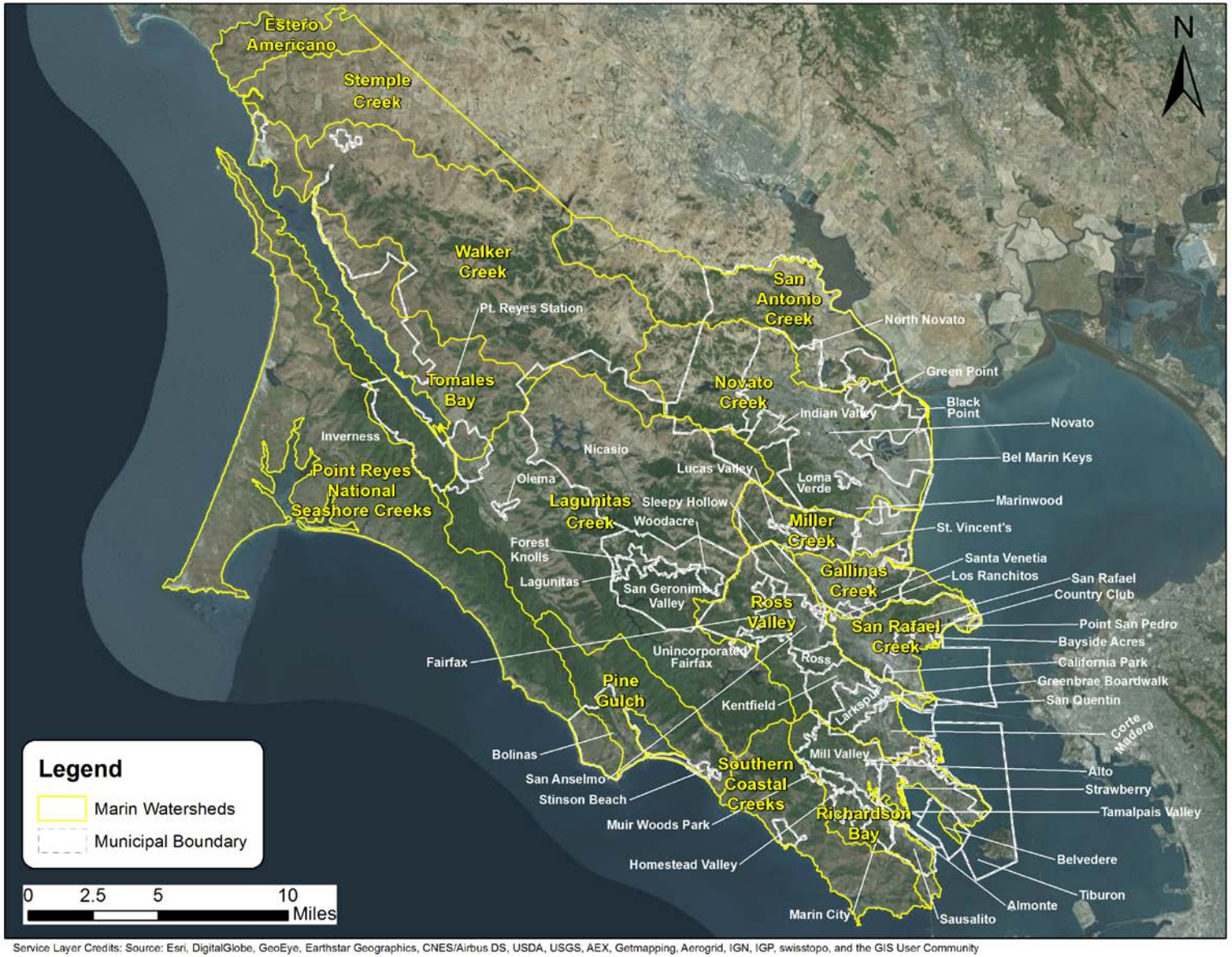

Figure 3-2. Marin County Cities, Towns and Communities

The Marin County Board of Supervisors authorized the Marin County Department of Public Works to implement a countywide Watershed Program on May 13, 2008. The purpose of the Watershed Program is to provide a framework for integrating flood protection and environmental restoration with public and private partners to protect and enhance Marin County's watersheds. The program uses a watershed approach, which emphasizes viewing the watershed as a system with multi-jurisdictional collaboration.[9] Program participants recognized the value of implementing a multiple-benefit stormwater management approach prior to 2008, and since that time, a significant level of effort has gone into preparing Watershed Programs for individual watersheds that incorporate this approach.

Watershed planning objectives include reduced flooding, protecting and enhancing creek and wetland habitat and water quality, and identifying multiple-benefit projects that will improve the County's ability to compete for state and federal funding[10]. Program deliverables to date include scientific and technical studies, a suite of project alternatives for potential implementation, mapping and database development, and community outreach. Since the MCSTOPPP member agencies have been utilizing a watershed approach with defined watersheds and sub-watersheds, it was determined that these same delineations would be used for the Marin County SWRP and in defining multi-benefit projects for the purposes of the SWRP.

A general description of each watershed addressed by this SWRP, including a description of water quality and watershed processes, is provided in the following sections. The internal boundaries of municipalities, service areas for individual water, wastewater, and land use agencies and identification of surface water resources for each included watershed is available for viewing and download through a publicly-accessible Geographic Information System (GIS) portal at http://www.marinmap.org/. Groundwater resources for east Marin serve primarily to sustain environmental uses such as sustaining stream flow. Other than some private wells in rural areas, groundwater is not used as a municipal water supply resource.

3.1.1 Gallinas Creek

The Gallinas Creek watershed (**Figure 3-3)** is located in eastern Marin County between the Miller Creek and San Rafael watersheds, and its two main drainages encompass 5.6 square miles/3500 acres. The North Fork is the larger of the two drainages and flows from the Terra Linda ridgeline through the incorporated areas of Santa Margarita Valley and Terra Linda to its confluence with South Gallinas Slough near McInnis Park. South Gallinas Slough is fed by several small tributaries that originate in the San Rafael Hills and San Pedro Ridge and flow through the highly urbanized unincorporated communities of Los Ranchitos, San Rafael Meadows, and Santa Venetia[11]. The watershed is wider, shallower, and shorter (approximately 5 miles from upper Gallinas to mouth) than many other eastern-draining watersheds in Marin County.

[9] Appendix B, Reference ID 18, page 1
[10] Appendix B, Reference ID 17, website
[11] Appendix B, Reference ID 18, page 6

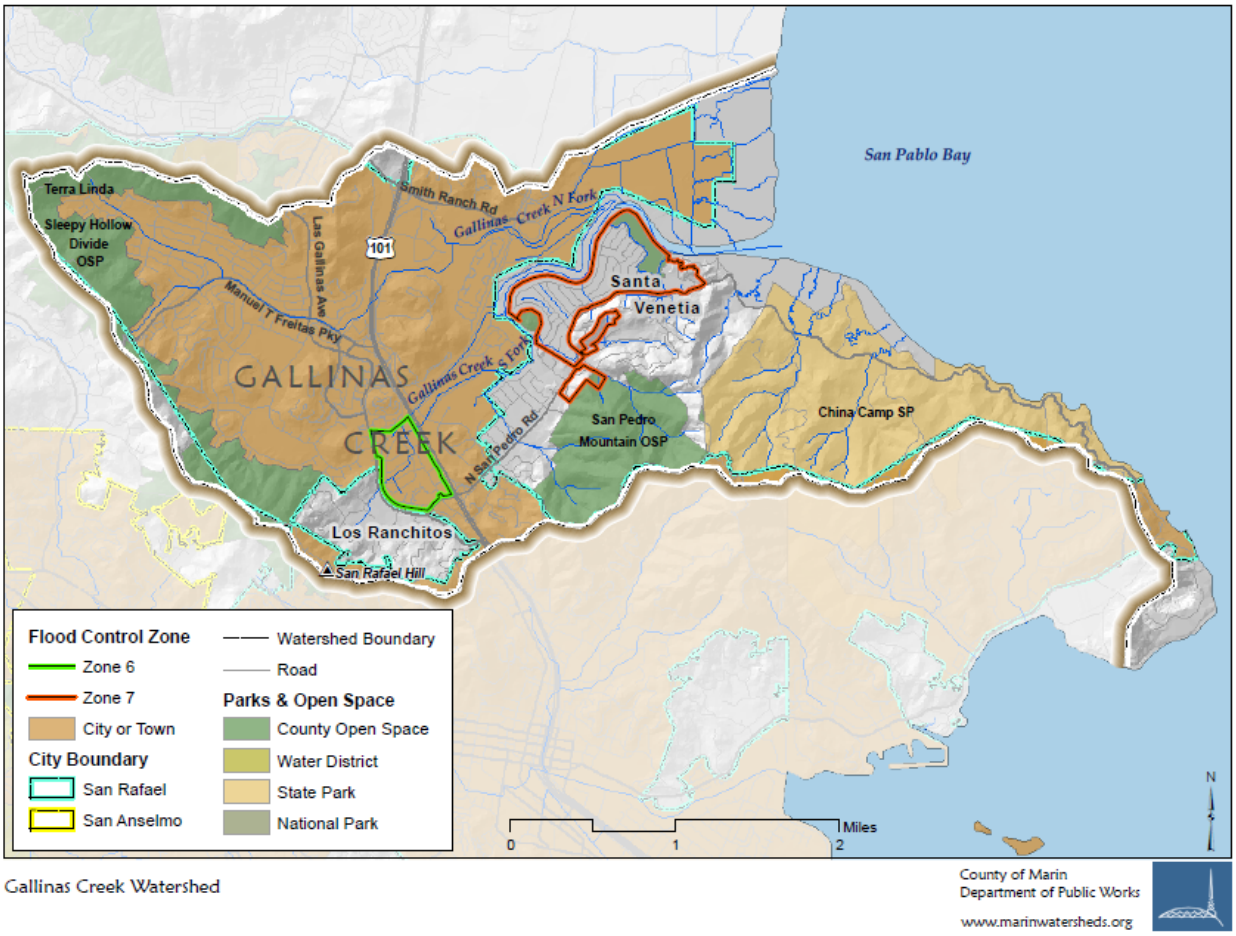

Figure 3-3. Gallinas Creek Watershed

Marin Municipal Water District (MMWD) supplies potable water to the watershed, with the majority of the MMWD's supply originating as rainfall collected from the Mt. Tamalpais watershed into 7 reservoirs. MMWD supplements this primary water supply with water purchased from the Sonoma County Water Agency. The estimated volume of potable water supplied to specific watersheds is not immediately available[12]. The Las Gallinas Valley Sanitary District (LGVSD) provides wastewater treatment services for the watershed.

The Gallinas Watershed Program is a collaborative effort of Flood Control Zone No. 6, Flood Control Zone No. 7, County Service Area No. 6, Las Gallinas Valley Sanitary District, and the City of San Rafael, partnering with the County Department of Public Works and Marin County Parks. The Program's objective is to identify and describe the recommended watershed improvement measures and provide details on project feasibility, sequencing, preliminary costs and funding strategies.

[12] Appendix B, Reference ID 4, page 23, page 6-3

3.1.1.1 Water Quality[13]

Diazinon

Gallinas Creek is one of the urban creeks included on the 303(d) list of impaired waterbodies due to toxicity attributed to diazinon. This listing was made by USEPA for the 1998 303(d) list. In 2006, diazinon was moved by USEPA from Category 5 (constituents requiring development of a TMDL) to Category 4a (constituents being addressed by a USEPA approved TMDL).

The Diazinon and Pesticide-Related Toxicity in Urban Creeks TMDL became effective in January 2007[14]. TMDL implementation actions to date have focused on comprehensive public education and outreach activities designed to reduce pesticide use; attainment of the TMDL Waste Load Allocations (WLAs) is achieved through implementation of these actions[15]. Although water quality monitoring is conducted for the TMDL[16], there are no monitoring stations located on Gallinas Creek[17].

3.1.1.2 Watershed Processes

Prior to urbanization and the tidal wetland reclamation practices of the early 1900s, Gallinas Creek was an extensive tidal slough system fed by intermittent streams originating above Santa Margarita Valley and the headlands surrounding South Gallinas slough. By the 1940s the main tidal sloughs were leveed and the smaller channels and interior tidal marshes drained and filled for agricultural land (Kamman Hydrology and Engineering, Inc. 2004) creating the channel configuration present today.

During the construction of the Terra Linda housing development in the 1950s Gallinas Creek and its tributaries in Santa Margarita Valley were channelized along Del Ganado Road and Freitas Parkway, following the historic creek alignment. Tributaries to South Gallinas Slough were also channelized in the 1950s and 60s during the construction of Los Ranchitos and San Rafael Meadows. From aerial photos, it appears that channels in the upper watershed were incised and lacked riparian vegetation; characteristics of a heavily grazed watershed (Kamman Hydrology and Engineering, Inc. 2004).

Today the main Gallinas Creek channel in Santa Margarita Valley is a concrete-lined, trapezoidal flood control channel fed by storm drain outlets along its length. Flow in the Gallinas Creek has become perennial due to residential irrigation runoff and the non-permeable concrete channel bed.

Although the creeks that drain the southern portion of the Gallinas watershed have not been turned into trapezoidal concrete flood channels, they have been realigned and their banks heavily armored[18].

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[13] All Water Quality sections identify pollutant/water body combinations that are listed due to identified sources of urban runoff.
[14] http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/TMDLs/urbancrksdiazinontmdl.shtml
[15] Appendix B, Reference ID 6, pages 23-24
[16] Appendix B, Reference ID 9, page 2
[17] Appendix B, Reference ID 7, pages 6-7
[18] Appendix B, Reference ID 17, Watershed Today section

3.1.2 Miller Creek

The Miller Creek watershed (**Figure 3-4**) covers 12 square miles with 30 miles of channels[19]. The watershed can be divided into three sections based on general hydrology and topography: the baylands, the valley, and the upper watershed. The creek itself traverses all of these landscapes. Miller Creek's drainage network consists of a mainstem channel and all of its tributaries. Some of the channels are perennial, while others are intermittent or ephemeral. Ephemeral channels are mostly restricted to the headwater reaches of the drainage network. The mainstem of Miller Creek is mostly perennial and supports steelhead trout in a viable fishery[20]. Miller Creek flows eastward from open space and private ranches on Big Rock Ridge through multiple unincorporated housing developments, including Miller Creek Estates and Marinwood, until it passes under Highway 101 and enters the baylands at the Northwest Pacific Railroad (NWPRR) Bridge[21]. The lower Miller Creek watershed is part of the Gallinas Watershed Program through the McInnis Marsh restoration project[22].

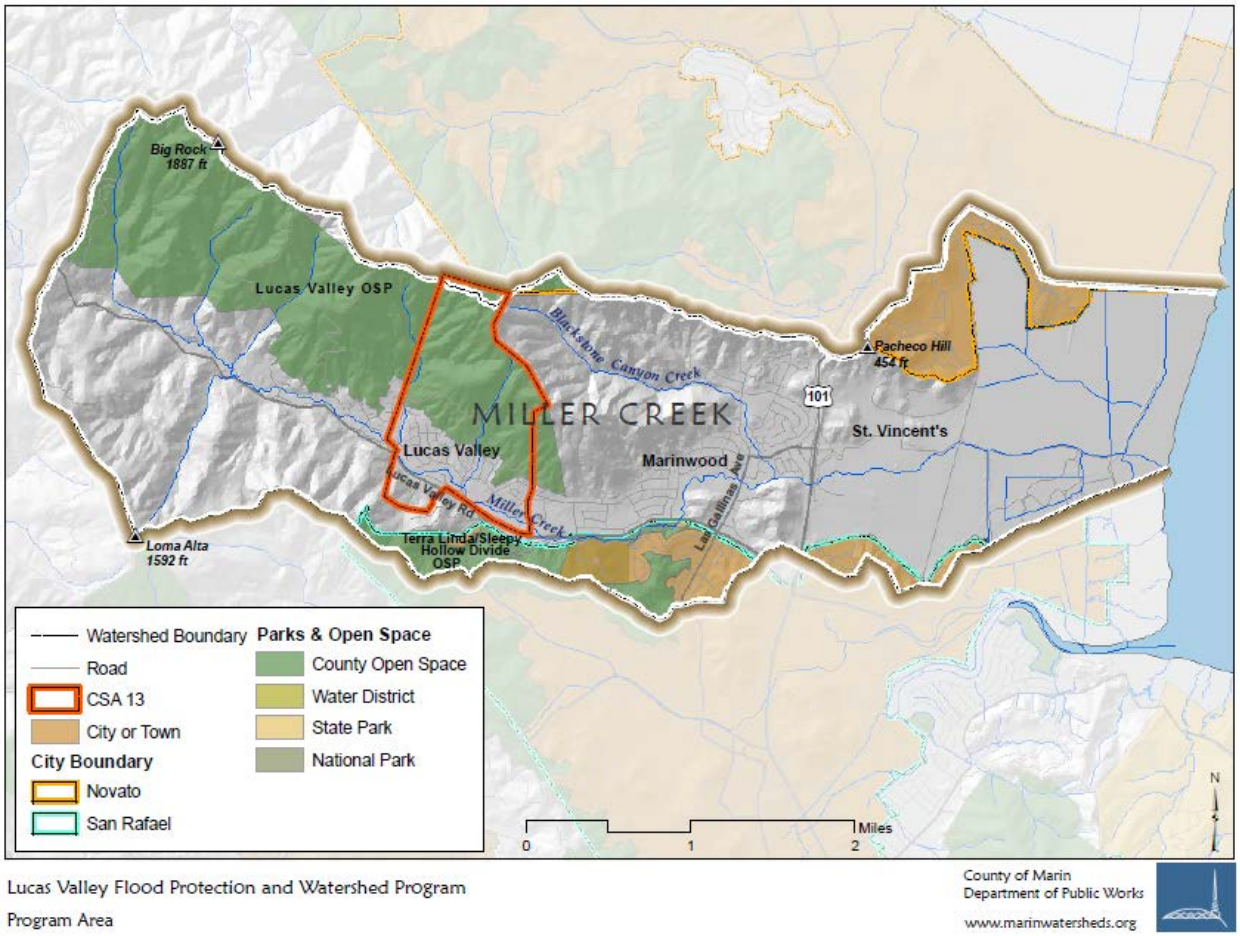

Figure 3-4. Miller Creek Watershed

[19] Appendix B, Reference ID 28, website
[20] Appendix B, Reference ID 30, website
[21] Appendix B, Reference ID 28, website
[22] Appendix B, Reference ID 28, website

MMWD supplies potable water to the watershed, with the majority of the MMWD's supply originating as rainfall collected from the Mt. Tamalpais watershed into 7 reservoirs. MMWD supplements this primary water supply with water purchased from the Sonoma County Water Agency. The estimated volume of potable water supplied to specific watersheds is not immediately available. Wastewater from the Miller Creek watershed is treated at the LGVSD treatment facility.

3.1.2.1 Water Quality

Diazinon

Miller Creek is one of the urban creeks included on the 303(d) list of impaired waterbodies due to toxicity attributed to diazinon. This listing was made by USEPA for the 1998 303(d) list. In 2006, diazinon was moved by USEPA from Category 5 (constituents requiring development of a TMDL) to Category 4a (constituents being addressed by a USEPA approved TMDL).

The Diazinon and Pesticide-Related Toxicity in Urban Creeks TMDL became effective in January 2007[23]. TMDL implementation actions to date have focused on comprehensive public education and outreach activities designed to reduce pesticide use; attainment of the TMDL WLAs is achieved through implementation of these actions[24]. Although water quality monitoring is conducted for the TMDL[25], there are no monitoring stations located on Miller Creek[26].

Additional information on basic water quality parameters and the ecological health of surface water in the Miller Creek Watershed can be found in the report "Marin County Bioassessment Data Evaluation and Recommendations for Future Monitoring Data".[27] The report includes a discussion of data collected between 1999 and 2009.

3.1.2.2 Watershed Processes

Bank erosion in mainstem Miller Creek is widespread, as the channel is deeply incised in many places and in a widening phase. This erosion typically occurs on the outside of meander bends and is characterized by vertical banks with little to no riparian vegetation (H.T. Harvey and Associates 1992, PCI 2004). Often this bank erosion jeopardizes private property and structures.

Tributary channels have also undergone extensive downcutting and gully formation in response to the main channel incision. Headcut retreat is occurring in many steep, first order channels. Large volumes of sediment are delivered to the mainstem from tributary erosion and fine sediment aggradation reduces pool depths and degrades spawning gravels. The sediment produced by the upper watershed is deposited in the lower reaches of the system.

Historic grazing practices and recent mainstem channel incision has caused destabilization of tributary channels. In the uplands, first and second order channels are undergoing headcutting

[23] http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/TMDLs/urbancrksdiazinontmdl.shtml
[24] Appendix B, Reference ID 6, pages 23-24
[25] Appendix B, Reference ID 9, page 2
[26] Appendix B, Reference ID 7, pages 6-7

and gully development, delivering fine sediment to Miller Creek during storm events. Visual assessments of instream sediment deposits indicate that there may be a higher than normal amount of fine sediment in the system, which leads to degraded instream habitat for fish and other species[28].

3.1.3 Novato Creek

The Novato Creek watershed (**Figure 3-5**), located at the northwestern extent of San Pablo Bay, is the largest watershed in eastern Marin County. Its creeks flow eastward through oak and bay forests, grasslands, the City of Novato, and into San Pablo Bay near the mouth of the Petaluma River. The basin is 45 square miles and the main drainage in the watershed is Novato Creek; Novato Creek joined by six major tributaries along its 17-mile length: Leveroni, Bowman Canyon, Warner, Arroyo Avichi, Arroyo de San Jose, and Simmonds Slough. The town of Novato covers 49% of the watershed area and occupies former grassland, oak woodland, and savanna areas.

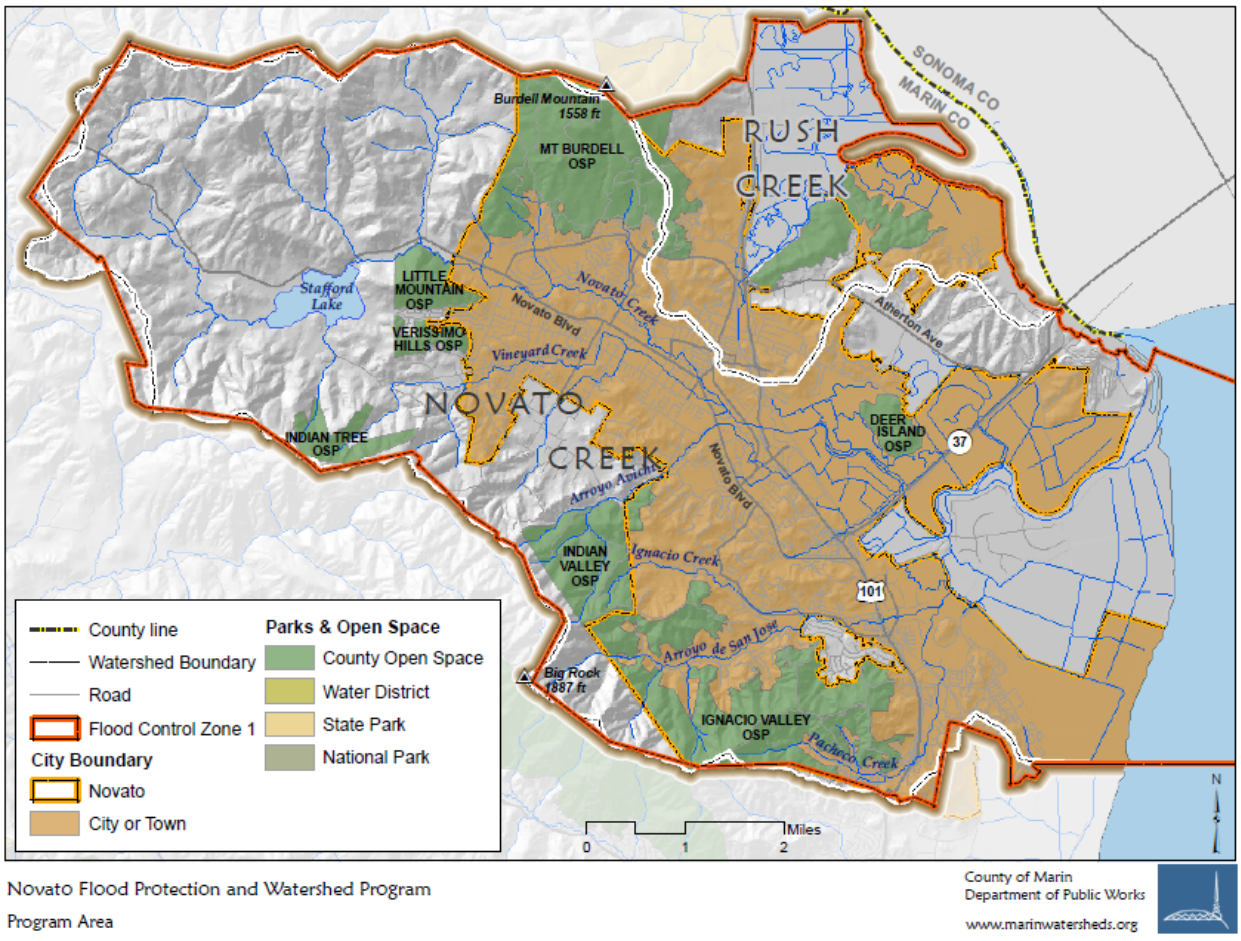

Figure 3-5. Novato Creek Watershed

[28] Appendix B, Reference ID 28, website

North Marin Water District (NMWD) provides potable water to the watershed, with 80% of the supply purchased from Sonoma County Water Agency, and 20% from Stafford Lake. NMWD produced 1,624 million gallons of potable water in FY 2016.[29] Wastewater from the Novato Creek watershed is treated at the Novato Sanitary District treatment facility.

The Novato Watershed Program is a partnership that includes Flood Control Zone 1, the City of Novato, North Marin Water District, and Novato Sanitary District. The Program's stated objective is to provide a system-wide analysis of flood protection options and identify specific opportunities to integrate flood protection goals with creek and wetland restoration, including evaluating alternatives that would reduce flood protection maintenance costs and impacts and be resilient to sea level rise[30].

3.1.3.1 Water Quality

Diazinon

Novato Creek is one of the urban creeks included on the 303(d) list of impaired waterbodies due to toxicity attributed to diazinon. This listing was made by USEPA for the 1998 303(d) list. In 2006, diazinon was moved by USEPA from Category 5 (constituents requiring development of a TMDL) to Category 4a (constituents being addressed by a USEPA approved TMDL).

The Diazinon and Pesticide-Related Toxicity in Urban Creeks TMDL became effective in January 2007[31]. TMDL implementation actions to date have focused on comprehensive public education and outreach activities designed to reduce pesticide use; attainment of the TMDL WLAs is achieved through implementation of these actions[32]. Three monitoring events were conducted in Year 1 (2015-2016) of the Diazinon and Pesticide-Related Toxicity TMDL Monitoring Program in Urban Creeks[33], with one of the monitoring stations located on Novato Creek at Lee Gerner Park. The Year 1 Monitoring Report provides a summary of data from all monitoring locations[34].

Additional information on basic water quality parameters and the ecological health for surface water in the Novato Creek Watershed can be found in the report "Marin County Bioassessment Data Evaluation and Recommendations for Future Monitoring Data".[35] The report includes a discussion of data collected between 1999 and 2009.

3.1.3.2 Watershed Processes

The Novato Creek watershed's channel network has been altered from its historic natural conditions. The channels today reflect those alterations and many of the channels are actively in transition to a more stable configuration. The majority of the channels are narrower than

[29] www.nmwd.com/services_novato.php, visited July 6, 2017.
[30] Appendix B, Reference ID 31
[31] http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/TMDLs/urbancrksdiazinontmdl.shtml
[32] Appendix B, Reference ID 6, pages 23-24
[33] Appendix B, Reference ID 9, page 2
[34] Appendix B, Reference ID 9, pages 15-19

expected for the watershed size and rainfall and urbanization has likely increased the timing and magnitude of peak runoff events such that more water flows to the creek at a quicker rate (Questa, 2007).

Extensive bank erosion indicates that the channels are in a widening phase. Sediment production in the watershed occurs due to upslope processes such as landslides and gully development, as well as channel bed incision and bank erosion.

The mainstem of Novato Creek and its major tributaries are all highly entrenched within the city limits and are constrained by development on the banks. Channels in the upper watershed are still incising and are expanding headward into hillside swales.

The stream and tide channels in the lower reaches of the watershed are managed for flood conveyance and navigation and no longer function optimally for sediment transport. Sediment aggradation is occurring in the lower reaches as a natural process to re-establish a natural channel configuration based on hydrology, slope, and sediment supply dynamics[36].

3.1.4 Richardson Bay

The Richardson Bay Watershed encompasses several sub-watersheds, including:

- Watersheds draining to San Pablo Bay from eastern Tiburon;
- Arroyo Corte Madera del Presidio Watershed; and
- Other sub watersheds within the Richardson Bay Watershed.

The communities of Mill Valley, Tiburon, Sausalito, Marin City, Tamalpais Valley, and Belvedere are linked together by the watershed lands draining to Richardson Bay, a shallow, protected, biologically-rich wildlife preserve **(Figure 3-6**). Mount Tamalpais, the highest point in Marin County, rises steeply above the Bay, and its surrounding ridges are protected as public open space and support a myriad of plant and wildlife communities[37].

[36] Appendix B, Reference ID 31, website

[37] Appendix B, Reference ID 39

Figure 3-6. Richardson Bay Watershed

MMWD supplies potable water to the watershed, with the majority of the MMWD's supply originating as rainfall collected from the Mt. Tamalpais watershed into 7 reservoirs. MMWD supplements this primary water supply with water purchased from the Sonoma County Water Agency. The estimated volume of potable water supplied to specific watersheds is not immediately available. Wastewater from the watershed is treated by the Sausalito-Marin City Sanitary District, the Sewerage Agency of Southern Marin, and Sanitary District No. 5 (Tiburon).

The watershed is managed under the Southern Marin Watershed Program, which is a collaborative effort of the City of Mill Valley, the County of Marin, and Flood Control Zones 3 and 4. The purpose of the Watershed Program is to provide a framework to integrate flood

protection and environmental restoration with public and private partners to protect and enhance Marin County's watersheds and to identify solutions that will enhance and protect the diverse habitat of the lands that drain into Richardson Bay.

3.1.4.1 Water Quality

Diazinon

Arroyo Corte Madera del Presidio and Coyote Creek are urban creeks included on the 303(d) list of impaired waterbodies due to toxicity attributed to diazinon. This listing was made by USEPA for the 1998 303(d) list. In 2006, diazinon was moved by USEPA from Category 5 (constituents requiring development of a TMDL) to Category 4a (constituents being addressed by a USEPA approved TMDL).

The Diazinon and Pesticide-Related Toxicity in Urban Creeks TMDL became effective in January 2007[38]. TMDL implementation actions to date have focused on comprehensive public education and outreach activities designed to reduce pesticide use. Attainment of the TMDL WLAs is achieved through implementation of these actions[39]. Three monitoring events were conducted in Year 1 (2015-2016) of the Diazinon and Pesticide-Related Toxicity TMDL Monitoring Program in Urban Creeks[40], with one of the monitoring stations located on Arroyo Corte Madera del Presidio. The Year 1 Monitoring Report provides a summary of data from all monitoring locations[41].

Coliform Bacteria

Richardson Bay is included on the 303(d) list of impaired waterbodies due to coliform bacteria (Pathogens). This listing is under USEPA Category 5 (constituents requiring development of a TMDL).

The Richardson Bay Pathogen TMDL became effective in November 2009.[42] Attainment of the WLA is demonstrated through specified implementation measures, such as public participation and outreach, pet waste management, strategies to detect and eliminate illicit discharges, reducing the frequency of sanitary sewer overflows, private lateral repair programs, and pollution prevention and good housekeeping, to name a few. Results are summarized in the Total Maximum Daily Load Implementation Status and Effectiveness Assessment Report (2015-2016)[43].

3.1.4.2 Watershed Processes

Prior to development, Southern Marin's flat lowlands flooded frequently. Much of the development in Southern Marin was built in flood-prone areas. Higher levels of imperviousness reduce infiltration and increase runoff volumes, further increasing flood risk downstream and adversely impacting water quality. The low-lying areas bordering Richardson Bay have

[38] http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/TMDLs/urbancrksdiazinontmdl.shtml
[39] Appendix B, Reference ID 6, pages 23-24
[40] Appendix B, Reference ID 9, page 2
[41] Appendix B, Reference ID 9, pages 15-19
[42] http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/TMDLs/richardsonbaypathogens.shtml
[43] Appendix B, Reference ID 6, pages 16-22

experienced periodic flooding for decades. The County Board of Supervisors formed both Flood Control Zone 3 and Zone 4 during the late 1950s to address the flooding experienced along the low-lying areas bordering Richardson Bay. Numerous facilities and channels have been constructed to address flooding[44].

3.1.5 Ross Valley

The 28-square mile Ross Valley / Corte Madera watershed (**Figure 3-7**) extends from Mt. Tamalpais and White's Hill through the communities of Fairfax, Sleepy Hollow, San Anselmo, Ross, Kentfield, Greenbrae, Larkspur, and Corte Madera to the San Francisco Bay. The watershed includes 44 miles of stream channels. Ross Creek drains the northern slope of Mt. Tamalpais; San Anselmo Creek and its tributaries drain the northwestern portion of the watershed. The two channels join to form Corte Madera Creek, which continues through more than a mile of concrete-lined channel past the confluences of Larkspur and Tamalpais Creeks and into the salt marsh at the mouth.

[44] Appendix B, Reference ID 39a, Website

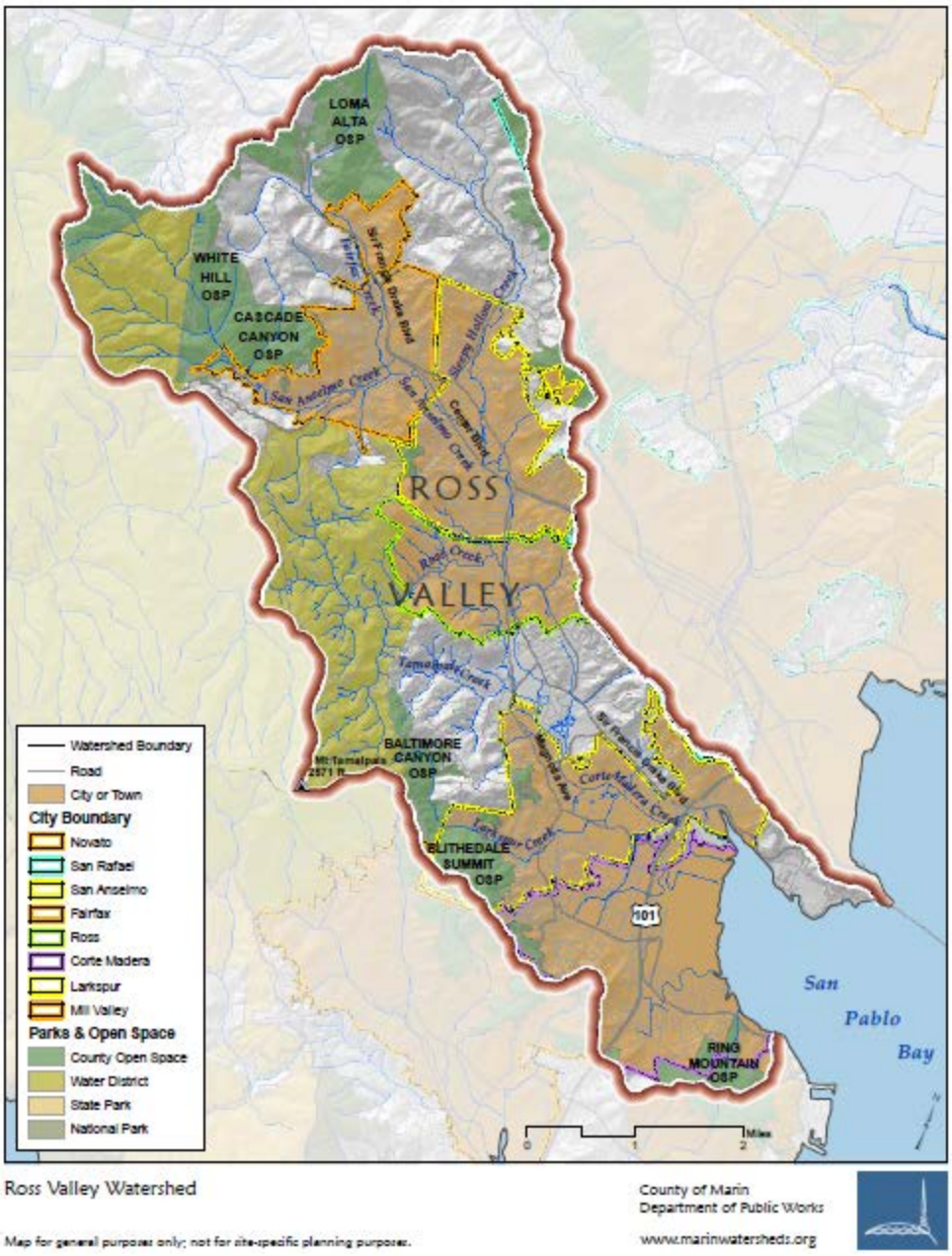

Figure 3-7. Ross Valley Watershed

MMWD supplies potable water to the watershed, with the majority of the MMWD's supply originating as rainfall collected from the Mt. Tamalpais watershed into 7 reservoirs. MMWD supplements this primary water supply with water purchased from the Sonoma County Water Agency. The estimated volume of potable water supplied to specific watersheds is not immediately available. Wastewater treatment is provided by the Central Marin Sanitation Agency.

The Ross Valley Watershed Program is a collaborative effort led by the Flood Control District in partnership with the County of Marin, Towns of Fairfax, San Anselmo, Ross, and City of Larkspur along with the unincorporated areas of Greenbrae, Kentfield, Sleepy Hollow and Oak

Manor. Additional Program partners include environmental, business and community organizations, the U.S. Army Corps of Engineers, MMWD, Marin County Parks and Open Space District, Ross Valley Fire Department and Ross Valley School District. The Program's overall objective is to substantially reduce the frequency and severity of flooding throughout the Ross Valley watershed, in an economically viable manner while prioritizing public safety and minimizing environmental impacts[45].

3.1.5.1 Water Quality

Diazinon

Corte Madera Creek is one of the urban creeks included on the 303(d) list of impaired waterbodies due to toxicity attributed to diazinon. This listing was made by USEPA for the 1998 303(d) list. In 2006, diazinon was moved by USEPA from Category 5 (constituents requiring development of a TMDL) to Category 4a (constituents being addressed by a USEPA approved TMDL).

The Diazinon and Pesticide-Related Toxicity in Urban Creeks TMDL became effective in January 2007[46]. TMDL implementation actions to date have focused on comprehensive public education and outreach activities designed to reduce pesticide use. Attainment of the TMDL WLAs is achieved through implementation of these actions[47]. Three monitoring events were conducted in Year 1 (2015-2016) of the Diazinon and Pesticide-Related Toxicity TMDL Monitoring Program in Urban Creeks[48], with one of the monitoring stations located on Corte Madera Creek at Lagunitas Road Bridge. The Year 1 Monitoring Report provides a summary of data from all monitoring locations[49].

Additional information on basic water quality parameters and the ecological health of surface water in the Ross Valley Watershed can be found in the report "Marin County Bioassessment Data Evaluation and Recommendations for Future Monitoring Data".[50] The report includes a discussion of data collected between 1999 and 2009.

3.1.5.2 Watershed Processes

Corte Madera Creek and its tributaries responded to the intensive timber harvesting and livestock grazing of the 1800s by incising into the Holocene valley fill. Although the channels are still responding to the 1800s land use and subsequent urbanization, the effects are slowing and less dramatic. As stated by Stetson (2000), ongoing channel responses include:

- Headward advance of 1st order tributaries,
- Reduced bed incision and bank erosion in the upper alluvial channel network, and
- Slowing of channel aggradation in the lower reaches of the watershed.

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[45] Appendix B, Reference ID 48, website
[46] http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/TMDLs/urbancrksdiazinontmdl.shtml
[47] Appendix B, Reference ID 6, pages 23-24
[48] Appendix B, Reference ID 9, page 2
[49] Appendix B, Reference ID 9, pages 15-19

Exposed bedrock outcrops and constructed grade-control structures throughout the channel network have slowed channel incision while accelerating channel widening. Nearly 50% of the banks have been stabilized with rock or concrete to protect landowners from property loss through bank retreat (Stetson 2000 citing Friends of Corte Madera Creek Watershed 1997). Channel widening is a natural process following rapid channel incision, and allows the development of inset floodplains that are important for habitat value and increased flood capacity. Geomorphic recovery processes are ongoing, with inset floodplains occurring in areas where the channel was not restricted from widening and pool/riffle sequences forming in the stable bed. Dense urbanization up to the top of streambanks and unnaturally narrow channels restrict instream habitat recovery and limit channel capacity.

The tidal reaches of the system are heavily impacted and have been modified for flood management. In the 1960s, the Army Corps of Engineers designed and constructed an earthen trapezoidal channel on the lower 4.5 miles of creek through the towns of Corte Madera, Larkspur, Kentfield, and Ross. Lower Corte Madera Creek has been widened and straightened. These lower reaches are sediment aggradation and storage zones for upland and tidally-derived sediment.

Sediment is delivered to the channels from upland sources such as gully development, overland flow, and landslides, as well as from channel bed and bank erosion. It is estimated that the latter accounts for only 9% of the annual bedload transported in the system, while the upland sources account for 91% (Stetson 2000). Together, the San Anselmo Creek and Sleepy Hollow Creek subwatersheds generate 55% of the total annual bedload, while Ross Creek and Fairfax Creek subwatersheds only generate about 10% of the bedload each. These differences are due to variations in geology, topography, vegetation types, and land use[51].

3.1.6 San Rafael

The San Rafael watershed (**Figure 3-8**) comprises 11 square miles and is densely developed from its hills to filled wetlands. The creek originates in the hills above Tamalpais Cemetery and flows through residential and industrialized areas before forming the San Rafael Canal in the vicinity of Highway 101. The upper stream corridor consists of short stretches of open stream channel, underground culverts, and trapezoidal open channels. The creek enters San Rafael Bay at Pickleweed Park. San Rafael Creek and Canal, once important commercial waterways in Marin, are currently used as marinas for recreational watercraft. Habitat for native species is provided by a small marsh at Pickleweed Park, and a handful of intact woodland, grassland, and lagoon areas occur in the northern edge of the watershed[52].

[51] Appendix B, Reference ID 48, website

[52] Appendix B, Reference ID 67, website

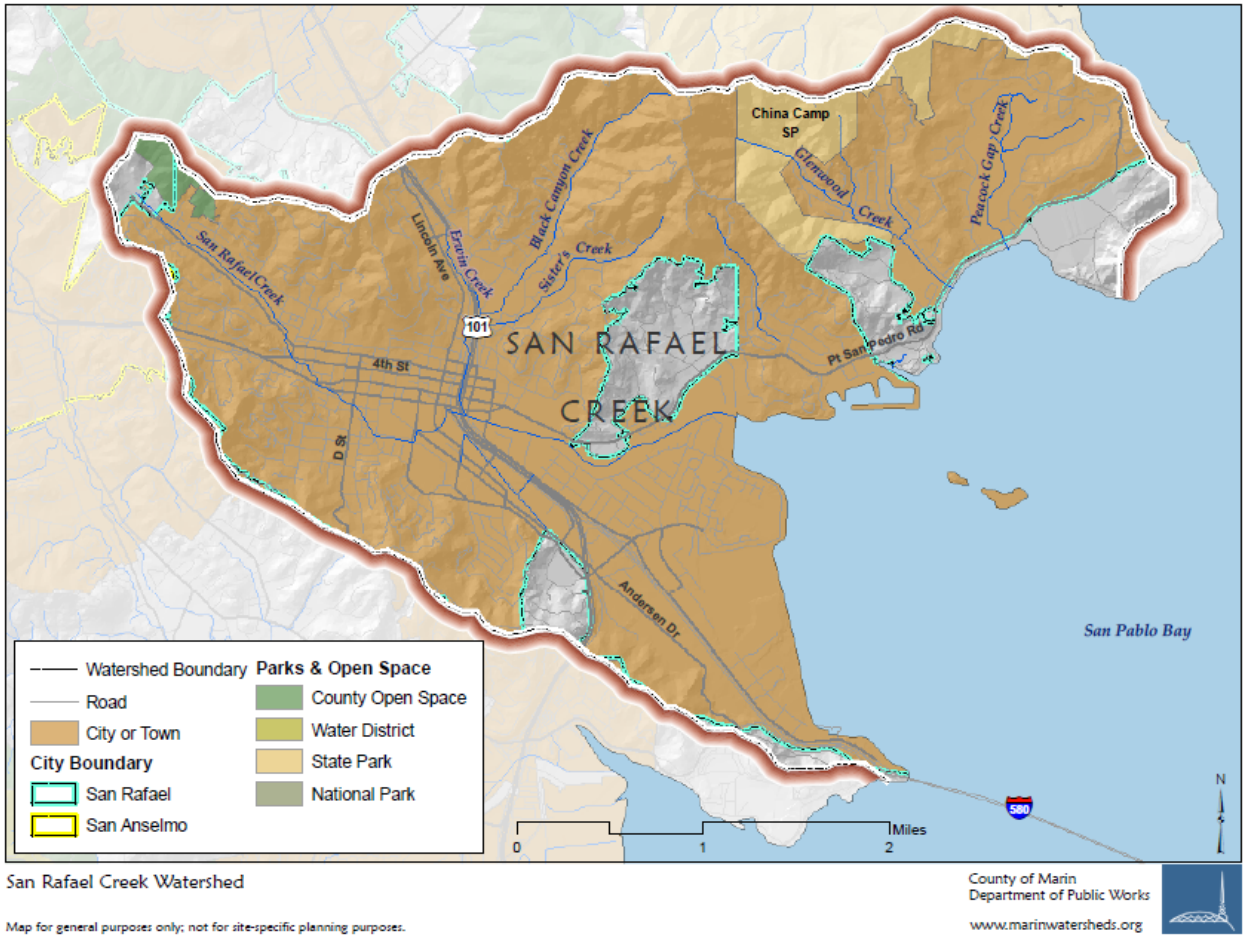

Figure 3-8. San Rafael Watershed

MMWD supplies potable water to the watershed, with the majority of the MMWD's supply originating as rainfall collected from the Mt. Tamalpais watershed into 7 reservoirs. MMWD supplements this primary water supply with water purchased from the Sonoma County Water Agency. The estimated volume of potable water supplied to specific watersheds is not immediately available. Wastewater treatment is provided by the Central Marin Sanitation Agency.

3.1.6.1 Water Quality

San Rafael Creek is one of the urban creeks included on the 303(d) list of impaired waterbodies due to toxicity attributed to diazinon. This listing was made by USEPA for the 1998 303(d) list. In 2006, diazinon was moved by USEPA from Category 5 (constituents requiring development of a TMDL) to Category 4a (constituents being addressed by a USEPA approved TMDL).

The Diazinon and Pesticide-Related Toxicity in Urban Creeks TMDL became effective in January 2007[53]. TMDL implementation actions to date have focused on comprehensive public education and outreach activities designed to reduce pesticide use. Attainment of the TMDL

[53] http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/TMDLs/urbancrksdiazinontmdl.shtml

WLAs is achieved through implementation of these actions[54]. Three monitoring events were conducted in Year 1 (2015-2016) of the Diazinon and Pesticide-Related Toxicity TMDL Monitoring Program in Urban Creeks[55], with one of the monitoring stations located on San Rafael Creek at the D Street overcrossing. The Year 1 Monitoring Report provides a summary of data from all monitoring locations[56].

3.1.6.2 Watershed Processes

The streams of the San Rafael Creek watershed originate on the slopes of the San Rafael Hills and San Pedro Point. They quickly reach the City of San Rafael and begin to exhibit the characteristics typical of highly urbanized creeks. Many of them, especially Mahon Creek, Irwin Creek, Lincoln Creek, and Black Canyon, have been channelized and sections have been routed under the city in culverts. A reach of Mahon Creek between B Street and Highway 101 was restored in 2001. This reach is tidally influenced with wetlands bordering the channel downstream of Lindaro Street. The reach between B and Lindaro streets is straight and trapezoidal.

Dense urban development on former tidal wetlands has constricted San Rafael Creek and reduced the ability of the channel to flush sediment out and maintain channel capacity as part of the tidal cycle[57].

3.1.7 Southern Coastal Creeks (Alder Creek)

Alder Creek (**Figure 3-9**) is a subwatershed within the Southern Coastal Creeks Watershed. Alder Creek drains the western half of the Bolinas Mesa. The creek flows into Duxbury Reef and the Pacific Ocean at Agate Beach; it is typically dry from April to November.

[54] Appendix B, Reference ID 6, pages 23-24
[55] Appendix B, Reference ID 9, page 2
[56] Appendix B, Reference ID 9, pages 15-19
[57] Appendix B, Reference ID 67, website

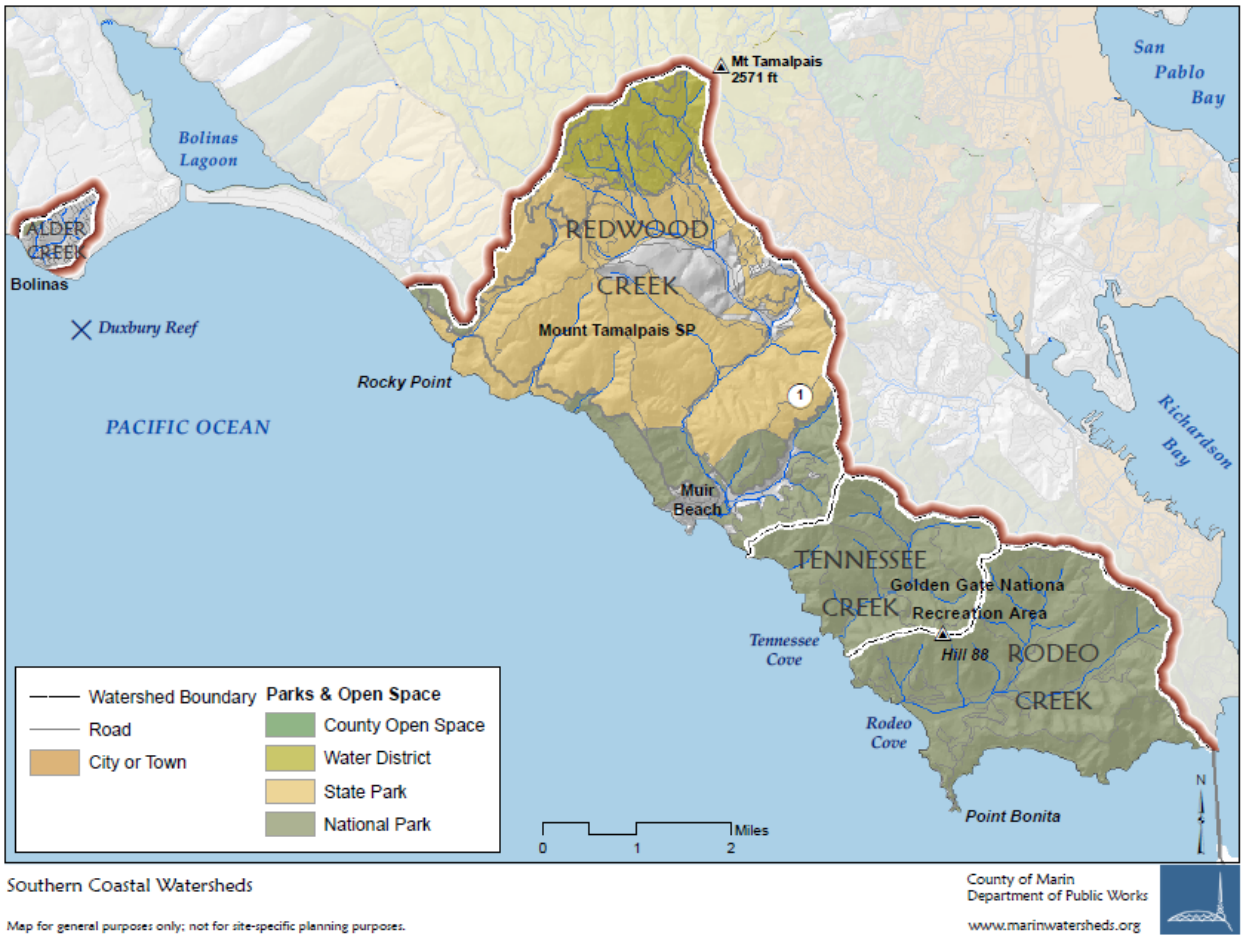

Figure 3-9. Southern Coastal Creeks Watershed: Alder Creek

The Alder Creek watershed is primarily composed of rural residential areas in and around the town of Bolinas. Wastewater is handled in part by the Bolinas Community Public Utility District's (BCPUD's) sanitary sewer system and treatment ponds, and in part by on-site septic systems. Many residents have small numbers of livestock on their property. A few commercial gardens and other small businesses, and portions of livestock ranches, also occur in the Alder Creek watershed. Agate Beach is a popular tidepooling spot that is open to the public; facilities include a parking lot and portable restrooms. A water service moratorium set by the BCPUD and Marin County land use restrictions limit the likelihood of future development in the watershed. Aside from a concrete culvert where a seasonal tributary joins Alder Creek near Agate Beach, there are no stormwater management facilities for Bolinas. Most surface runoff flows to ditches and channels paralleling roadways and into Alder Creek[58].

The BCPUD provides potable water to the town of Bolinas from the Arroyo Hondo watershed. The area served by BCPUD is much larger than the Alder Creek watershed, so water supply volume specific to the watershed is unknown.

[58] Appendix B, Reference ID 80, website

3.1.7.1 Water Quality

Alder Creek is not included on the 303(d) list of impaired waterbodies.

However, the Creek is located in the watershed that discharges to Duxbury Reef, which is a State-designated Area of Biological Significance (ASBS)[59]. Duxbury Reef is the largest exposed shale reef in California and is formed entirely of rocks of the Monterey Formation. The area contains rich intertidal life including sea stars, mussels, barnacles, sea cucumbers, chitons, nudibranchs (sea slugs), a rare burrowing anemone, and a unique acorn worm[60].

The southern half of the watershed discharging to Duxbury Reef is under the County's jurisdiction, and stormwater discharges are regulated under the Phase II MS4 Permit. The MS4 discharges primarily to Alder Creek and its southern tributary[61].

In the summer of 2013, using Proposition 84 grant funds, the County implemented improvements to the Agate Beach County Park parking lot to address potential stormwater pollution to the ASBS. The parking lot was retrofitted with pervious pavement and integrated stormwater retention and infiltration structures. Improvements were also made to the adjacent drainage swale to create a series of rock check dams to slow and filter stormwater during periods of heavy runoff when the parking lot Best Management Practices (BMPs) may not be able to absorb the full volume of runoff.

The paved trailhead of the path from the parking lot to the beach was also replaced with decomposed granite to allow runoff to sink in, and the portable toilets were relocated away from the top of the stream bank and placed in a covered enclosure to prevent spills.

Water quality and runoff monitoring of the parking lot project demonstrated a nearly 60% reduction in runoff volume as well as reductions in the concentrations of sediment, oil and grease and some trace metals resulting from the parking lot improvements. (Schiff and Brown, 2015). During the 2013-14 and 2014-15 winter seasons, the County of Marin engaged in a regional water quality monitoring effort to characterize the quality of the water from a storm drain outfall on Agate Beach and to measure its impact on the ocean water at Duxbury Reef. This regional monitoring program demonstrated that there were no exceedances of receiving water quality standards for the Special Protections for Areas of Special Biological Significance at Duxbury Reef.

3.1.7.2 Watershed Processes

Erosion of the coastal bluffs (or bluff erosion) is a natural process that occurs in the Duxbury Reef ASBS. The Bolinas Mesa, underlain by Monterey Shale and located on a relatively flat terrace with steep bluffs of 140 to 200 feet high, is particularly susceptible to bluff erosion because of deep weathering and extensive fracturing of the bedrock. The contribution of surface and subsurface water from septic systems, irrigation, and other sources, can greatly increase the rates of bluff erosion. Policies directed at reducing infiltration can conflict with the low impact development (LID) measures recommended in the Special Protections and the Phase II MS4 permit.

[59] Appendix B, Reference ID 8, page 7
[60] Appendix B, Reference ID, 8a, website
[61] Appendix B, Reference ID 8, page 9

Urban runoff impacts from the Bolinas Mesa area to the ASBS may be relatively minor given that the size of the watersheds draining either private or county urban lands to the Duxbury Reef area is very small and is almost 85% pervious surfaces, the area is rural, and most of the stormwater system infrastructure could be considered LID with grassy swales and vegetated ditches that promote infiltration[62].

3.1.8 Stinson Beach Watershed

Easkoot Creek is a small perennial stream flowing into Bolinas Lagoon through Stinson Beach (**Figure 3-10**), draining a watershed of approximately 1.59 square miles of mostly undeveloped and steeply forested watershed on the southwest side of Mt. Tamalpais. The three tributaries, Fitzhenry, Laurel, and Black Rock Creeks, join to form Easkoot Creek just upstream of Shoreline Highway in Stinson Beach. After exiting the uplands, the Creek turns northwest and flows behind the coastal dune until it enters the south arm of Bolinas Lagoon[63].

[62] Appendix B, Reference ID 8, pages 11-12
[63] Appendix B, Reference ID 81

Figure 3-10. Bolinas Lagoon Watershed: Stinson Beach

The Stinson Beach County Water District provides potable water services to the community.

The Stinson Beach Watershed Program is partnering with Flood Control Zone 5, Golden Gate National Recreation Area, and the Stinson Beach County Water District to develop projects that address ongoing flooding and sedimentation issues in the lower sections of the creek while improving habitat for steelhead trout and Coho salmon.

3.1.8.1 Water Quality

None of the streams in the watershed are on the 303(d) list of impaired waterbodies.

The highest priority issues in the watershed are flooding and sedimentation, both of which affect habitat and water quality.

3.1.8.2 Watershed Processes

Nearly 170 meters of Easkoot Creek through the town of Stinson Beach has riprap, SacCrete, gabions, or retaining walls stabilizing its banks (Fong 2002). Over the years levees had been built up along lower Easkoot Creek, adjacent to Stinson Beach Park, with spoils from sediment dredging activities. These artificial levees restricted hydrologic connectivity of the stream to its floodplains and adjacent wetlands. This reach of creek also exhibited markedly low amounts of large wood and no viable pools (Fong 2002).

The lower reach of Easkoot Creek flows through a tidal marsh located between Shoreline Hwy and Calle del Arroyo. With the start of construction of the Seadrift lagoon and subdivision in 1960, and the presence of the delta at the mouth of Stinson Gulch, tidal circulation to the southeastern arm of Bolinas Lagoon was restricted. Removal of the Stinson Gulch delta constriction and the restoration of a more natural tidal range allowed the marsh at the mouth of Easkoot Creek to nearly double in size between 1968 and 1998 (PWA 2006).

The steep slopes of the upper Easkoot watershed are prone to landslides. Sediment derived from the hill slopes is transported to the low gradient and tidally influenced reaches where it is stored in the channel. In order to maintain channel capacity, the National Park Service has had to remove sediment from the creek at Stinson Beach Park on a regular basis[64].

3.1.9 Lagunitas Creek Watershed (West Marin)

The Lagunitas Creek watershed (**Figure 3-11**) is a 103-square mile subwatershed within the Tomales Bay watershed and is the largest drainage into Tomales Bay. Its major tributaries include San Geronimo Creek, Devils Gulch, Cheda Creek, Nicasio Creek, and Olema Creek. At the southwestern edge of the watershed, Olema Creek flows in nearly a straight line through a rift valley along the San Andreas Fault zone and into Tomales Bay. The subwatershed includes the Kent, Alpine, Bon Tempe, Lagunitas, and Nicasio reservoirs. The San Geronimo Valley is the last un-dammed headwaters of Lagunitas Creek, and is considered critical Coho salmon spawning and juvenile rearing habitat. In response to concerns about the effects of further development in the watershed on Coho salmon populations, Marin County Department of Public Works has prepared a draft San Geronimo Valley Salmon Enhancement Plan[65].

[64] Appendix B, Reference ID 81, Website
[65] Appendix B, Reference ID 70

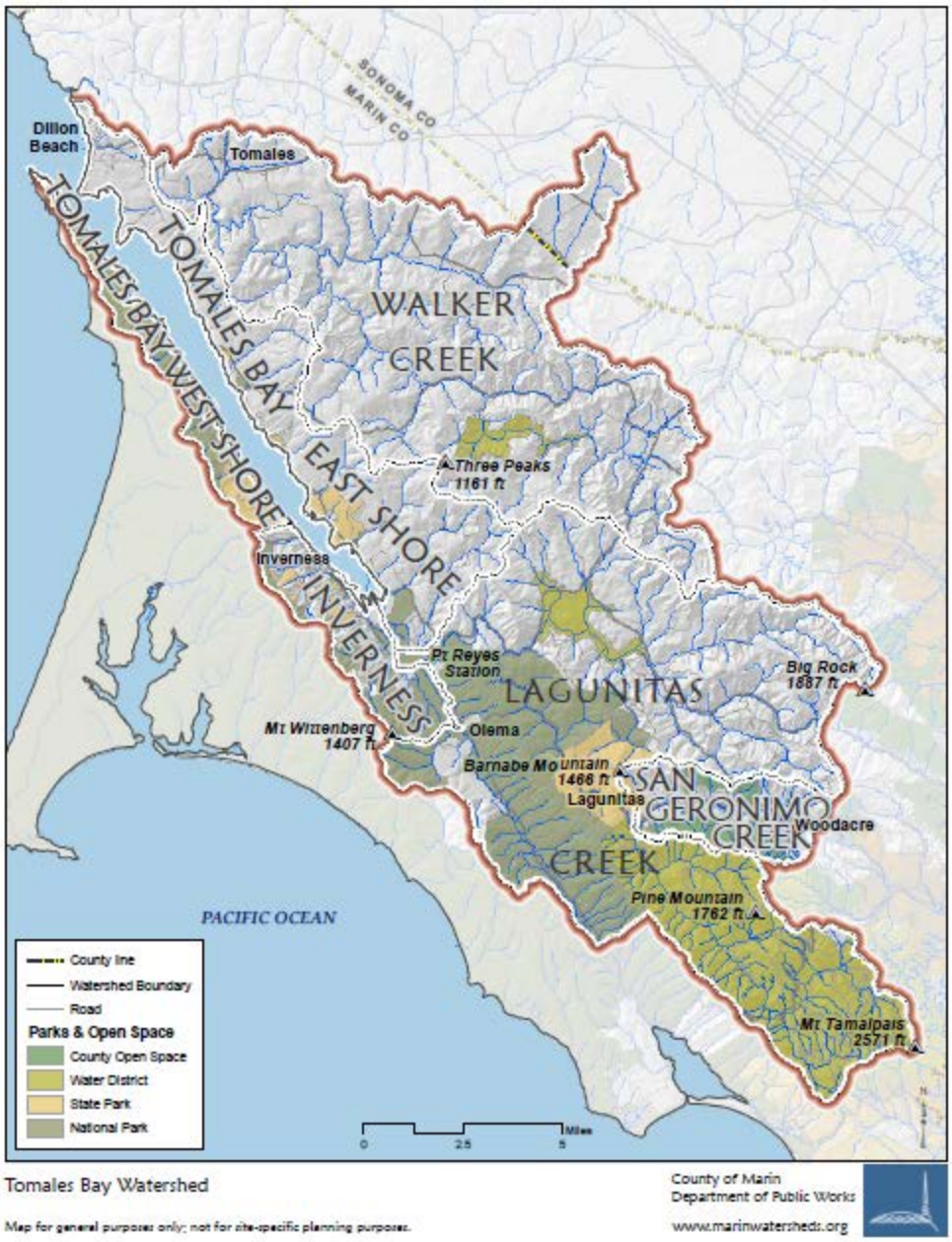

Figure 3-11. Lagunitas Creek Watershed (Includes San Geronimo Creek)

MMWD supplies potable water to the communities of Lagunitas, Forrest Knolls, San Geronimo and Woodacre, with the majority of the MMWD's supply originating as rainfall collected from the Mt. Tamalpais watershed into 7 reservoirs. MMWD supplements this primary water supply with water purchased from the Sonoma County Water Agency. Groundwater use within the district's service area is limited to small, domestic use through private groundwater pumping wells. The estimated volume of potable water supplied to specific watersheds is not immediately available.

North Marin Water District provides potable water to Paradise Ranch Estates, Inverness Park, and the communities of Pt. Reyes Station and Olema.

The Tomales Bay Watershed Council (TBWC) was formed in 2000 with 24 members representing residential and community groups, agricultural interests, environmental groups, maricultural interests, recreational interests, and public agencies[66]. The Tomales Bay Watershed Stewardship Plan was completed by TBWC in 2003. Many of the goals and tasks of the Tomales Bay Watershed Stewardship Plan have since been incorporated into an overarching document produced in 2007, the Tomales Bay Integrated Coastal Watershed Management Plan (ICWMP). The ICWMP is a coordinated effort by TBWC and four Marin County water and public utility districts (BCPUD, Inverness Public Utility District, MMWD, and North Marin Water District). The ICWMP aims to integrate the work of each of these agencies in order to prioritize regional projects and provide a framework for watershed planning in the region. The ICWMP was funded by a grant made available through Proposition 50, the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002[67].

3.1.9.1 Water Quality

Coliform Bacteria

Lagunitas Creek is included on the 303(d) list of impaired waterbodies due to Pathogens (Indicator Bacteria) under Category 5 (constituents requiring development of a TMDL).

The Tomales Bay Pathogens TMDL became effective in September 2006. Attainment of the WLA is based upon implementation of measures specified in the TMDL, including public participation and outreach, pet waste management, strategies to detect and eliminate illicit discharges, pollution prevention and good housekeeping, and annual reporting. In fall 2014, Water Board and Tomales Bay Watershed Council (TBWC) Staff agreed to combine resources and collaborate on a single water quality monitoring program for the Tomales Bay watershed. The collaborative monitoring plan, which also utilizes the National Parks Service's as well as the Inverness Public Utility District's staff resources, collects samples at approximately 30 stations on a monthly basis. In addition, each year these stations are also monitored weekly for five weeks during both wet and dry seasons.

Progress on TMDL implementation by the County of Marin and MCSTOPPP is provided in the County of Marin's annual reports and on the TBWC website.

Nutrients

Lagunitas Creek is included on the 303(d) list of impaired waterbodies due to Nutrients under Category 5 (constituents requiring development of a TMDL). A TMDL for nutrients is in progress.

Sediment

Lagunitas Creek is included on the 303(d) list of impaired waterbodies due to Sediment under Category 5 (constituents requiring development of a TMDL).

The Sediment TMDL for the Lagunitas Creek watershed became effective in March 2015[68]. For the municipal stormwater category, the TMDL specifies compliance with the National Pollutant

[66] http://www.tomalesbaywatershed.org/trends-program.html
[67] Appendix B, Reference ID 70, website
[68] http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/TMDLs/lagunitascrksedimenttmdl.shtml

Discharge Elimination System (NPDES) permit as the required TMDL implementation measure. However, implementation actions for this TMDL have not yet been incorporated into Attachment G of the Phase II MS4 Permit. Accordingly, MCSTOPPP did not describe TMDL Implementation in the Total Maximum Daily Load Implementation Status and Effectiveness Assessment Report (2015-2016). Rather, the Effectiveness Assessment Report evaluated member agencies' implementation of BMPs prioritized for sediment. Results are included in the Effectiveness Assessment Report[69]. Specific actions taken by the County of Marin to comply with the sediment TMDL are reported to the State through the County's annual report.

3.1.9.2 Watershed Processes

The Lagunitas Creek watershed extends from the northwest slope of Mt. Tamalpais to Tomales Bay. The largest alteration to watershed processes results from artificial impoundments for drinking water supplies on two main tributaries. Flow regulation throughout the watershed causes the total watershed area (82 square miles) to be disconnected, with Peters Dam and Seeger Dam having the most significant impact on flow and sediment impoundment. Peters Dam, first constructed in 1954, regulates flow from the upper watershed (22 square miles) and Seeger Dam, completed in 1961, regulates flow from the Nicasio Creek sub-watershed (36 square miles). The watershed area downstream of these dams to the Olema Creek confluence (25 square miles) has land cover currently composed of conifer forested hillsides, grasslands that support grazing activity, and residential development, especially in the San Geronimo sub-watershed.

Recent watershed history includes a "typical" pattern of Euro-American settlement: crop production, ranching, and logging for paper production dominated the period from 1850–1918. Thereafter there was a switch from row crops to grazing and the beginnings of flow regulation (1919–1945), limited population increases and the beginnings of significant flow regulation (1945–1982, including the initial Peters Dam and Seeger Dam), and the current period since 1983 that is characterized by continued development in the San Geronimo Creek watershed and increased concerns for environmental quality. Rates of hill slope sediment delivery are likely to have increased dramatically during the initial settlement period and then progressively reduced during subsequent periods in response to flow regulation, with sediment production switching to channel sources[70].

Historical and/or ongoing channel incision degrades habitat complexity and connectivity, and it is widespread along Lagunitas Creek and its tributaries. Channel incision reduces the frequency of gravel bars and pools, side channels and alcoves, and results in disconnection of the channel from its floodplain. These changes degrade the quality and quantity of habitat for federally listed populations of Coho salmon, steelhead, and California freshwater shrimp. Channel incision results from a suite of management actions that have reduced the size and number of large fallen trees in channels throughout the watershed. Along Lagunitas Creek, dam construction also has contributed to incision, by causing a large reduction in coarse sediment (gravel) supply to downstream reaches[71].

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[69] Appendix B, Reference ID 6, pages 37-40
[70] Appendix B, Reference ID 75a, page 1

[71] Appendix B, Reference ID 75b, page 11

4. Water Quality Compliance (Guidelines Section V)

4.1 APPLICABLE PERMITS AND PLANS

The MCSTOPPP member agencies are required to comply with three separate stormwater National Pollutant Discharge Elimination System (NPDES) permits, as applicable to their jurisdictions and activities:

- Phase II Small Municipal Separate Storm Sewer System (MS4) General Permit (Phase II MS4 Permit) (Order 2013-0001-DWQ)[72];
- General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit) (Order 2009-0009-DWQ)[73]; and
- General Permit for Discharges of Storm Water Associated with Industrial Activity (Industrial General Permit) (Order 2014-0057-DWQ)[74].

In addition, as a part of the Phase II MS4 Permit, the MCSTOPPP member agencies are required to comply with the corresponding TMDL requirements, as specified within the Permit and Attachment G, Region-Specific Requirements for Implementation of TMDLs. Compliance with TMDL implementation requirements is documented in the TMDL Implementation Status Report[75] and compliance with the Phase II MS4 Permit is reported within the Annual Reports submitted to the State Water Resources Control Board.

The NDPES Stormwater Permits and TMDLs generally require the municipalities to implement a series of BMPs in order to reduce pollutants from the MS4s to the maximum extent practicable (MEP). The MEP standard requires Permittees to apply BMPs that are effective in reducing or eliminating the discharge of pollutants to the waters of the U.S. The specific requirements are included within the NPDES Permit provisions.

The Phase II MS4 Permit also recognizes the following:

> *Finding 1. Storm water is a resource and an asset and should not be treated as a waste product. Managing rainwater and storm water at the source is a more effective and sustainable alternative to augmenting water supply, preventing impacts from flooding, mitigating storm water pollution, creating green space, and enhancing fish and wildlife habitat. California encourages alternative, innovative, multi-objective solutions to help use and protect this valuable resource, while at the same time controlling pollution due to urban runoff.*

As a part of the overall strategy for the municipal stormwater program, a series of BMPs are implemented in order to comply with the Discharge Prohibitions and Receiving Water Limitations including source controls and/or treatment controls. The Marin County SWRP is consistent with and assists in attaining the TMDL WLAs and complying with the applicable NPDES permits since it identifies and prioritizes potential multi-benefit projects, which provide a number of benefits including improvements to water quality (see Section 5).

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[72] http://www.waterboards.ca.gov/water_issues/programs/stormwater/phase_ii_municipal.shtml
[73] http://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.shtml
[74] http://www.waterboards.ca.gov/water_issues/programs/stormwater/industrial.shtml
[75] Appendix B, Reference ID 6, page 6

4.2 POLLUTANT-GENERATING ACTIVITIES

The Phase II MS4 Permit recognizes the following:

> *Finding 3. Pollutants of concern found in urban runoff include sediments, non-sediment solids, nutrients, pathogens, oxygen-demanding substances, petroleum hydrocarbons, heavy metals, floatables, polycyclic aromatic hydrocarbons (PAHs), trash, pesticides and herbicides.*
>
> *Finding 2. As human population increases, urban development creates new pollution sources and brings with it proportionately higher levels of car emissions, car maintenance wastes, municipal sewage, pesticides, household hazardous wastes, pet wastes, trash, etc. which can either be washed or directly dumped into the municipal separate storm sewer system (MS4). As a result, the runoff leaving the developed urban area is greater in pollutant load than the pre-development runoff from the same area. Also, when natural vegetated pervious ground cover is converted to impervious surfaces such as paved highways, streets, rooftops, walkways and parking lots, the natural absorption and infiltration abilities of the land are lost. Therefore, runoff leaving developed urban area is significantly greater in runoff volume, velocity, peak flow rate, and duration than pre-development runoff from the same area. The increased volume, velocity, rate, and duration of runoff greatly accelerate the erosion of downstream natural channels. In addition, the greater the impervious cover the greater the significance of the degradation.*
>
> *Finding 4. Trash and litter are a pervasive problem in California. Controlling trash is a priority, because trash adversely affects our use of California's waterways. Trash impacts aquatic life in streams, rivers, and the ocean as well as terrestrial species in adjacent riparian and shore areas. Trash, particularly plastics, persists for years. It concentrates organic toxins, entangles and ensnares wildlife, and disrupts feeding when animals mistake plastic for food and ingest it. Additionally, trash creates aesthetic impacts, impairing our ability to enjoy our waterways.*

The SWRP quantifies the water quality benefits of the priority projects in terms of volume reduction and reductions in total suspended solids (TSS), which act as a proxy for a number of water quality constituents (i.e. reductions in TSS or volume = reductions in other water quality constituents) (see Section 5). Thus, the SWRP provides tangible water quality benefits to the MCSTOPPP member agencies and supports other water quality improvement efforts such as the Phase II MS4 Permit, TMDLs, and IRWMP.

In addition, depending on the types of projects selected, the SWRP projects may also support implementation of the Statewide Trash Amendments. The State Water Resources Control Board has indicated that the following types of BMPs will be considered full capture systems:

- Bioretention
- Infiltration Trench
- Infiltration Basin
- Detention Basin
- Media Filter
- Stormwater Capture and Use

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

Projects were evaluated/scored using a multiple benefit quantitative metrics-based approach based on the multiple benefits achieved. The multiple benefits examined are those included in State's SWRP Guidelines, including: water quality, water supply, flood control, environmental, and community[76] benefits. Benefit analysis was also based on the ability of projects to meet SWRP project criteria, including the potential to:

- Provide treatment control for both stormwater pollution and dry weather runoff, onsite and local infiltration, or capture and reuse of stormwater and dry weather runoff;
- Augment local water supply;
- Reestablish natural water drainage treatment/infiltration systems or mimic natural system functions to the maximum extent feasible; and/or
- Develop, restore, or enhance habitat and open space through runoff management including creating wetlands, riverside habitats, parkways, and parks.

The methodology included the following steps:

1. **Identify potential projects** – planned and future projects provided by MCSTOPPP member agencies as well as additional potential project locations identified using a geographic information system (GIS)-based opportunities analysis were identified and cataloged.
2. **Evaluate identified projects and potential project locations** – a quantitative metrics-based multiple benefit evaluation described herein was used to score the projects by watershed.
3. **Prioritize projects based on input from jurisdictions** – using the project scores along with other local knowledge, jurisdictions provided input on project ranking and prioritization.
4. **Integrated analysis of project benefit** – project benefits were analyzed for the prioritized projects based on the potential volume captured and/or total suspended sediment concentration (TSS) load reduction achieved by the project.

A description of the methodologies used to complete these steps is provided in the following sections.

5.1 PROJECT OPPORTUNITIES

The potential project identification methodology includes two parts: gathering data about planned projects from the MCSTOPPP member agencies, and conducting a desktop countywide project opportunities analysis in GIS.

[76] Per the SWRP Guidelines, these include enhanced and/or created recreational and public use areas, community involvement, and employment opportunities provided.

5.1.1 MCSTOPPP Member Agencies Planned Projects

A planned project data request spreadsheet was sent out to the MCSTOPPP member agencies on March 16, 2017. Member agencies were asked to provide project-specific information, including location, type, project benefits, and the location and size of the project drainage area. The planned project data received from MCSTOPPP member agencies were mapped in GIS.

5.1.2 Project Opportunity Analysis

A secondary countywide project desktop opportunity analysis was conducted in GIS to identify additional project opportunities. The analysis was conducted using geospatial data layers sent electronically to the Project Team by Marin County staff on February 28, 2017 and delivered via hard drive on March 1, 2017.

The project opportunity analysis consisted of the following steps[77]:

1. Identify publicly-owned parcels not associated with planned projects identified by MCSTOPPP member agencies. Ownership information was obtained from the geospatial parcel dataset layer delivered by Marin County staff. The following screening criteria were applied to identified parcels:
    a. Regional project (i.e., projects which treat a tributary drainage area larger than the project parcel) sites must be at least 0.5 acres.
2. Non-highway public rights-of-way (ROW) within urban areas with sufficient width to accommodate green infrastructure projects were identified to the extent possible. Marin County street centerline data and United States Census TIGER/Line data were used to conduct this analysis.
3. Identified locations were screened to remove sites with the following physical constraints:
    a. Locations not close to a storm drain (i.e., within 500 feet for regional facilities); and sites with significant drainage area outside of urbanized area and/or dominated by open space.
4. Locations with the following physical constraints were not included in the ranking, but included in the SWRP potential project database; these locations require project-level study to determine feasibility. They have been assessed with metrics-based methodology, so if sites are identified for feasible projects, they can easily be ranked in their project type database:
    a. Steep slopes in potential project location (defined as slope greater than 10%); and
    b. Sites within the 100-year floodplain boundary.

The locations identified opportunities to achieve multiple-benefits, described in further detail in Section 5.1.3 through 5.1.6.

[77] This analysis did not include screening checks that should occur as part of a project concept development, which include, but are not limited to, the presence of: geotechnical hazards, seasonally high groundwater, environmentally sensitive areas, proximity to drinking water wells, proximity to septic systems and drain fields, mapped groundwater contamination plumes, steep slopes in drainage areas, and other feasibility checks. The screening will also not include other checks such as drainage tie-ins, land use checks, or other data verification.

5.1.3 Flood Control

The identified project locations are classified as parcel-based, ROW, or regional project opportunities (also see section 5.3.1.1). Additionally, the proximity to the floodplain of each project opportunity was calculated using geospatial processing. The regional[78] and parcel-based sites within the 100-year floodplain could be used as flood control facilities managed by the Marin County Flood Control and Water Conservation District, and are included in Appendix E as a separate prioritized table. These sites were quantified based on area and runoff coefficient only, and would require specific project design considerations to quantify benefits.

5.1.4 Water Supply

There are limited opportunities for groundwater recharge due to the hydrogeologic features in the County. However, many parcel-based locations identified in urban areas have the potential to be used for storage and use of captured stormwater.

5.1.5 Restoration and Rehabilitation

Numerous parcel-based, regional, and ROW project opportunities were identified in proximity to areas of high imperviousness. These identified locations can be designed to attenuate runoff from impervious parcels and mimic natural system drainage functions. The opportunity analysis identifies all publicly-owned parcels, including public park locations, as potential project sites where multi-benefit projects to restore natural drainage function can be implemented. These sites were then screened for implementation feasibility to identify a selection of feasible project locations.

5.1.6 Source Control

Numerous parcel-based, regional, and ROW project opportunities were identified in proximity to developed areas that have the potential to discharge pollutants and dry weather runoff. These identified locations can be designed to treat runoff from pollution generating areas.

5.2 DESIGN CRITERIA AND BEST MANAGEMENT PRACTICES

Stormwater treatment facility types include the following:

1. Full Trash Capture Projects – these facilities achieve full trash capture (including trash 5 millimeters [mm] and greater) per the requirements of the Trash Provisions but do not provide additional benefits.
2. Non-Green-Infrastructure Treatment Control Facilities – may or may not include vegetation, to provide moderate stormwater pollutant removal, and to moderately reestablish natural water drainage systems and may remove trash 5 mm and greater from the contributing watershed area if appropriately designed and approved by the State Water Board to provide full trash capture. These may include facilities such as flood control basins or detention basins.

[78] "Regional facility" is defined as a larger facility often treating multiple lots of varied land uses.

3. Green Infrastructure[79] (distributed or regional) – these types of facilities are assumed to provide good stormwater pollutant removal, moderately reestablish natural hydrology, moderately develop, restore, or enhance habitat and open space, and provide enhanced community benefit and may remove trash 5 mm and greater from the contributing watershed area if appropriately designed and approved by the State Water Board to provide full trash capture.

Guidance for the design of bioretention facilities for development and redevelopment projects is available in the "BASMAA Post-Construction Manual – Design Guidance for Stormwater Treatment and Control for Projects in Marin, Sonoma, Napa and Solano Counties" (BASMAA, 2014). This manual describes stormwater quality requirements for the County including those from the Phase II MS4 Permit issued in 2013. The Manual provides instructions for developing a project stormwater control plan, as well as how to size stormwater treatment facilities to meet requirements.

5.3 INTEGRATED METRIC-BASED ANALYSIS AND PRIORITIZATION PROCESS

Project locations were scored and ranked by watershed using **a quantitative metrics-based multiple benefit evaluation method**. The evaluation and scoring scheme proposed has been adapted from the method used to develop the Stormwater Resource Plan for San Mateo County (San Mateo Countywide Water Pollution Prevention Program, 2017) and the Ventura Countywide Municipal Stormwater Resource Plan (Ventura Countywide Stormwater Quality Management Program, 2016) and is consistent with the SWRP Guidelines (SWRCB, 2015).

5.3.1 Potential Project Multiple Benefit Evaluation Methodology

The project evaluation methodology scores potential projects based on quantitative metrics and qualitative components associated with providing the identified multiple benefits derived from the implementation of specific projects (e.g. water quality, water supply, flood control, environmental benefit, and community benefit). To conduct the evaluation, projects are first classified by general project type and additional pertinent information is/was compiled for each project. A summary of the project classification and data compilation steps is provided in the following sections.

5.3.1.1 Step 1: Classify Potential Locations by General Project Type

Each potential project location was assigned a project type – regional, parcel-based, or ROW/green street project. For planned projects identified by MCSTOPPP member agencies, the classification provided by agency staff was used. Project opportunities identified through geospatial analyses were classified using the criteria dependent on the parcel land use categorization. Land use was identified based on the parcel and zoning geospatial data delivered by Marin County staff, and was binned into six land use categories for use in the analysis: (1)

[79] Defined by the San Francisco Bay Regional Water Quality Control Board (SFRWQCB, 2015) to include: "Infrastructure that uses vegetation, soils, and natural processes to manage water and create healthier urban environments. At the scale of a city or county, green infrastructure refers to the patchwork of natural areas that provides habitat, flood protection, cleaner air, and cleaner water. At the scale of a neighborhood or site, green infrastructure refers to stormwater management systems that mimic nature by soaking up and storing water."

commercial; (2) light industrial; (3) heavy industrial; (4) residential; (5) park/recreation; and (6) open space (see **Appendix D**).

Potential project classification criteria are the following:

- All identified ROW locations were classified as potential green streets.
- Identified public parcel locations which contain at least 0.5 acre of undeveloped area were classified as potential regional stormwater capture.
- Remaining public parcel locations were classified as potential parcel-based projects.

5.3.1.2 Step 2: Categorize Locations based on Infiltration Feasibility

All potential project locations were categorized as feasible, partially feasible, or infeasible for infiltration. A potential project was considered feasible for infiltration if predominantly underlain by more infiltrative soils that fall into hydrologic soil group A or B AND if there are NO known underlying landslides[80], high liquefaction potential,[81] or soil or groundwater contamination within 100 feet of the parcel (contamination was identified based on Geotracker[82] sites; those sites or ROW locations adjacent to Geotracker sites were not considered for infiltration).[83] A project was considered partially feasible for infiltration if predominantly underlain by less infiltrative soils that fell into hydrologic soil group C or D AND there were NO known underlying landslides, high liquefaction potential, or soil or groundwater contamination within 100 feet of the parcel. All other projects were considered infeasible for infiltration.

Locations that are not feasible for infiltration are still considered for partially infiltrating or non-infiltrating green infrastructure projects if the project location is otherwise feasible for project implementation. Locations within the 100-year floodplain and/or with 10% slopes are considered for site-specific project feasibility, including infiltrating or non-infiltrating green infrastructure and multi-benefit projects.

5.3.1.3 Step 3: Calculate or Identify Specific Information about the Potential Project Locations

Specific information about the potential project location was identified or determined and compiled. The specific information compiled includes using GIS analyses:

1. Average slope within the potential project location.
2. Potential project proximity to the 100-year floodplain.
3. Total parcel acreage for potential regional and parcel-based projects.
4. Street classification for potential green street projects.

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[80] Landslide data for Marin County (based on USGS Earthquake Hazards data) obtained from http://www.marinmap.org/dnn/DataServices/GISDataDownload.aspx

[81] Identified as areas classified as having "many landslides," or having "high" or "very high" liquefaction potential per Marin County data.

[82] Geotracker is a California SWRCB website which tracks sites with the potential to impact water quality in California, including contaminated sites (https://geotracker.waterboards.ca.gov/).

[83] Hydrologic soil group A or B type soils are characterized as having high or moderate infiltration rates. Hydrologic soil group C or D type soils are characterized as having slow or very slow infiltration rates. (United States Department of Agriculture [USDA], 2007)

5.3.1.4 Step 4: Classify or Identify Specific Information about the Potential Project Type

Specific information about the potential project type was identified. To allow for a streamlined scoring process, specific project types were scored automatically for certain project components, as described. Project information identified included:

1. Whether the project augments water supply (this was only assumed if indicated on a MCSTOPPP member agency provided project, e.g., stormwater capture and reuse).
2. The project type (see Section 5.2):
    a. Full Trash Capture Projects;
    b. Non-Green-Infrastructure Treatment Control Facilities;
    c. Green Infrastructure (distributed or regional); or
    d. Other Projects – these include stream restoration, non-green-infrastructure hydromodification control facilities, habitat restoration projects, wetland restoration or creation projects, or projects that provide enhanced community benefit.

5.3.1.5 Step 5: Score Potential Projects

Each project was scored using the point system provided in **Table 5-1**, **Table 5-2**, and **Table 5-3** below, categorized by general project classification (i.e., regional, parcel-based, or green streets). It was assumed that potential projects are located on or within publicly-owned lands, based on the identification methodology, so public or private land ownership was not used as a scored criterion. The maximum possible score for any project is 20 points (though it is not expected that one project would be able to achieve the maximum score for all project metrics). All considerations are weighted equally. MCSTOPPP member agency project facility types were identified by the respective member agency. All potential project locations identified through the desktop opportunity analysis were assumed to be green infrastructure projects for the purposes of this analysis. Unranked projects were included as identified by MCSTOPPP to have site considerations (including 10% or greater average slope and/or within the 100-year floodplain) that make certain projects less feasible, but which may still provide opportunities for flood control, habitat enhancement, water quality, and community benefit projects.

Table 5-1. Points Applied to Regional Project Locations

Project Component Categories	Points		
	0	1	2
Parcel area	< 1 acre	1 - < 4 acres	> 4 acres
Majority adjacent land use[1]	Open Space/Park	Residential	Commercial/Industrial
Infiltration feasible	No	Partial	Yes
Average slope	5% - < 10%	2% - < 5%	0 - < 2%
Proximity to 100-year floodplain	> 1 mile	0.5 - 1 mile	< 0.5 miles
Augments water supply	No	--	Yes
Provides source control for stormwater pollution (i.e., water quality control)	--	Full Trash Capture Projects; Non-Green Infrastructure Treatment Control Facilities[2]	Green Infrastructure[3]
Reestablishes natural water drainage systems	--	Non-Green Infrastructure Treatment Control Facilities; Green Infrastructure	Stream Restoration or Hydromodification Control
Develop, restores, or enhances habitat and open space	--	Green Infrastructure	Habitat Restoration Project
Provides community enhancement	--	Green Infrastructure	Project that provides enhanced community benefit[4]

[1] Assumes that some or all of majority adjacent land use will drain to location.
[2] Non-green infrastructure treatment control facilities include detention and flood control basins (no vegetation).
[3] Green infrastructure facilities are treatment control facilities including bioretention, rain gardens, planter boxes, or other vegetated structures.
[4] Defined as providing "enhanced or created recreational and public use areas, community involvement, or employment opportunities" per the State Storm Water Resource Plan Guidelines (SWRCB, 2015).

Table 5-2. Points Applied to Parcel-Based Project Locations

Project Component Categories	Points		
	0	1	2
Parcel area	< 1 acre	1 - 4 acres	> 4 acres
Area-weighted runoff coefficient (i.e., imperviousness)	< 0.4	0.4 - 0.6	> 0.6
Infiltration feasible	No	Partial	Yes
Average slope	5% - 10%	2% - 5%	0 - 2%
Proximity to 100-year floodplain	> 1 mile	0.5 - 1 mile	< 0.5 miles
Augments water supply	No	--	Yes
Provides source control for stormwater pollution (i.e., water quality control)	--	Full Trash Capture Projects; Non-Green Infrastructure Treatment Control Facilities[1]	Green Infrastructure[2]
Reestablishes natural water drainage systems	--	Non-Green Infrastructure Treatment Control Facilities; Green Infrastructure	Hydromodification Control
Develops, restores, or enhances habitat and open space	--	Green Infrastructure	Habitat Restoration Project
Provides community enhancement	--	Green Infrastructure	Project that provides enhanced community benefit[3]

[1] Non-green infrastructure treatment control facilities include detention and flood control basins (no vegetation).
[2] Green infrastructure facilities are treatment control facilities including bioretention, rain gardens, planter boxes, or other vegetated structures.
[3] Defined as providing "enhanced or created recreational and public use areas, community involvement, or employment opportunities" per the State Storm Water Resource Plan Guidelines (SWRCB, 2015).

Table 5-3. Points Applied to Green Street (in the ROW) Project Locations

Project Component Categories	Points		
	0	1	2
Street type	Local	Collector	Arterial
Adjacent land use	Open Space/Park	Residential	Commercial/Industrial
Infiltration Feasible	No	Partial	Yes
Average Slope	5% - 10%	2% - 5%	0 - 2%
Proximity to 100-year floodplain	> 1 mile	0.5 - 1 mile	< 0.5 miles
Augments water supply	No	--	Yes
Provides source control for stormwater pollution (i.e., water quality control)	--	Full Trash Capture Projects; Non-Green Infrastructure Treatment Control Facilities[1]	Green Infrastructure[2]
Reestablishes natural water drainage systems	--	Non-Green Infrastructure Treatment Control Facilities; Green Infrastructure	Hydromodification Control
Develop, restores, or enhances habitat and open space	--	Green Infrastructure	Habitat Restoration Project
Provides community enhancement	--	Green Infrastructure	Project that provides enhanced community benefit[3]

[1] Non-green infrastructure treatment control facilities include detention and flood control basins (no vegetation).
[2] Green infrastructure facilities are treatment control facilities including bioretention, rain gardens, planter boxes, or other vegetated structures.
[3] Defined as providing "enhanced or created recreational and public use areas, community involvement, or employment opportunities" per the State Storm Water Resource Plan Guidelines (SWRCB, 2015).

5.3.1.6 Description of Scoring Criteria

A variety of criteria were applied to score potential projects, with slightly different criteria used for regional, parcel-based, and green street project locations. Narrative discussion of each quantitative method and its respective scoring criteria is presented below in sections 5.3.2 through 5.3.6.

5.3.2 Water Quality

For the water quality analysis, the following criteria were used:

- Parcel area:
  - For parcel-based projects, the parcel area is the extent of the drainage area available to improve water quality. For regional projects, a larger available area for a facility will allow a larger regional drainage area to be treated. Area cutoff values were selected to result in a relatively normal distribution of scores.
- Majority adjacent land use:
  - Pollutant concentrations vary across land uses. Commercial and industrial were assumed to have the highest pollutant concentrations, followed by Residential and Open Space/Park.
- Infiltration feasible:
  - Infiltration of stormwater can be an effective method of improving water quality by retaining volume and the pollutant load associated with that volume.

- Provides source control for stormwater pollution (i.e., water quality control):
    - Green Infrastructure projects are given the highest score. Full Trash Capture projects remove trash, but do not provide additional benefits, so were given a lower score. Non-green infrastructure treatment control facilities were assumed to provide moderate stormwater pollutant removal and some trash removal, so were also given a lower score.

5.3.3 Stormwater Capture and Use

For the stormwater capture and use analysis, the following criteria were used:

- Parcel area:
    - For parcel-based projects, the parcel area is the extent of the drainage area available to capture stormwater. For regional projects, a larger available area for a facility will allow stormwater from a larger regional drainage area to be captured. Area cutoff values were selected to result in a relatively normal distribution of scores.
- Area-weighted runoff coefficient:
    - The volume of stormwater runoff available for capture and use increases with a higher runoff coefficient.

5.3.4 Water Supply and Flood Management

For the water supply and flood management analysis, the following criteria were used:

- Parcel area:
    - For parcel-based projects, the parcel area is the extent of the drainage area available for flood management. For regional projects, a larger available area for a facility will allow a larger regional drainage area to be attenuated during a flood event. Area cutoff values were selected to result in a relatively normal distribution of scores.
- Area-weighted runoff coefficient:
    - The volume of stormwater runoff that may contribute to flooding increases with a higher runoff coefficient.
- Infiltration feasible:
    - Infiltration of stormwater can augment water supply through groundwater recharge.
- Proximity to 100-year floodplain:
    - Attenuation of flood-causing stormwater runoff is more effective in areas closer to the floodplain.
- Augments water supply:
    - MCSTOPPP-planned projects that were designed to augment water quality were given a higher score. All other identified potential projects were assumed to not augment water supply.
- Reestablishes natural water drainage systems:
    - MCSTOPPP-planned projects that were designed to provide hydromodification control were given a higher score. Green infrastructure and non-green infrastructure treatment control facilities – which included all other identified potential projects – were given a lower, but non-zero score, because these projects

still contribute to reestablishing natural drainage by reducing the time of concentration and runoff volume.

5.3.5 Environmental and Community Benefits

For the environmental and community benefits analysis, the following criteria were used:

- Street classification:
  - Although street type was primarily used as a criterion for physical feasibility (green streets projects are easier to implement on wider roads with medians and/or wider sidewalks), the addition of vegetation in higher-trafficked streets provides a community benefit.
- Develop, restores, or enhances habitat and open space:
  - MSCTOPPP-planned projects that were designed as habitat restoration projects were given a higher score. Green infrastructure projects, which include all identified potential projects, were given a lower, but non-zero score, because these projects still may replace impervious area with vegetation.
- Provides community enhancement:
  - MSCTOPPP-planned projects that were designed to provide enhanced community benefit were given a higher score. Green infrastructure projects, which include all identified potential projects, were given a lower, but non-zero score, because these projects still may provide additional greenery to the urban environment.

5.4 PROJECT PRIORITIZATION

For each watershed, potential project locations were classified by general project type (i.e., regional, parcel-based, or green streets) and ranked within each general type, based on total score received. Potential projects have been summarized in a database, which includes the following information for each site (**Appendix E**):

1. General project type classification;
2. Score per methodology described;
3. Description of the location;
4. Total parcel area and area-weighted runoff coefficient (for parcel-based projects); and
5. Additional descriptive information provided by MCSTOPPP member agencies for their identified projects.

The draft ranked lists by watershed were delivered to the MCSTOPPP member agencies for review.

5.4.1 Project Prioritization and Selection

MCSTOPPP member agencies reviewed the draft project list(s) that included identified projects within their jurisdiction. The draft project list(s) were preliminarily ranked based upon the score resulting from the method described in the previous section. MCSTOPPP member agencies reviewed the list and, using the score and other local and institutional knowledge, provided revisions to project ranking. The final list of prioritized projects was developed from this revised ranking, and each member agency selected one potential project from the list (i.e., their top-ranked project) to be taken to the project concept stage and through the quantitative analysis. All viable potential projects were retained in the SWRP.

5.4.2 Selected Projects

Twelve of the top prioritized projects were selected by member agencies as high priority sites. The characteristics of each site are summarized below in **Table 5-4** and shown in **Figure 5-1**.

Table 5-4: Selected Projects for Water Quality Benefit Quantification

Project Name/Assessor's Parcel Numbers (APNs)	MCSTOPPP Member Agency	Project Type	Facility Type[1]	Drainage Area (acres)	Percent of Land Uses in Drainage Area					Runoff Coefficient[2] (unitless)
					Residential	Commercial	Heavy Industrial	Open Space	Park/ Recreation	
030-043-36	Mill Valley	Regional	Unlined GI with an Underdrain	6.2	65%	10%	0%	0%	25%	0.39
022-741-03	Larkspur	Regional	Lined GI with an Underdrain	11.7	94%	6%	0%	0%	0%	0.42
063-110-17	Sausalito	Regional	Lined GI with an Underdrain	10.5	0%	0%	74%	0%	26%	0.62
024-136-13, 024-136-14, 024-136-15	Corte Madera	Parcel-Based	Lined GI with an Underdrain	0.5	0%	100%	0%	0%	0%	0.70
002-117-01, 001-227-01, 001-227-02	Fairfax	Green Streets	Lined GI with an Underdrain	30.1	78%	22%	0%	0%	0%	0.47
060-071-01	Belvedere	Regional	Lined GI with an Underdrain	22.2	100%	0%	0%	0%	0%	0.40
Veterans Memorial Auditorium - Parking Lot	County of Marin	Parcel-Based	Lined GI with an Underdrain	6.7	0%	100%	0%	0%	0%	0.70
Novato Boulevard Improvements	Novato	Green Streets	Lined GI with an Underdrain	2.2	72%	28%	0%	0%	0%	0.48
Red Hill Avenue Medians	San Anselmo	Green Streets	Lined GI with an Underdrain	2.4	40%	60%	0%	0%	0%	0.70
McKegney Field	Tiburon	Parcel-Based	Unlined GI with an Underdrain	10.6	0%	0%	0%	0%	100%	0.25
3rd St., Grand to Miracle Mile Improvements	San Rafael	Regional	Lined GI with an Underdrain	9.7	3%	89%	0%	0%	8%	0.65
Natalie Coffin Green Park	Ross	Flood Control	Flood Control	26.1	0%	0%	0%	100%	0%	0.20

[1] GI = Green Infrastructure

[2] Area-weighted runoff coefficient calculated based on proportions of tributary land use types (see **Table 5-6**).

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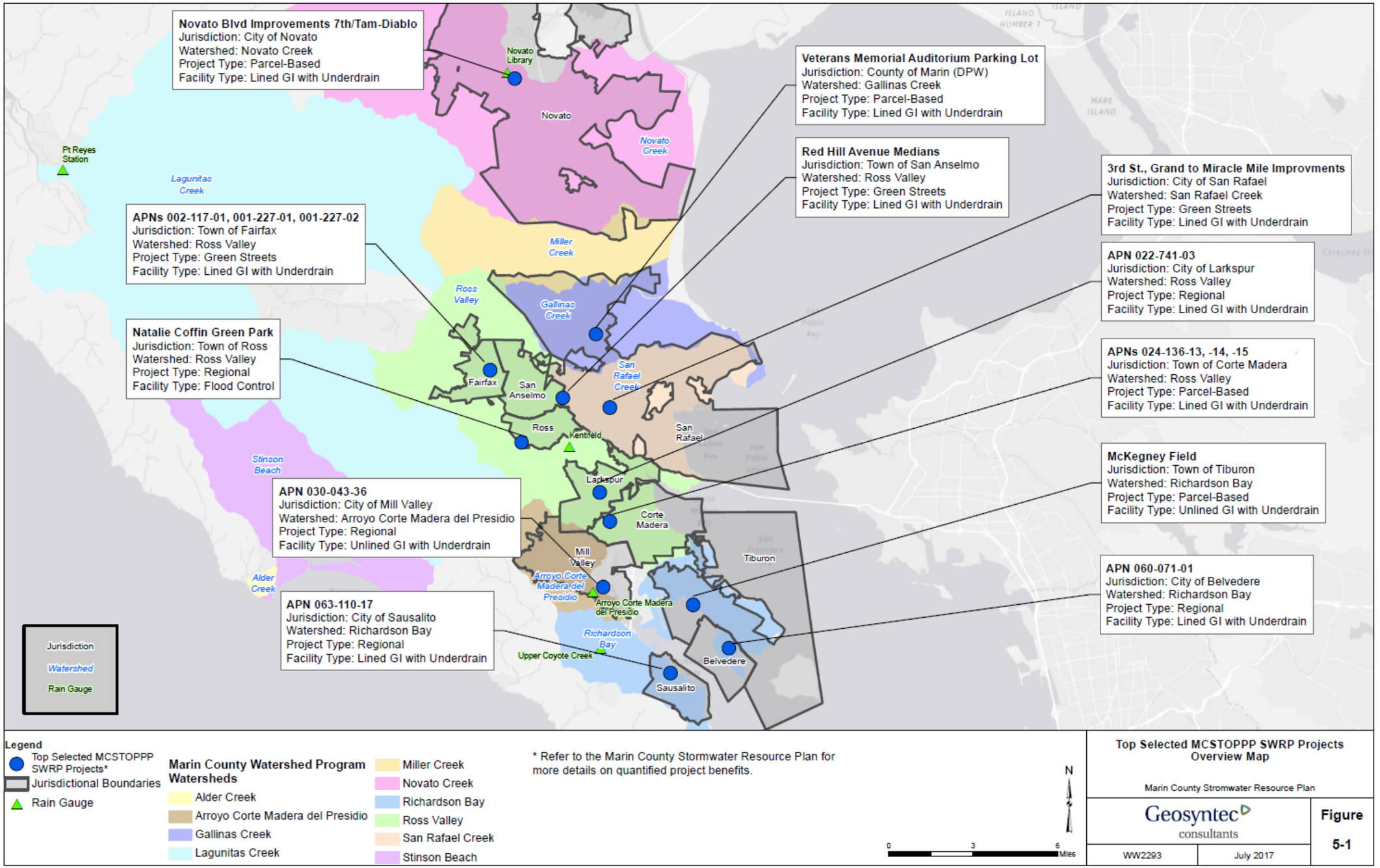

Figure 5-1. Overview Map of Top Selected MCSTOPPP SWRP Projects

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5.4.3 Quantitative Analysis of Pollutant Load Reductions and Stormwater Capture from Selected Potential Projects

Detailed quantification was conducted for the top selected projects to estimate the magnitude of benefit that could be achieved. The methodology included a spreadsheet-based estimate of the amount of runoff that could be captured and retained, treated, or reused at the site and an estimate of the potential TSS load reduction that could be achieved.[84] The volume of runoff and TSS load generated by the project drainage area was estimated using the Simple Method (Schueler, 1987). The Simple method equation is shown below (shown unit correction factors):

$$Load = R * C * A$$

Where:

Load = Pollutant Load (in kilograms per year [kg/yr])
R = runoff (watershed inches per year [inch/yr])
C = flow-weighted concentration (in milligrams per liter [mg/L])
A = Area (acre-feet [ac-ft])

Annual runoff is calculated as follows:

$$R = P * Pf * Rv$$

Where:

R = runoff (watershed inch/yr)
P = rainfall depth (inch/yr)
Pf = factor to correct P for storms that do not produce runoff (unitless)
Rv = runoff coefficient (unitless)

The *Pf* factor used to correct rainfall was calculated as the ratio of the total depth of runoff producing storm events and the overall total rainfall depth. For this analysis, it was assumed that storm events with a 6-hour inter-event time and a total rainfall volume less than or equal to 0.1 inches do not produce runoff. This calculation was performed using a 48-year period of record at the National Center for Environmental Information (NCEI) Novato gauge with rainfall data from October 1948 to October 1996 (COOP ID 046290). This analysis resulted in a value for *Pf* of 0.97, which was used for all annual runoff and TSS load calculations reported below.

An average annual rainfall depth was assigned to each project based on the calculated average annual rainfall associated with the nearest quality-checked MCSTOPPP rainfall gauge location(s) (using gauge data provided by Marin County from https://marin.onerain.com/map.php). Annual rainfall totals for six gauges in Marin County are summarized in **Table 5-5**.

[84] Load reduction was not calculated for those projects which would not provide a direct stormwater load reduction benefit (for example, the Natalie Coffin Green Park flood control project).

Table 5-5. Marin County Gauges Mean Annual Rainfall

Gauge Name	Gauge Identification	Period of Record	Mean Annual Rainfall (inches)[1]	Mean Annual Runoff Producing Rainfall (inches)[5]
Arroyo Corte Madera del Presidio	38021	2000-2015	27.1[1,2]	26.3
Kentfield	38024	2000-2015	34.6	33.6
Novato Library	38027	2000-2015	24.9	24.2
Oceana Marin	38028	2003-2015	24.2[1,3]	23.5
Point Reyes Station	38029	2003-2015	32.8[1,4]	31.8
Upper Coyote Creek	38030	2011-2015	26.0	25.2

[1] Specific outlier events were removed from the record for purposes of statistical analysis. These events were identified by very high rainfall depths reported for one gauge, when no rainfall occurred at other gauges, or if other gauge data was also anomalous. Outlier events were replaced with 0 inches for statistical analysis.
[2] Removed event occurring on October 27, 2013 with 5.79 inches of rainfall and no rainfall at other gauges (except Point Reyes Station, whose data was also removed). Removed event on November 5, 2013 with 7.6 inches of rainfall reported with 0 rainfall at all other gauges.
[3] Removed event occurring on June 26, 2007 with 6.63 inches of rainfall reported with 0 rainfall at all other gauges. Removed event on November 1, 2013 with 4.96 inches reported with 0 rainfall at all other gauges.
[4] Removed events between August 23, 2005 through August 27, 2005 when 24.2 inches rainfall was reported with 0 rainfall at all other gauges. Removed events January 13, 2008 and January 14, 2008 when 10.7 inches and 58.2 inches of rainfall were reported, respectively, with 0.00-0.04 inches reported at all other gauges. Removed event on October 24, 2013 when 5.32 inches were reported with 0 rainfall at all other gauges. Removed event on October 27, 2013 when 6.07 inches were reported with 0 rainfall at all other gauges.
[5] Calculated by applying the *Pf* factor (0.97) to the mean annual rainfall value.

The drainage area for each selected potential project was either estimated or provided by MCSTOPPP member agencies. For planned projects identified by MCSTOPPP member agencies, this information was acquired from the project data request. Parcel-based projects are assumed to treat the whole area of the parcel. ROW projects are assumed to treat the ROW and portions of adjacent parcels. Drainage areas were approximated for potential regional locations using available storm drain and topographic data from Marin County. Land uses within each drainage area were identified based on the parcel and zoning geospatial data delivered by Marin County, and were binned into six land use categories for use in the analysis: (1) commercial; (2) light industrial; (3) heavy industrial; (4) residential; (5) park/recreation; and (6) open space (see **Appendix D**).

Potential project load reductions for TSS were computed as the product of the average annual runoff volume and San Francisco Bay Area TSS event mean concentrations (EMCs) (Bay Area Stormwater Management Agencies Association [BASMAA], 1996) assigned to project drainage areas based on land use distributions within the project drainage area.[85] To estimate the total TSS load reduced by each project, the TSS load discharged from projects were calculated by multiplying the EMC corresponding with each land use in the project drainage area by the runoff produced by that land use in the project drainage area. The land use specific runoff coefficients are included in **Table 5-6**. Land use based EMCs are also shown in **Table 5-6**.

[85] The land use categories included in the BASMAA (1996) study are used to define the land use categories for the quantification analysis.

Table 5-6. Land Use Based Assumptions Used for Project Analysis

Land Use	Runoff Coefficient[1] (unitless)	TSS Event Mean Runoff Concentration (mg/L)[2]
Commercial	0.70[3]	97.5
Light Industrial	0.65	113
Heavy Industrial	0.75	157
Residential	0.40[3]	85.9
Park/Recreation	0.25[3]	97.5[4]
Open Space	0.20	n/a[5]

[1] From the California Department of Transportation (Caltrans) Highway Design Manual (2014; per recommendation from Marin County, 2017).
[2] From BASMAA Regional Monitoring Data Analysis (1996).
[3] Value represents the mid-point of the provided range in Caltrans (2014).
[4] Assumed the same EMC as Commercial but with a lower imperviousness (loads will be lower per area).
[5] Open space land use results were documented as "too variable" to derive an EMC in BASMAA, 1996. It is assumed that no true open space areas will drain to water quality projects (these projects should be sited based on capturing highly impervious areas).

A standard 80% percent capture was assumed for water quality projects to which the projects drained, based on the NPDES sizing guidance provided in the latest version of the BASMAA Post Construction Manual (July 2014 or later). The percent volume reduction was assumed based on the treatment type (i.e., infiltrating, unlined with underdrain, lined with underdrain) per the findings on relative volume reduction statistics for bioretention studies as reported in the International Stormwater BMP Database Addendum 1 to Volume Reduction Technical Summary (Geosyntec and Wright Water, 2012). The values used in the quantification are shown in **Table 5-7**.

Table 5-7. Capture Volume and Volume Reduced for Each Project Type

Project Type	Capture Volume	Volume Reduction (as % of capture volume)[1]
Unlined GI without an underdrain (infiltration feasible)	80% of Inflow	99%
Unlined GI with an underdrain (infiltration partially feasible)	80% of Inflow	52%
Lined GI with an underdrain (infiltration infeasible)	80% of Inflow	0%

[1] International Stormwater BMP Database (Geosyntec and Wright Water, 2014)

The median effluent TSS concentration of 9.9 mg/L for bioretention systems as reported in the International Stormwater BMP Database (Geosyntec and Wright Water, 2014) was used for calculating load for the volume treated and discharged from the BMP. The resulting discharge load was subtracted from the drainage area load to estimate the load reduction per project.

5.4.4 Results of Quantification

The results of the quantitative analysis are summarized in **Table 5-8** and **Table 5-9** for each of the selected projects. A map showing the selected prioritized projects for each MCSTOPPP member agency, including a project description, is provided in **Figure 5-1**.

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Table 5-8. Detailed Benefit Quantification – Water Quality Projects

Project Name	Closest Rainfall Gauge	Mean Annual Runoff Producing Rainfall (inches)	Average Annual Runoff (without treatment)[3] (ac-ft/yr)	Average Annual TSS Load (without treatment)[3] (kg/yr)	Average Annual Runoff (with Proposed Treatment)[4] (ac-ft/yr)	Average Annual TSS Load (with Proposed Treatment)[4] (kg/yr)	Average Annual Volume Reduction from Project[5] (ac-ft/yr)	Average Annual TSS Load Reduction from Project[5] (kg/yr)
030-043-36[2]	Arroyo Corte Madera del Presidio	26.3	5.3	585	3.1	142	2.2	443
022-741-03[1]	Kentfield	33.6	13.8	1,484	13.8	432	0.0	1,053
063-110-17[1]	Upper Coyote Creek	25.2	13.7	2,557	13.7	646	0.0	1,912
024-136-13, 024-136-14, 024-136-15[1]	Arroyo Corte Madera del Presidio	26.3	0.8	98	0.8	28	0.0	70
002-117-01, 001-227-01, 001-227-02[1]	Kentfield	33.6	39.3	4,349	39.3	1,253	0.0	3,095
060-071-01[1]	Upper Coyote Creek	25.2	18.7	1,978	18.7	578	0.0	1,400
Veterans Memorial Auditorium – Parking Lot[1]	Kentfield	33.6	13.0	1,568	13.0	441	0.0	1,127
Novato Boulevard Improvements 7th/Tam-Diablo[1]	Novato Library	24.2	2.2	244	2.2	70	0.0	174
Red Hill Avenue Medians[1]	Kentfield	33.6	4.7	550	4.7	156	0.0	394
McKegney Field[2]	Arroyo Corte Madera del Presidio	26.3	5.8	696	3.4	166	2.4	530
3rd St., Grand to Miracle Mile Improvements[1]	Kentfield	33.6	17.7	2,125	17.7	598	0.0	1,527

[1] Lined GI project. [2] Unlined GI project.
[3] Indicates total runoff and load from drainage area without treatment. Calculated using drainage area, runoff coefficient, and land uses indicated in Table 5, and EMC values from Table 7.
[4] Indicates total runoff and load discharged from facility plus bypassed from facility. Calculated based on assumed facility capture and volume reduction indicated in Table 8, and average effluent concentration from International Stormwater BMP Database.
[5] Represents difference between runoff and load discharged from project area without treatment and discharged volume and load when treatment is applied.

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Table 5-9. Detailed Benefit Quantification – Flood Control Project

Project Name	100-Year Flood Event[1] (inches)	Total Flood Management Volume (ac-ft)
Natalie Coffin Green Park	11.6	5.1

[1] The Expected 100-Year, 24-Hour Runoff Volume is the runoff volume from a 100-year flood event for the region (per National Oceanic and Atmospheric Administration [NOAA] Atlas 14 Point Precipitation Frequency Estimates, 2017).

5.5 DATA MANAGEMENT

A project database was developed that includes all projects identified by member agencies and through desktop opportunity analyses. This database includes the results of the metric-based analysis and prioritization process. The database includes all identified publicly-owned parcels that were identified as potentially feasible for implementation per the methodology described in the Project Opportunity Analysis section. A Google Earth file, showing all the parcels and ROW identified through this process was also developed. While it is likely that a majority of potential future project locations are already provided within the database, given the extent of parcels and ROW analyzed, if additional parcels or ROW are added, the database and Google Earth can be edited directly by the member agencies, as needed, or can be transferred to consultants to edit the database. The project scores provided in the project database are based on the methodology provided herein, which can be directly applied to additional projects added.

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

6.1 RESOURCES FOR PLAN IMPLEMENTATION

Preparation of the Marin County SWRP was funded by MCSTOPPP and its member agencies. Additional funding for SWRP implementation beyond its initial development will be obtained by the agency (or agencies) implementing specific projects. MCSTOPPP will administer the project database and update it as needed after calls for projects or as project sponsors add new projects or update existing projects with new information.

The present funding strategy includes current transportation funds, matched with grant opportunities and potential partnerships with federal and state agencies. For example, member agencies may coordinate with Caltrans for potential partnership to fund capture projects for their state-wide TMDL implementation and NPDES permit requirements. Potential sources of grant funding include the State Water Board's Proposition 1 Stormwater Grant Program and the Integrated Regional Water Management Implementation Grants administered by the Department of Water Resources. The Proposition 1 Implementation Round 2 solicitation is anticipated to occur in spring of 2018.

6.2 PLAN IMPLEMENTATION AND ACHIEVEMENT OF MULTIPLE BENEFITS

Marin County, MCSTOPPP and its member agencies have long recognized the utility of a multiple-benefit approach toward stormwater management. As the SWRP draws from existing regional and watershed plans to provide a functionally equivalent SWRP, the implementation strategy for this Plan builds upon those existing efforts, including the Bay Area IRWMP, individual watershed plans and other relevant plans referenced herein. Continuing the use of this integrated approach toward managing the countywide stormwater program will allow for the implementation of green infrastructure projects at the regional scale.

In keeping with this approach, the project evaluation methodology in Section 5 scores potential projects based on quantitative metrics and qualitative components associated with providing the identified multiple benefits (water quality, water supply, flood control, environmental benefit, and community benefit) derived from the implementation of specific projects. The projects that provide more benefits will score higher, which encourages agencies to develop and submit projects that achieve a greater number of benefits. Each of the projects selected for implementation will be monitored to ensure that the multiple benefits are achieved.

Marin County and MCSTOPPP member agencies are already complying with requirements in the "BASMAA Post-Construction Manual – Design Guidance for Stormwater Treatment and Control for Projects in Marin, Sonoma, Napa and Solano Counties" (BASMAA, 2014) to ensure compliance with the Phase II MS4 Permit and promote Low Impact Development (LID) design. Additionally, Marin County and MCSTOPPP member agencies are already using their planning authorities as they require that Regulated Projects implement LID design standards to address stormwater runoff, including site design, source controls, stormwater treatment and hydromodification management measures. It is expected that LID for new development and redevelopment will play a major role in reducing pollutant loads associated with stormwater. However, the funding for these LID implementation efforts for development and redevelopment

will come from the development community, and therefore do not fall within the scope of this SWRP.

6.3 DECISION SUPPORT TOOLS AND SUPPORTING DATA

Section 5 of this SWRP describes decision support tools used to analyze and prioritize projects and provides the data necessary to use these tools. The tools and data included in Section 5 will be used throughout SWRP implementation.

6.4 IMPLEMENTATION STRATEGY, TIMELINE, AND TRACKING

Once the Marin County SWRP is finalized after considering input from stakeholders and the public, the SWRP will be submitted to the Bay Area IRWM group for incorporation into the IRWMP. The SWRP will also be provided to Engineering/Capital Improvement Project (CIP) planning divisions at each member agency to consider the feasibility of pursuing funding for incorporating green infrastructure elements into existing or future planned projects. Individual project implementation will be managed by the municipality with jurisdiction at the project location. County or regional authorities may facilitate or manage larger regional projects through a Memorandum of Understanding (MOU) or other agreements with municipalities.

As funding opportunities become available, calls for projects will be advertised, and if necessary, the project database will be updated. Projects will be re-assessed and ranked according to the methodology described in Section 5 that encourages multi-benefit projects that support stormwater capture and reuse, as well as trash requirements. Agencies sponsoring projects selected for implementation will be responsible for implementing the project-specific strategy, including:

- Project design;
- Collaboration with stakeholders;
- Complying with CEQA and NEPA, including public process;
- Obtaining local, state and federal project permits;
- Implementing the project;
- Tracking project implementation and effectiveness of the strategies identified in the planning documents, permits or grant agreements, where applicable;
- Completing reports required by permits or grants.

To ensure the successful transition from project selection to implementation, projects may be brought to the Marin Project Coordination Meeting with the relevant natural resource agencies to understand permitting processes and requirements. Project timelines are typically under continuous development, such that as funding becomes available, detailed timelines for feasibility analysis, design and construction for selected projects will be developed at that time.

Long-term implementation schedules will be determined by the level of funding available through grants and other sources, as well as integration of stormwater capture into regularly-scheduled CIP improvements. However, although these stormwater capture projects have several additional multiple benefits that justify their implementation and investment, the level of funding through Proposition 1 and regulatory requirements for Regulated Projects drive decisions for additional funding needs beyond current CIP project planning. Additionally, for larger regional projects, schedules will likely require more time for planning, phasing, design, and construction, and are therefore expected to be implemented over a longer timeframe. Ultimately, planning

documents for specific projects will identify project-specific implementation schedules and timelines.

The Marin County SWRP is designed to be a living document that will be updated periodically in response to future calls for projects, and as project sponsors submit new information for projects already on the list or as they submit additional projects for consideration. As projects are implemented, the SWRP will be periodically updated to incorporate project designs, feasibility analysis and individual project status and/or the addition of new potential project locations (e.g., new parcels will be added to the "potential projects" list). Parcels for which projects are planned will go through the scoring process again to ensure that all project benefits have been identified.

The community participation strategy for implementation of the SWRP is discussed in **Section 7**, Additional information on community outreach, along with the strategy for coordinating with local, state and federal agencies to obtain necessary permits is can be found in **Section 2**.

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7. Education, Outreach, Public Participation (Guidelines Section VI.F)

7.1 PLAN IMPLEMENTATION

Section 2.1 describes the public education and public participation process during SWRP development. Following the adoption of the Marin County SWRP, future efforts will be made to engage the public; specifically members of the community who will be most affected by project design and implementation, and engage disadvantaged and climate-vulnerable communities within the plan boundaries, as applicable. Input on identifying relevant environmental justice issues will be solicited at a CAC or other meetings. The specific audiences that will be targeted include those discussed within Section 2.

Outreach efforts during SWRP implementation will include public meetings and workshops, the use of MCSTOPPP and agency websites, and development and distribution of informational materials. Public meetings and workshops will provide stakeholders, community members and other interested parties with opportunities to share input on plan implementation including relevant environmental injustice issues. Sign-in sheets will be used at meetings and workshops to track involvement of stakeholders and interested parties during SWRP implementation.

7.2 PROJECT DESIGN AND IMPLEMENTATION

The same outreach strategies used for SWRP development will be used to engage communities during project planning, design and implementation. Input from the local community will be solicited through public meetings and workshops throughout project design and implementation. Public meetings on project implementation will be announced through press releases, social media, agency websites, and will also be on the MCSTOPPP website, through watershed groups and the MCSTOPPP CAC.

As projects are funded for implementation, additional parties will be identified by the lead agencies or project sponsors, and a point of contact will be identified and included in any distribution lists. Additional parties may include developers, local commercial and industrial stakeholders, nongovernmental and nonprofit organizations, and the general public. Lead agencies for specific projects will engage the public during the planning, design and construction phases of their projects and will comply with public noticing requirements for CEQA/NEPA. Outreach efforts may include public meetings, printed materials, and signage (where required), and digital communication (e.g., websites and email distribution).

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8. References

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Appendix A – Checklist and Self-Certification

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Appendix A: Checklist and Self-Certification

Checklist Instructions:

For <u>each element</u> listed below, review the applicable section in the Storm Water Resource Plan Guidelines and enter ALL of the following information.

A. **Mark the box if the Storm Water Resource Plan, or a functional equivalent Plan, meets the provision**
B. **In the provided space labeled <u>References</u>, enter:**

1. **Title of document(s) that contain the information;**
2. **The chapter/section, <u>and page number(s)</u> where the information is located within the document(s);**
3. **The entity(ies) that prepared the document(s);**
4. **The date the document(s) was prepared, and subsequent updates; and**
5. **Where each document can be accessed[1] (website address or attached).**

STORM WATER RESOURCE PLAN CHECKLIST AND SELF-CERTIFICATION		
Mandatory Required Elements per California Water Code are Shaded		
Y/N	**Plan Element**	**Water Code Section**

WATERSHED IDENTIFICATION (GUIDELINES SECTION VI.A)		
☑	Plan identifies watershed and subwatershed(s) for storm water resource planning.	10565(c) 10562(b)(1) 10565(c)
<u>References:</u> (1) Marin County SWRP; (2) Section 3.1, pp. 3-1 through 3-3; (3) Larry Walker Associates, Geosyntec; (4) September 2017;(5) Attached. (1) Marin County Stormwater Pollution Prevention Program (MCSTOPPP) Action Plan 2010; (2) p. 2; (3) EOA, Inc.; (4) May 2005; (5) https://www.marincounty.org/depts/pw/divisions/mcstoppp/~/media/Files/Departments/PW/mcstoppp/AP2010_2005052		
☑	Plan is developed on a watershed basis, using boundaries as delineated by USGS, CalWater, USGS Hydrologic Unit designations, or an applicable integrated regional water management group, and includes a description and boundary map of each watershed and sub-watershed applicable to the Plan.	
<u>References:</u> (1) Marin County SWRP; (2) Section 3, pp. 3-1 through 3-28; (3) Larry Walker Associates, Geosyntec; (4) September 2017; (5) Attached. (1) Marin County Stormwater Pollution Prevention Program (MCSTOPPP) Action Plan 2010; (2) p. 2; (3) EOA, Inc.; (4) May 2005; (5) https://www.marincounty.org/depts/pw/divisions/mcstoppp/~/media/Files/Departments/PW/mcstoppp/AP2010_2005052		

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

WATERSHED IDENTIFICATION
(GUIDELINES SECTION VI.A)

☑	Plan includes an explanation of why the watershed(s) and sub-watershed(s) are appropriate for storm water management with a multiple-benefit watershed approach;

References:
(1) Marin County SWRP; (2) Section 3.1, pp. 3-1 through 3-3; (3) Larry Walker Associates, Geosyntec; (4) September 2017; (5) Attached. (1) Gallinas Watershed Program Final Report (DRAFT); (2) p. 1; (3) Marin County Department of Public Works (DPW); (4) November 14, 2016; (5)

☑	Plan describes the internal boundaries within the watershed (boundaries of municipalities; service areas of individual water, wastewater, and land use agencies, including those not involved in the Plan; groundwater basin boundaries, etc.; preferably provided in a geographic information system shape file);

References:
This information is readily available in GIS, but not narrative. The internal boundaries of municipalities, service areas for individual water, wastewater, and land use agencies and identification of surface water resources for each watershed is available for viewing and download through a publicly-accessible Geographic Information System (GIS) portal at

☑	Plan describes the water quality priorities within the watershed based on, at a minimum, applicable TMDLs and consideration of water body-pollutant combinations listed on the State's Clean Water Act Section 303(d) list of water quality limited segments (a.k.a impaired waters list);

References:
(1) Marin County SWRP; (2) Section 3, pp. 3-5, 3-7, 3-9, 3-13, 3-16, 3-18, 3-21, 3-23, 3-26; (3) Larry Walker Associates, Geosyntec; (4) August 2017; (5) Attached. (1) TMDL Implementation Status and Effectiveness Assessment Report 2016; (2) pp. 23-24, 37-40; (3) MCSTOPPP; (4) October 2016; (5)

☑	Plan describes the general quality and identification of surface and ground water resources within the watershed (preferably provided in a geographic information system shape file);

References:
This information is readily available in GIS, but not narrative.

☑	Plan describes the local entity or entities that provide potable water supplies and the estimated volume of potable water provided by the water suppliers;

References:
(1) Marin County SWRP; (2) Section 3, pp. 3-5, 3-7, 3-9, 3-12, 3-15, 3-18, 3-20, 3-23, 3-25; (3) Larry Walker Associates, Geosyntec; (4) August 2017;(5) Attached. (1) 2015 Urban Water Management Plan; (2) pp. 23, 6-3; (3) Marin Municipal Water District; (4) June 2016; (5) http://marinwater.org/DocumentCenter/View/3828.

☑	Plan includes map(s) showing location of native habitats, creeks, lakes, rivers, parks, and other natural or open space within the sub-watershed boundaries; and

References:
(1) Marin County SWRP; (2) Section 3. pp. 3-2, 3-3, 3-4, 3-7, 3-9, 3-12, 3-16, 3-19, 3-21, 3-24, 3-27; (3) Larry Walker Associates, Geosyntec; (4) August 2017; (5) Attached. (1) MarinMap; (2) website; (3) various; (4) continually updated; (5) http://www.marinmap.org/dnn/. (1) Gallinas Creek Watershed; (2) webpage; (3) Marin County DPW; (4) 2009-2014;

☑	Plan identifies (quantitative, if possible) the natural watershed processes that occur within the sub-watershed and a description of how those natural watershed processes have been disrupted within the sub-watershed (e.g., high levels of imperviousness convert the watershed processes of infiltration and interflow to surface runoff increasing runoff volumes; development commonly covers natural surfaces and often introduces non-native vegetation, preventing the natural supply of sediment from reaching receiving waters).

References:
(1) Marin County SWRP; (2) Section 3. pp. 3-5, 3-8, 3-10, 3-13, 3-16, 3-19, 3-21, 3-24, 3-27; (3) Larry Walker Associates, Geosyntec; (4) August 2017; (5) Attached. (1) Gallinas Creek Flood Protection and Watershed Program; (2) webpage; (3) Marin County DPW; (4) 2009-2014; (5)

WATER QUALITY COMPLIANCE
(GUIDELINES SECTION V)

✔	Plan identifies activities that generate or contribute to the pollution of storm water or dry weather runoff, or that impair the effective beneficial use of storm water or dry weather runoff.	10562(d)(7)

References:
(1) Marin County SWRP; (2) Section 4.2, p 4-2; (3) Larry Walker Associates, Geosyntec; (4) September 2017; (5) Attached.
(1) Phase II MS4 Stormwater Permit; (2) p. 5; (3) SF Bay RWQCB; (4) February 5, 2013; (5) http://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/phsii2012_5th/order_final.pdf.

✔	Plan describes how it is consistent with and assists in, compliance with total maximum daily load implementation plans and applicable national pollutant discharge elimination system permits.	10562(b)(5)

References:
(1) Marin County SWRP; (2) Section 4.1, p. 4-1; (3) Larry Walker Associates, Geosyntec; (4) September 2017; (5) Attached.
(1) MCSTOPPP: Total Maximum Daily Load Implementation Status and Effectiveness Assessment Report 2015-2016; (2) p. 6; (3) Larry Walker Associates; (4) October 2016; (5) http://www.marincounty.org/~/media/files/departments/pw/mcstoppp/municipalities_only/o16_tmdl_ea_report_15_16.pdf

✔	Plan identifies applicable permits and describes how it meets all applicable waste discharge permit requirements.	10562(b)(6)

References:
(1) Marin County SWRP; (2) Section 4.1, p. 4-1; (3) Larry Walker Associates, Geosyntec; (4) September 2017; (5) Attached.

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

✔	Local agencies and nongovernmental organizations were consulted in Plan development.	10565(a)

References:
(1) Marin County SWRP; (2) Section 2.1, p. 2-1 through 2-3; (3) Larry Walker Associates, Geosyntec; (4) September 2017;(5) Attached - Appendix C

✔	Community participation was provided for in Plan development.	10562(b)(4)

References:
(1) Marin County SWRP; (2) Section 2.1, p. 2-1 through 2-3 and Appendix C; (3) Larry Walker Associates, Geosyntec; (4) September 2017;(5) Attached.

✔	Plan includes description of the existing integrated regional water management group(s) implementing an integrated regional water management plan.

References:
(1) Marin County SWRP; (2) Section 2.4, p. 2-4 and Appendix B; (3) Larry Walker Associates, Geosyntec; (4) September 2017;(5) Attached.
(1) San Francisco Bay Area Integrated Regional Water Management Plan; (2) Chapter 1; (3) Kennedy Jenks et al; (4) September 2013; (5) N/A

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

☑	Plan includes identification of and coordination with agencies and organizations (including, but not limited to public agencies, nonprofit organizations, and privately owned water utilities) that need to participate and implement their own authorities and mandates in order to address the storm water and dry weather runoff management objectives of the Plan for the targeted watershed.

References:
(1) Marin County SWRP; (2) Section 2.1, p. 2-1 through 2-3 and Appendix C; (3) Larry Walker Associates, Geosyntec; (4) September 2017;(5) Attached.
(1) San Francisco Bay Area Integrated Regional Water Management Plan; (2) Chapter 1; (3) Kennedy Jenks et al; (4)

☑	Plan includes identification of nonprofit organizations working on storm water and dry weather resource planning or management in the watershed.

References:
(1) Marin County SWRP; (2) Section 2.1, p. 2-1 through 2-3; (3) Larry Walker Associates, Geosyntec; (4) September 2017;(5) Attached.

☑	Plan includes identification and discussion of public engagement efforts and community participation in Plan development.

References:
(1) Marin County SWRP; (2) Section 2.1, p. 2-1 through 2-3 and Appendix C; (3) Larry Walker Associates, Geosyntec; (4) September 2017; (5) Attached.
(1) NBWA Board Meetings; (2) Website; (3) North Bay Watershed Association; (4) 2017; (5)

☑	Plan includes identification of required decisions that must be made by local, state or federal regulatory agencies for Plan implementation and coordinated watershed-based or regional monitoring and visualization

References:
(1) Marin County SWRP; (2) Section 2.2, p. 2-3 through 2-4; (3) Larry Walker Associates, Geosyntec; (4) September 2017; (5) Attached.

☑	Plan describes planning and coordination of existing local governmental agencies, including where necessary new or altered governance structures to support collaboration among two or more lead local agencies responsible for plan implementation.

References:
(1) Marin County SWRP; (2) Section 2.2, p. 2-3; (3) Larry Walker Associates, Geosyntec; (4) September 2017; (5) Attached,

☑	Plan describes the relationship of the Plan to other existing planning documents, ordinances, and programs established by local agencies.

References:
(1) Marin County SWRP; (2) Section 2.4, p. 2-4 through 2-5 and Appendix B; (3) Larry Walker Associates, Geosyntec; (4) September 2017; (5) Attached
(1) 2013 Bay Area Integrated Regional Water Management Plan; (2) Chapter 6; (3) Kennedy Jenks et al; (4) September

☐	(If applicable)Plan explans why individual agency participation in various isolated efforts is appropriate.

References:

Not applicable

QUANTITATIVE METHODS
(GUIDELINES SECTION VI.C)

☑	**For all analyses:** Plan includes an integrated metrics-based analysis to demonstrate that the Plan's proposed storm water and dry weather capture projects and programs will satisfy the Plan's identified water management objectives and multiple benefits.

References:

(1) Marin County SWRP; (2) Section 5.3; (3) Larry Walker Associates, Geosyntec; (4) September 2017; (5) Attached.

☑	**For water quality project analysis (section VI.C.2.a)** Plan includes an analysis of how each project and program complies with or is consistent with an applicable NPDES permit. The analysis should simulate the proposed watershed-based outcomes using modeling, calculations, pollutant mass balances, water volume balances, and/or other methods of analysis. Describes how each project or program will contribute to the preservation, restoration, or enhancement of watershed processes (as described in Guidelines section VI.C.2.a)

References:

(1) Marin County SWRP; (2) Section 5.3.2; (3) Larry Walker Associates, Geosyntec; (4) September 2017; (5) Attached.

☑	**For storm water capture and use project analysis (section VI.C.2.b):** Plan includes an analysis of how collectively the projects and programs in the watershed will capture and use the proposed amount of storm water and dry weather runoff.

References:

(1) Marin County SWRP; (2) Section 5.3.3; (3) Larry Walker Associates, Geosyntec; (4) September 2017; (5) Attached.

☑	**For water supply and flood management project analysis (section VI.C.2.c):** Plan includes an analysis of how each project and program will maximize and/or augment water supply.

References:

(1) Marin County SWRP; (2) Section 5.3.4; (3) Larry Walker Associates, Geosyntec; (4) September 2017; (5) Attached.

☑	**For environmental and community benefit analysis (section VI.C.2.d):** Plan includes a narrative of how each project and program will benefit the environment and/or community, with some type of quantitative measurement.

References:

(1) Marin County SWRP; (2) Section 5.3.5; (3) Larry Walker Associates, Geosyntec; (4) September 2017; (5) Attached.

☑	**Data management (section VI.C.3):** Plan describes data collection and management, including: a) mechanisms by which data will be managed and stored; b) how data will be accessed by stakeholders and the public; c) how existing water quality and water quality monitoring will be assessed; d) frequency at which data will be updated; and e) how data gaps will be identified.

References:

(1) Marin County SWRP; (2) Section 5.5; (3) Larry Walker Associates, Geosyntec; (4) September 2017; (5) Attached.

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

☑	Plan identifies opportunities to augment local water supply through groundwater recharge or storage for beneficial use of storm water and dry weather runoff.	10562(d)(1)

References:

(1) Marin County SWRP; (2) Section 5.1.3; (3) Larry Walker Associates, Geosyntec; (4) September 2017; (5) Attached.

☑	Plan identifies opportunities for source control for both pollution and dry weather runoff volume, onsite and local infiltration, and use of storm water and dry weather runoff.	10562(d)(2)

References:

(1) Marin County SWRP; (2) Section 5.1.6; (3) Larry Walker Associates, Geosyntec; (4) September 2017; (5) Attached.

☑	Plan identifies projects that reestablish natural water drainage treatment and infiltration systems, or mimic natural system functions to the maximum extent feasible.	10562(d)(3)

References:

(1) Marin County SWRP; (2) Section 5.1.5; (3) Larry Walker Associates, Geosyntec; (4) September 2017; (5) Attached.

☑	Plan identifies opportunities to develop, restore, or enhance habitat and open space through storm water and dry weather runoff management, including wetlands, riverside habitats, parkways, and parks.	10562(d)(4)

References:

(1) Marin County SWRP; (2) Section 5.1.5; (3) Larry Walker Associates, Geosyntec; (4) September 2017; (5) Attached.

☑	Plan identifies opportunities to use existing publicly owned lands and easements, including, but not limited to, parks, public open space, community gardens, farm and agricultural preserves, school sites, and government office buildings and complexes, to capture, clean, store, and use storm water and dry weather runoff either onsite or offsite.	10562(d)(5), 10562(b)(8)

References:

(1) Marin County SWRP; (2) Section 5.1.5; (3) Larry Walker Associates, Geosyntec; (4) September 2017; (5) Attached.

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

✔	For new development and redevelopments (if applicable): Plan identifies design criteria and best management practices to prevent storm water and dry weather runoff pollution and increase effective storm water and dry weather runoff management for new and upgraded infrastructure and residential, commercial, industrial, and public development.	10562(d)(6)

References:

(1) Marin County SWRP; (2) Section 5.2; (3) Larry Walker Associates, Geosyntec; (4) September 2017; (5) Attached.

✔	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.)	10562(b)(2)

References:

(1) Marin County SWRP; (2) Section 5.4; (3) Larry Walker Associates, Geosyntec; (4) September 2017; (5) Attached.

✔	*Overall:* Plan prioritizes projects and programs using a metric-driven approach and a geospatial analysis of multiple benefits to maximize water supply, water quality, flood management, environmental, and community benefits within the watershed.

References:

(1) Marin County SWRP; (2) Section 5.4; (3) Larry Walker Associates, Geosyntec; (4) September 2017; (5) Attached.

✔	*Multiple benefits:* Each project in accordance with the Plan contributes to at least two or more **Main Benefits** and the maximum number of **Additional Benefits** as listed in Table 4 of the Guidelines. (Benefits are not counted twice if they apply to more than one category.)

References:

(1) Marin County SWRP; (2) Section 5.4; (3) Larry Walker Associates, Geosyntec; (4) September 2017; (5) Attached.

IMPLEMENTATION STRATEGY AND SCHEDULE
(GUIDELINES SECTION VI.E)

☑	Plan identifies resources for Plan implementation, including: 1) projection of additional funding needs and sources for administration and implementation needs; and 2) schedule for arranging and securing Plan implementation financing.	

References:

(1) Marin County SWRP; (2) Section 6.1; (3) Larry Walker Associates, Geosyntec; (4) September 2017; (5) Attached.

☑	Plan projects and programs are identified to ensure the effective implementation of the storm water resource plan pursuant to this part and achieve multiple benefits.	10562(d)(8)

References:

(1) Marin County SWRP; (2) Section 6.2; (3) Larry Walker Associates, Geosyntec; (4) September 2017; (5) Attached.

☑	The Plan identifies the development of appropriate decision support tools and the data necessary to use the decision support tools.	10562(d)(8)

References:

(1) Marin County SWRP; (2) Section 6.3; (3) Larry Walker Associates, Geosyntec; (4) September 2017; (5) Attached.

☑	Plan describes implementation strategy, including: a) Timeline for submitting Plan into existing plans, as applicable; b) Specific actions by which Plan will be implemented; c) All entities responsible for project implementation; d) Description of community participation strategy; e) Procedures to track status of each project; f) Timelines for all active or planned projects; g) Procedures for ongoing review, updates, and adaptive management of the Plan; and h) A strategy and timeline for obtaining necessary federal, state, and local permits.	

References:

(1) Marin County SWRP; (2) Section 6.4; (3) Larry Walker Associates, Geosyntec; (4) September 2017; (5) Attached.

☑	Applicable IRWM plan: The Plan will be submitted, upon development, to the applicable integrated regional water management (IRWM) group for incorporation into the IRWM plan.	10562(b)(7)

References:

(1) Marin County SWRP; (2) Section 6.1; (3) Larry Walker Associates, Geosyntec; (4) September 2017; (5) Attached.

IMPLEMENTATION STRATEGY AND SCHEDULE
(GUIDELINES SECTION VI.E)

☑	Plan describes how implementation performance measures will be tracked.

References:

(1) Marin County SWRP; (2) Section 6.4; (3) Larry Walker Associates, Geosyntec; (4) September 2017; (5) Attached

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

☑	Outreach and Scoping: 10562(b)(4) Community participation is provided for in Plan implementation.

References:

(1) Marin County SWRP; (2) Section 7.1; (3) Larry Walker Associates, Geosyntec; (4) September 2017; (5) Attached.

☑	Plan describes public education and public participation opportunities to engage the public when considering major technical and policy issues related to the development and implementation.

References:

(1) Marin County SWRP; (2) Section 7.3; (3) Larry Walker Associates, Geosyntec; (4) September 2017; (5) Attached.

☑	Plan describes mechanisms, processes, and milestones that have been or will be used to facilitate public participation and communication during development and implementation of the Plan.

References:

(1) Marin County SWRP; (2) Section 7.3; (3) Larry Walker Associates, Geosyntec; (4) September 2017; (5) Attached.

☑	Plan describes mechanisms to engage communities in project design and implementation.

References:

(1) Marin County SWRP; (2) Section 7.2; (3) Larry Walker Associates, Geosyntec; (4) September 2017; (5) Attached.

☑	Plan identifies specific audiences including local ratepayers, developers, locally regulated commercial and industrial stakeholders, nonprofit organizations, and the general public.

References:

(1) Marin County SWRP; (2) Section 7.1; (3) Larry Walker Associates, Geosyntec; (4) September 2017; (5) Attached.

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

☑	Plan describes strategies to engage disadvantaged and climate vulnerable communities within the Plan boundaries and ongoing tracking of their involvement in the planning process.

References:

(1) Marin County SWRP; (2) Section 7.3; (3) Larry Walker Associates, Geosyntec; (4) September 2017; (5) Attached.

☑	Plan describes efforts to identify and address environmental injustice needs and issues within the watershed.

References:

(1) Marin County SWRP; (2) Section 7.1; (3) Larry Walker Associates, Geosyntec; (4) September 2017; (5) Attached.

☑	Plan includes a schedule for initial public engagement and education.

References:

(1) Marin County SWRP; (2) Section 2.1, Section 7.1; (3) Larry Walker Associates, Geosyntec; (4) September 2017; (5) Attached.

DECLARATION AND SIGNATURE

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

Signature	Title	Date

Signature	Title	Date

Appendix B – Equivalency Table

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Marin County SWRP
Equivalency Document

"Storm Water Resource Plan Guidelines Appendix A: Checklist and Self-Certification Required Elements1, 2 "	County/Regional Plans					Permit-based Documents					Gallinas Creek		Miller	Novat	Richar	Ross	San	Tomales Bay Watershed			Additional Resources			
	MCSTOPPP Action Plan 2010 Stormwater Management Plan	MarinMap.org	Major Creeks & Watersheds Marin County, CA (MAP)	2013 Bay Area Integrated Regional Water Management Plan (IRWMP)	2015 Urban Water Management Plan	MCSTOPPP: TMDL Implementation Status and Effectiveness Assessment Report 2015-2016	MCSTOPPP: Monitoring Plan and Quality Assurance Project Plan	Duxbury Reef Area of Special Biological Significance (ASBS) Compliance Plan	County of Marin / Duxbury Reef ASBS	Year 1 Monitoring Report: Diazinon and Pesticide-Related Toxicity TMDL Monitoring Program in Urban Creeks	Gallinas Creek Flood Protection and Watershed Program	Gallinas Watershed Program Final Report	Miller Creek Flood Protection and Watershed Program	Novato Creek Flood Protection and Watershed Program	Richardson Bay Watershed	Ross Valley Flood Protection and Watershed Program (Projects)	San Rafael Creek Watershed	Tomales Bay Watershed (Marin County Watershed Program)	San Geronimo Valley Salmon Enhancement Plan	Taking Action for Clean Water - Bay Area Total Maximum Daily Load Implementation: Lagunitas Creek Sediment Budget	Phase II Municipal (MS4) Stormwater Permit	North Bay Watershed Association	Southern Coastal Creeks Watershed	Bolinas Lagoon / Stinson Beach Watershed
Reference ID	1a	1b	1c	2	4	6	7	8	8a	9	17	18	28	31	39a	48	67	70	75	75a	78a	79	80	81
Priority Ranking	3	3	3	1	2	3	2	3	3	2	3	2	3	3	3	3	3	3	2	2	2	3	3	3
WATERSHED IDENTIFICATION (Guidelines VI.A)																								
Plan identifies watershed and subwatershed(s) for storm water resource planning.	X		X									X												
Plan is developed on a watershed basis, using boundaries as delineated by USGS, CalWater, USGS Hydrologic Unit designations, or an applicable integrated regional water management group, and includes a description and boundary map of each watershed and sub-watershed applicable to the Plan.	X		X																					
Plan includes an explanation of why the watershed(s) and sub-watershed(s) are appropriate for storm water management with a multiple-benefit watershed approach;											X	X												
Plan describes the water quality priorities within the watershed based on, at a minimum, applicable TMDLs and consideration of water body-pollutant combinations listed on the State's Clean Water Act Section 303(d) list of water quality limited segments (a.k.a impaired waters list);						X	X	X	X	X								X						
Plan describes the local entity or entities that provide potable water **s**upplies and the estimated volume of potable water provided by the water suppliers;					X																			
Plan includes map(s) showing location of native habitats, creeks, lakes, rivers, parks, and other natural or open space within the sub-watershed boundaries; and		X									X		X	X	X	X	X	X					X	X
Plan identifies (quantitative, if possible) the natural watershed processes that occur within the sub-watershed and a description of how those natural watershed processes have been disrupted within the sub-watershed (e.g., high levels of imperviousness convert the watershed processes of infiltration and interflow to surface runoff increasing runoff volumes; development commonly covers natural surfaces and often introduces non-native vegetation, preventing the natural supply of sediment from reaching receiving waters).								X			X		X	X	X	X	X		X	X				X
WATER QUALITY COMPLIANCE (Guidelines V)																								
Plan identifies activities that generate or contribute to the pollution of storm water or dry weather runoff, or that impair the effective beneficial use of storm water or dry weather runoff.																					X			
Plan describes how it is consistent with and assists in, compliance with total maximum daily load implementation plans and applicable national pollutant discharge elimination system permits.						X															X			
Plan identifies applicable permits and describes how it meets all applicable waste discharge permit requirements.																					X			
ORGANIZATION, COORDINATION, COLLABORATION (Guidelines VI.B)																								
Plan includes description of the existing integrated regional water management group(s) implementing an integrated regional water management plan.				X																				
Plan includes identification of and coordination with agencies and organizations (including, but not limited to public agencies, nonprofit organizations, and privately owned water utilities) that need to participate and implement their own authorities and mandates in order to address the storm water and dry weather runoff management objectives of the Plan for the targeted watershed.				X																		X		
Plan includes identification and discussion of public engagement efforts and community participation in Plan development.																						X		
Plan describes the relationship of the Plan to other existing planning documents, ordinances, and programs established by local agencies.				X																				
QUANTITATIVE METHODS (Guidelines VI.C)																								
IDENTIFICATION AND PRIORITIZATION OF PROJECTS (Guidelines VI.D)																								
IMPLEMENTATION STRATEGY AND SCHEDULE (Guidelines VI.E)																								
EDUCATION, OUTREACH, PUBLIC PARTICIPATION (Guidelines VI.F)																								

[1] - Mandatory required elements per California Water Code are shaded.
[2] - **Blue bolded** requirements are specific to the plan development process and may not be met through equivalent documents.
[3] - **Red bolded** references are websites to additional resources.

Key to Priority Ranking:
1 - Document identifies specific project descriptions and locations.
2 - Document identifies more general plans for green infrastructure or creek restoration, discusses unmet drainage needs in certain areas, describes water quality, etc.
3 - Document is a high level planning document with watershed descriptions, goals, broad plans for watershed and drainage restoration and improvement

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Appendix C – Public Engagement Documentation

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MCSTOPPP Agency Staff Committee
DRAFT Meeting Agenda

Wednesday, March 1, 2017 1:15 – 4:00 pm

LOCATION: 1600 Los Gamos Drive, Room 211 – Enter Building at Lobby C

Call-in Number: 415-473-7709 – County: ext. 7709 – Passcode is 899654

1. Introductions **1:15**
    a. Phone?
    b. In-person
2. Business
    a. Approve meeting minutes from 2-1-17 1:20
    b. Changes to agenda or announcements? 1:25

REPORTS and APPROVAL REQUESTS

3. Conservation Corps North Bay – potential collaboration (Laura Vernon) 1:30
    a. Storm drain markers installation
    b. Trash assessments?

4. Kick-off Meeting for Stormwater Resource Plan Project (Karen Ashby, LWA) 1:45

5. Break (10 minutes) 2:45

6. Trash Planning Project: 2:55
    a. Question about sharing TGR Maps
    b. Review Memo #2 – Full Capture System Equivalency approach

7. ESRI Online and Collector app on smartphones – discuss project progress 3:15

8. Staff updates 3:30
    a. Report status of relevant action items not already covered
    b. Local Program reports (public outreach/education, compliance questions/updates)
        i. County: update E.12 Post Construction ongoing O&M verification requirements
    c. MCSTOPPP Countywide staff updates
        i. 17-18 Budget
        ii. "Adopt a Spot" and "Adopt a Drain" examples
        iii. E.10 Construction site BMPs workshop/training results
        iv. Soil Bioengineering Workshop results
        v. CASQA – BASMAA updates
        vi. MCSTOPPP compliance tasks update

Adjournment by 4:00

Next Meeting: **April 5, 2017 –** 111 Morphew St., San Rafael, CA (San Rafael Public Works 2nd floor conference)

MCSTOPPP Agency Staff Committee
DRAFT Meeting Minutes

Meeting Held Wednesday, March 1, 2017
1600 Los Gamos Drive, Room 211, San Rafael, CA

STORMWATER Coordinator ACTION ITEMS:

- ☐ **Storm Water Resource Plan:**
  - Review matrix of planning documents LWA will use in developing SWRP, and **provide any additional, critical documents that may be missing by March 15**
  - If you have **GIS info that is NOT on MarinMap, send to Angela by March 15**
  - Review and provide comments on Draft SWRP outline by **March 15**
  - **By March 30:** Tell us about projects you want to include in the SWRP. Review **pages 4-5** (and ignore all the regulatory instructions!) of the BASMAA Guidance for Identifying Green Infrastructure Potential in Municipal Capital Improvement Program Projects.[1] Pages 4-5 were handed out in the meeting. If you have questions about existing project selection, call us at MCSTOPPP! In mid-March LWA will provide more direction on how to select and design SWRP projects and will distribute a spreadsheet that we will ask you to add projects to by March 30. There will be opportunities later to add projects to the SWRP as well.
  - Municipalities should determine if you need to reach out to your businesses and residents for input on projects you might want to build.
  - **Attend the April 5 MCSTOPPP meeting** for a presentation on the draft quantitative metric based Project Prioritization Methodology (the draft methodology will be distributed by the end of March)
- ☐ **Trash Project:** Review the Full Trash Capture Equivalency Memo and **send comments to MCSTOPPP by March 30th**
- ☐ **Conservation Corps North Bay:**
  - Let them know if you have illegal tire dumping issues – they have money to fix
  - Contact if you have need for trash assessments, storm drain marker installation, clean-up day coordination,
- ☐ **Open Grant:** Calrecycle Beverage Container Recycling City/County Payment Program is open, aimed at litter prevention and recycling. Kelly Crowe at Corte Madera has had success with the grant. See link for additional info: http://www.calrecycle.ca.gov/BevContainer/Grants/CityCounty/FY201617/default.htm
- ☐ Contact Rob if you're interested in ESRI apps for various permit tracking and inspections. See notes below for details.
- ☐ Send Angela Clapp (aclapp@marincounty.org) the best contact at your municipality for 24/7 hazardous waste spill response!

MCSTOPPP staff ACTION ITEMS (with important info for local program staff to read):

- ☐ Schedule meeting with CCNB to get better details of program
- ☐ Compile any SWRP questions/comments for LWA by March 14th.
- ☐ Terri will contact Caltrans' Wilfung Martono to come to April ASC meeting

[1] http://www.flowstobay.org/sites/default/files/8.%20Group%20Exercise%20Documents%20-%20BASMAA%20Guidance.pdf

- ☐ Send out TeamUp Calendar link to ASC members to help ASC track project and regulatory deadlines
- ☐ Trash Project: Set up meeting with "Clean" groups, ASC staff in Fall 2017 (July-Nov 2017)
- ☐ Trash Project: Ask Chris where the State Board will send the Trash letter: to the Legally Responsible Person (LRP)? **Done: Not yet determined, Chris will ask the TAC**
- ☐ Put in Dan Cloak SOW: review Alameda County checklist for E.12 requirements and provide comments
- ☐ Research how other municipalities are doing fee studies for next ASC meeting.

ACTION ITEMS FROM PRIOR MEETINGS:

- Put EHS, OES, Weights & Measures contact numbers in the IDDE/spill response fact sheet (working with LWA on this)
- Develop IDDE reporting sheet to share with Fire Departments (laminated, include decision tree). Work with Michael St. John (HazMat Team Chief) to distribute (working with LWA on this).
- MCSTOPPP staff will provide CUPA and HazMat Team with MCSTOPPP/Local Stormwater Program/Local DPW 24/7 for spill response coordination.
- LWA: Create E.10 Example Plan for small project – single family home
- MCSTOPPP (maybe LWA): Create silt fence hand out
- Partially completed: Outreach: UC Extension's (Orange County) pest control operators door hanger can be updated for use in Marin. MCSTOPPP is considering sending requested revisions to UC Extension. They will make revisions and allow us to use flier in Marin.
- ~~Early~~ March or April 2017: Howard will train County Environmental Health Services staff on how to conduct stormwater inspections

MEETING MINUTES

1) Introductions
2) Business:
   a) Approved meeting minutes from 2-1-17 - unanimous
   b) No changes to agenda. Announcements:
      i) Previous meeting action items: Send Angela contact for Hazmat coordination

3) Conservation Corps North Bay – potential collaboration, with Laura Vernon and Erik Matisek. CCNB has grant from Calrecycle, allowing them to provide labor for projects aimed at reducing/recycling.
   - Storm drain markers installation: CCNB has funding/supplies/labor available to install storm drain markers. Has experience installing in Marin County.
   - Trash assessments: CCNB has done Trash assessments and can assemble crews to assist.
   - Clean-up days: CCNB could take out volunteers for beach, stream clean-up days
   - Illegal tire dumping: contact CCNB if you see illegal tire dumping or storage locations
   - Subtopic: grants for litter reduction. Corte Madera using Calrecycle grants for litter reduction successfully. Zero Waste grants available for composting

4) Kick-off Meeting for Stormwater Resource Plan Project - Karen Ashby, LWA gave presentation on the process for the project, key dates and deliverables, and what to expect.
   - Goal: Completed SWRP will make us eligible for grant monies for green infrastructure projects. To complete SWRP, LWA will pull together already-completed planning projects to address the areas mandated by the State Water Board, with help and necessary input from ASC municipalities.
   - Between now and July will be the bulk of the work for ASC input

- MCSTOPPP will take the lead in coordination with existing groups, and public involvement. Will provide information on the SWRP development project to NBWA, MCSTOPPP CAC, and will provide a public comment period on MCSTOPPP website.
- Existing Information and Document review:
    - Draft SWRP outline: shows what the final product will ultimately look like. Provide comments by March 15
    - Document review matrix: shows all the documents MCSTOPPP provided to LWA to piece together into SWRP. Review and send any additional, critical documents by March 15
    - GIS Documents: MCSTOPPP providing through MarinMap. If you have additional GIS information, provide to MCSTOPPP by March 15
- Projects that will be included in the Marin SWRP
    - **By March 30,** tell us about projects you want to include in the SWRP. Review **pages 4-5** (and ignore all the regulatory instructions!) of the BASMAA Guidance for Identifying Green Infrastructure Potential in Municipal Capital Improvement Program Projects.[2] Pages 4-5 were handed out in the meeting. If you have questions about existing project selection, call us at MCSTOPPP! In mid-March LWA will provide more direction on how to select and design SWRP projects and will distribute a spreadsheet that we will ask you to add projects to by March 30. There will be opportunities later to add projects to the SWRP. Municipalities should determine if you need to reach out to your businesses and residents for input on projects you might want to build.
    - **Attend the April 5 MCSTOPPP meeting** for a presentation on the draft quatitative metric based Project Prioritization Methodology (the draft methodology will be distributed by the end of March).

5) Calendar/planning discussion: MCSTOPPP trying out TeamUp calendar system that could be used by ASC staff as well. Online calendar that shows meetings/deliverables by project. Discusses pros/cons about Outlook calendars, and using TeamUp for seeing multiple projects. MCSTOPPP will send out calendar link after some updates.

6) Trash Planning Project:
    a) Discussion about sharing TGR Maps with public groups. When should we coordinate with the public – before maps are complete, or after? MCSTOPPP will set up meeting with "Clean" groups in Fall 2017, after Trash letters have been sent out
    b) Review Memo #2 – Full Capture System Equivalency approach. This memo will be reformatted as a proposal for compliance to the Water Board, so its approach is important to review/understand. EOA will edit as discussion with Water Board continues. Send comments to **MCSTOPPP by March 30**

7) ESRI Online and Collector app on smartphones – Marin County, San Rafael developing apps related to various permit provisions: E.9, IDDE, Storm Drain mapping, Construction Site Inspection, Construction Site Inventory, E.11 Facilities & Inspections, E.12 Regulated Projects, O&M Inspections . If you're interested in trying out these apps and being involved in development, let Rob know

8) Staff updates
    a) Report status of relevant action items not already covered

[2] http://www.flowstobay.org/sites/default/files/8.%20Group%20Exercise%20Documents%20-%20BASMAA%20Guidance.pdf

b) Local Program reports (public outreach/education, compliance questions/updates)
   i) County: update E.12 Post Construction ongoing O&M verification requirements. Will revisit fee study
   ii) Larkspur: met with Sarah Phillips, Marin RCD, to help with outreach. Looking into Adopt-a-Drain program.
   (i) San Rafael: GIS work, Fred Hezel inspection preparation
   (ii) Novato: Storm damage work, issues with O&M Agreements in CC&Rs. Group suggested to look at Alameda County checklist for E.12 requirements.
   (iii) Corte Madera: E.12 O&M Agreement – developing CC&Rs to refer to O&M Plan.
   (iv) San Anselmo: Median Master Plan meeting occurred to prep public for green infrastructure changes. Will bid for LID project soon.
   (v) Sausalito: nothing major, E.10 workshop was helpful
   (vi) Tiburon: erosion control, dog waste outreach including dog waste bags and dog walker permits

c) MCSTOPPP Countywide staff updates
   i) 17-18 Budget: Will be posted March 3rd to MGSA website. Asking for a 13.5% increase in overall MCSTOPPP contribution.

AGENDA ITEMS TABLED FOR NEXT MEETING

8) c)
   i) Adopt a Spot" and "Adopt a Drain" examples
   ii) E.10 Construction site BMPs workshop/training results
   iii) Soil Bioengineering Workshop results
   iv) CASQA – BASMAA updates
   v) MCSTOPPP compliance tasks update

Adjournment by 4:10pm

Next Meeting: April 5**, 2017 – 111 Morphew St., San Rafael, CA (San Rafael Public Works 2nd floor conference). 1:15 – 4pm.**

MCSTOPPP ASC FY 16-17		MCSTOPPP Agency Staff Committee Meeting Attendance										
Representing	Name	7/6	8/3	9/7	10/5	11/2	12/7	2/1	3/1	4/5	5/3	6/7
Belvedere	Gerhard Laufer	X	X	x								
Belvedere	Robert Zadnik				x		x					
Corte Madera	Kevin Kramer											
Corte Madera	Kelly Crowe		Phone	x		x		x	x			
Corte Madera	Gary Downing	X										
Corte Madera	Matt Mitchell				x							
Corte Madera	Michael Palmer											
County of Marin	Beb Skye	X	X	x	x	x	x	x	x			
County of Marin	Craig Richardson											
County of Marin	Rob Carson	X		x	x	x	x	x	x			
Fairfax	Mark Lockaby			x								
Fairfax	Ray Wrysinski											
Larkspur	Scott Metcho	X	X	x	x	x	x	x	x			
Mill Valley	Cecilia Zamora											
Mill Valley	Julie McClure			x								
Novato	Dave Meyers											
Novato	Joey Stene											
Novato	Edie Robbins							x				
Novato	Manijeh Larizadeh	X	X	x	x	x	x	x	x			
Novato	Christopher Blunk								x			
Ross	Robert Maccario	X		x			x					
Ross/Belvedere	John Moe			x								
Ross	Richard Issacs											
Ross	Anthony Alcozer						x	x				
Ross	Rich Simonitch						x					
San Anselmo	Eric Robbe											
San Anselmo	Sean Condry											
San Anselmo	Scott Schneider				x	x	x	x	x			
San Rafael	Diane Dillon			x	x	x	x	x	x			
San Rafael	Thomas Wong					x	x		x			
San Rafael	Kevin McGowan											
Sausalito	Loren Umbertis											
Sausalito	Andrew Davidson											
Sausalito	Jonathon Goldman											
Sausalito	Pat Guasco	X	X		x	x		x				
Sausalito	Bryant Ho				x	x	x		x			
Tiburon	Dmitriy Lashkevitch		X	x	phone	phone	phone	phone	x			
Tiburon	Pat Barnes											
MCSTOPPP	Terri Fashing	X	X	X	x	x	x	x	x			
MCSTOPPP	Howard Bunce	X	X	X	x	x	x	x	x			
MCSTOPPP	Angela Clapp	X		X	x	x	x	x	x			
MCSTOPPP	Liz Lotz											
OTHERS PRESENT												
RWQCB	Fred Hetzel		X									
LWA, Inc. MCSTOPPP Consultant	Sandy Mathews							x				
LWA, Inc. MCSTOPPP Consultant	Karen Ashby								x			
LWA, Inc. MCSTOPPP Consultant	Will Lewis								phone			
Marin RCD	Sarah Phillips					x						
Marin County CUPA	Julia Barnes							x				
Mill Valley Fire/ Hazmat Team	Michael St. John							x				
MCFCWCD	Gerhard Epke								x			
Conservation Corps North Bay	Laura Vernon								x			
Conservation Corps North Bay	Erik Matisek								x			

MCSTOPPP Agency Staff Committee
DRAFT Meeting Agenda

Wednesday, June 7, 2017 1:15 – 4:00 pm

LOCATION: 111 Morphew St. 2nd floor conference

Call-in Number: 415-473-7709 – County: ext. 7709 – Passcode is 899654

1. Introductions **1:15**
    a. Phone?
    b. In-person
2. Business 1:20
    a. Approve meeting minutes from 5-3-17
    b. Changes to agenda or announcements?
        i. Send appropriate staff to 7-5-17 ASC meeting for mini-training on quarterly and annual hot spot inspections at corp yards and other facilities

3. **Stormwater Resource Plan** 1:35
    a. Mini-Training! How to review prioritized projects deliverable from LWA/Geosyntec

4. Annual Report and TMDL/PEAIP Report update/instructions 2:15
    a. Make necessary changes in SMARTS early (change your LRP, DAR, DEP…)
    b. For TMDL/PEAIP Report: Fill out MCSTOPPP Forms – submit to MCSTOPPP by 7/15/17
    c. Update on SMARTS Annual Report questions
    d. Update on other MCSTOPPP generated reports

5. 10-minute break 3:00pm

6. Trash Update 3:10pm
    a. 13383 Letters
        i. MCSTOPPP template
    b. Update on the BASMAA Trash Planning Project
    c. Clean Marin Update - Trash Summit (effort to build local volunteer capacity)
        i. Can adopt-a-spot programs be established in each municipality?
        ii. Merchant program considerations

7. Staff updates 3:40pm
    a. MCSTOPPP Countywide staff updates
    b. Local Program reports (public outreach/education, compliance questions/updates)
    c. CASQA/BASMAA updates

Adjournment by 4:00pm

Next Meeting: **July 5, 2017 –** 1600 Los Gamos Conference Room 211, San Rafael. Enter building at Lobby C (this lobby fronts Los Gamos Drive)

MCSTOPPP Agency Staff Committee
DRAFT Meeting Agenda

Meeting Held Wednesday, June 7, 2017 1:15 – 4:00 pm
LOCATION: 111 Morphew St., San Rafael, CA - 2nd floor conference

➔ **YOUR STORMWATER Coordinator ACTION ITEMS:**

- ☐ **Annual Reporting:**
  - Make necessary changes to SMARTS **as soon as possible!** List of necessary changes for your municipality attached to meeting minutes email
  - Fill out and return TMDL/PEAIP reporting spreadsheet by **July 15th**. Spreadsheet attached to meeting minutes email. **Find the reporting forms in a 6/9/17 email from Terri Fashing.**
- ☐ **Storm Water Resource Plan:** Provide comments/feedback to MCSTOPPP/LWA on the SWRP prioritized project list **by Friday, June 16th.** Choose your project to develop design-level BMPs and submit **by Friday, June 16th**
- ☐ **SB 231:** Let Angela know by **Tuesday, June 13** if you do not want to be included in MCSTOPPP's letter of support for SB231
- ☐ **Send appropriate staff to the next MCSTOPPP meeting on July 5, 2017.** MCSTOPPP staff will deliver a mini-training on conducting visual and comprehensive inspections of hotspot facilities. Quarterly visual inspections and annual comprehensive inspections are required from FY 17-18 on.
- ☐ **Trash Project:**
  - Make sure you have the correct LRP or DAR in SMARTS set up so they can certify and submit the response to the 13338 Letter by the September 1 deadline.
  - If you know local citizens, anti-trash activists, groups, businesses, etc. that may be interested in Clean Marin anti-litter groups, send MCSTOPPP their contact information to be invited to the Trash Summit
  - Talk to supervisors, legal about implementing an Adopt-a-Spot program in your municipality. Does it pose any liability risks?

MCSTOPPP staff ACTION ITEMS (with important info for local program staff to read):

- ☐ DONE: Send finalized E10, E12, and Fire IDDE outreach items to group
- ☐ DONE: Send list of SMARTS edits per municipality to the ASC members
- ☐ DONE: Send Clean Mill Valley, San Rafael Clean, Clean Marin links to group

ACTION ITEMS FROM PRIOR MEETINGS:

- Prepare a mini training for the July ASC meeting on conducting the Year 5 (17-18) quarterly visual and annual comprehensive municipal Hot Spot facility inspections
- IN PROGRESS - Have LWA develop a SOW to train staff on the methodology for scoring and ranking future projects to be added to the SWRP
- MCSTOPPP (maybe LWA): Create silt fence hand out
- Partially completed: Outreach: UC Extension's (Orange County) pest control operators door hanger can be updated for use in Marin. MCSTOPPP is considering sending requested revisions to UC Extension. They will make revisions and allow us to use flier in Marin.

- Put in Dan Cloak SOW: review Alameda County checklist to determine if useful for us to use in Marin for E.12 compliance and provide comments
- Research how other municipalities are doing fee studies
- Send out TeamUp Calendar link to ASC members to help ASC track project and regulatory deadlines

MEETING MINUTES

1. Participants introduced themselves

2. Business
    a. Approved meeting minutes from 5-3-17 – three abstentions, otherwise all ayes
    b. Changes to agenda or announcements
        i. Item 3A added to the agenda: Discussion of SB 231
        ii. Announcement: Send appropriate staff to 7-5-17 ASC meeting for mini-training on quarterly and annual hot spot inspections at corp yards and other facilities

REPORTS and APPROVAL REQUESTS

3. **Stormwater Resource Plan** - Mini-Training, How to review prioritized projects deliverable
    a. Group followed along with Kelly Havens (LWA) phone presentation of the LWA deliverables: Excel sheet with all project types in each tab, Google Earth files for each project type, and instructions memo.
    b. Discussed ASC edits: if your municipality is interested to prioritize or de-prioritize projects/parcels/streets based on local knowledge or CIP project list, **provide comments by June 16th**

3A. Senate Bill 231 (Hertzberg)
    a. Discussed the Draft MCSTOPPP Letter of Support for SB 231. BASMAA sent the Draft Letter of Support template to encourage local agencies to support the bill. This bill gives municipalities broader authority to finance local stormwater programs to address the effects of Prop 218 to stormwater funding.
    b. If your municipality does NOT wish to be included in the SB 231 Letter of Support, **notify MCSTOPPP staff by Tuesday, June 13**

4. Annual Report and TMDL/PEAIP Report update/instructions
    a. Discussed changes in SMARTS – do it **as soon as possible**! SMARTS can be difficult, so trouble shoot early. You may need to change your LRP, DAR, or DEP. Terri made a spreadsheet of changes by municipality, to be sent out with the meeting minutes
    b. For TMDL/PEAIP Report: Fill out MCSTOPPP Excel form tracking Pesticides, Sediment (ESCPs), and Pathogens efforts. The tracking spreadsheet has examples of previous year's answers. Submit the 16-17 information in the spreadsheet to MCSTOPPP **by July 15th.**
    c. SMARTS Annual Report questions – no updates, we're still waiting on the Water Board to finalize the questions. Should be straightforward as there were not a lot of new requirements this year.
    d. Update on other MCSTOPPP generated reports: As in previous years, MCSTOPPP will upload many required documents for you, and provide you with instructions for answering SMARTS questions.

5. Trash Update
    a. 13383 Letters were sent out 6/2.
        i. MCSTOPPP will provide a template to respond to 13383 Letter.
        ii. Response will be submitted via SMARTS – make sure your LRP is set to submit **as soon as possible**!
    b. Update on the BASMAA Trash Planning Project
        i. EOA provided Memo 4 – Optimal Trash Full Capture Locations for most municipalities. If you have not received this, you should receive it the week of June 12th.
        ii. June 9th: BASMAA is presenting the Full Capture System Equivalency Approach, proposed by EOA for MCSTOPPP agencies, to the San Francisco Regional Water Board and State Water Board.
        iii. We should receive the Trash Reduction Implementation Template in mid-July.
    c. Clean Marin Update - Trash Summit (effort to build local volunteer capacity)
        i. Trash Summit – planning a meeting to connect anti-litter agencies & volunteers with the municipalities, in an effort to build local programs. Tentatively scheduled for **November 1st**. This will be a time that local groups can provide input and refinement for our Trash Generation Rate Maps provided by EOA.
        ii. Adopt-a-Spot program: Can they be established in each municipality? Clean Mill Valley's volunteers have developed an Adopt-a-Spot – Clean Marin logo, for any municipality or group to use. This program could be a big contributor to reducing our trash load, and a great help with Trash Amendments. Is there any liability in your municipality to adopting this sort of program? Discuss with managers/legal.
        iii. Merchant program considerations

6. Staff updates
    a. MCSTOPPP Countywide staff updates
        i. Our beloved Terri is leaving! Steve Devine of Marin County assured that the County is working fast to make the transition as smooth as possible.
        ii. NBWA Board Presentation on the SWRP on July 7. MCSTOPPP will present as part of the public comment piece for the SWRP.
    b. Local Program reports (public outreach/education, compliance questions/updates)
        i. Marin County – doing fish-friendly roads workshop
        ii. San Anselmo – bid for LID project came in high, going back to drawing board. Interested in if LID will be considered full trash capture
        iii. Tiburon – getting 'drains to lagoon' catch basin decals installed
        iv. All others – nothing unusual to report
    c. CASQA/BASMAA updates – no updates that have not been covered by previous items

Adjournment by 4pm

Next Meeting: **July 5, 2017 –** 1600 Los Gamos Conference Room 211, San Rafael. Enter building at Lobby C (this lobby fronts Los Gamos Drive)

MCSTOPPP ASC FY 16-17		MCSTOPPP Agency Staff Committee Meeting Attendance										
Representing	Name	7/6	8/3	9/7	10/5	11/2	12/7	2/1	3/1	4/5	5/3	6/7
Belvedere	Gerhard Laufer	x	x	x								
Belvedere	Robert Zadnik				x		x			x		x
Corte Madera	Kevin Kramer											
Corte Madera	Kelly Crowe		Phone	x		x		x	x		x	x
Corte Madera	Gary Downing	x										
Corte Madera	Matt Mitchell				x							
Corte Madera	Michael Palmer											
County of Marin	Beb Skye	x	x	x	x	x	x	x	x	x		x
County of Marin	Craig Richardson											
County of Marin	Rob Carson	x		x	x	x	x	x	x	x	x	x
Fairfax	Mark Lockaby			x								x
Fairfax	Ray Wrysinski											
Larkspur	Scott Metcho	x	x	x	x	x	x	x	x		x	x
Mill Valley	Cecilia Zamora											
Mill Valley	Julie McClure			x						x		
Novato	Dave Meyers											
Novato	Joey Stene											
Novato	Edie Robbins							x				
Novato	Manijeh Larizadeh	x	x	x	x	x	x	x	x	x	x	x
Novato	Christopher Blunk								x			
Ross	Robert Maccario	x		x			x				x	x
Ross/Belvedere	John Moe			x								
Ross	Richard Issacs											
Ross	Anthony Alcozer						x	x		x		
Ross	Rich Simonitch						x					
San Anselmo	Eric Robbe											
San Anselmo	Sean Condry											
San Anselmo	Scott Schneider				x	x	x	x	x	x	x	x
San Rafael	Diane Dillon			x	x	x	x	x	x	x	x	x
San Rafael	Thomas Wong					x	x		x	x	x	
San Rafael	Kevin McGowan											
Sausalito	Loren Umbertis											
Sausalito	Andrew Davidson											
Sausalito	Jonathon Goldman											
Sausalito	Pat Guasco	x	x		x	x		x				x
Sausalito	Bryant Ho				x	x	x		x	x		
Tiburon	Dmitriy Lashkevitch		x	x	phone	phone	phone	phone	x		x	x
Tiburon	Pat Barnes											
MCSTOPPP	Terri Fashing	x	x	x	x	x	x	x	x	x	x	x
MCSTOPPP	Howard Bunce	x	x	x	x	x	x	x	x	x	x	x
MCSTOPPP	Angela Clapp	x		x	x	x	x	x	x			x
MCSTOPPP	Liz Lotz											
OTHERS PRESENT												
RWQCB	Fred Hetzel		x							x	x	
LWA, Inc. MCSTOPPP Consultant	Sandy Mathews							x				
LWA, Inc. MCSTOPPP Consultant	Karen Ashby								x			phone
LWA, Inc. MCSTOPPP Consultant	Will Lewis								phone	x		
Geosyntec, Inc. MCSTOPPP Consultant	Kelly Havens									x		phone
Marin RCD	Sarah Phillips					x						
Marin County CUPA	Julia Barnes							x				
Mill Valley Fire/ Hazmat Team	Michael St. John							x				
MCFCWCD	Gerhard Epke								x			
Conservation Corps North Bay	Laura Vernon								x			
Conservation Corps North Bay	Erik Matisek								x			
Scott Weinstock	Marin County										x	
Steve Devine	Marin County											x

MCSTOPPP Agency Staff Committee
Meeting Agenda

Wednesday, **August 2, 2017, 1:15 – 4:00 pm**
LOCATION: 111 Morphew St. 2nd floor conference
Call-in Number: 415-473-7709 – Passcode is 899654

Introductions	**1:15**
a. Phone?	
b. In-person	
2. Business	1:20
a. Approve meeting minutes from 7-5-17	
b. Changes to agenda?	
3. LWA: SWRP Project Presentation	1:25
a. Functionally Equivalent SWRP Presentation	
b. Priority Project BMP Design and Benefit Quantification	
4. Mini-training on SMARTS annual reporting	2:00
5. Annual Report PEAIP Data Review	2:30
a. Street sweeping – any changes to frequency?	
b. Missing data	
6. Trash	3:00
a. Can Roads crews pick up volunteer clean-up trash?	
b. 13383 Letters – Response letter and maps	
c. Trash Summit – Planning update	
7. Staff updates	3:30
a. MCSTOPPP Countywide staff updates	
i. Yard Smart Marin – survey, interested parties, events, speakers	
b. Local Program reports (public outreach/education, compliance questions/updates)	
Adjournment by	4:00

Next Meeting: **September 6, 2017** 1600 Los Gamos Conference Room 211, San Rafael. Enter building at Lobby C (this lobby fronts Los Gamos Drive)

MCSTOPPP Agency Staff Committee
Draft Meeting Minutes

Meeting Held Wednesday, August 2, 2017, 1:15 – 4:00 pm

LOCATION: 111 Morphew St. 2nd floor conference

➔ **YOUR STORMWATER Coordinator ACTION ITEMS:**

- ☐ **SWRP**
  - Due August 16: Comments and input for the public release of the Draft SWRP
  - Due August 30: All comments and additional input on Draft SWRP

- ☐ **Annual Reporting:**
  - Make necessary changes to SMARTS **as soon as possible**
  - MCSTOPPP to send Annual Report Response Guide (Excel sheet) by August 18th. Use this to get **those in your municipality responsible for permit provisions to sign that they have been completed** for your records.

- ☐ **Trash Project:**
  - 13383 Trash Letter Response Template: get signed and certified by your LRP. Rob sent out response template via email on 8/4
  - Make sure you have the correct LRP or DAR in SMARTS set up so they can certify and submit the response to the 13338 Letter by the **September 1 deadline**.
  - Trash Summit: Send Howard or Angela the contact info for a Volunteer Coordinator at your municipality

MCSTOPPP staff ACTION ITEMS (with important info for local program staff to read):

- ☐ Send email with information about Caltrans funding for TMDL projects
- ☐ Send Annual Report Guide (Excel sheet) by August 18th
- ☐ Send 13383 Trash Letter Response Template **Done, Rob sent 8/4**
- ☐ Upload Trash Maps to SMARTS for each municipality's 13383 Trash Letter response

ACTION ITEMS FROM PRIOR MEETINGS:

- Create silt fence hand out
- Partially completed: Outreach: UC Extension's (Orange County) pest control operators' door hanger can be updated for use in Marin. MCSTOPPP is considering sending requested revisions to UC Extension. They will make revisions and allow us to use flier in Marin.
- Put in Dan Cloak SOW: review Alameda County checklist to determine if useful for us to use in Marin for E.12 compliance and provide comments
- Research how other municipalities are doing fee studies
- Send out TeamUp Calendar link to ASC members to help ASC track project and regulatory deadlines

MEETING MINUTES

1. Participants introduced themselves

2. Business
   a. Approve meeting minutes from 7-5-17

b. No changes to the agenda
    i. Announcement: Caltrans has funds for Bay Area TMDL projects - combo projects that could be trash related. **Rob to send email**.

3. LWA: SWRP Project Presentation
    a. Functionally Equivalent SWRP Presentation – Karen Walker of LWA Powerpoint
        i. Comment on public draft of document by August 16th. Full comments due by end of the month. Comments preferred in the Word document, using redline.
        ii. Goal of the Functionally Equivalent SWRP: Does this satisfy SWRP Guidelines (Appendix A). Look at guidelines to determine if anything fell short. Grey sections are mandatory, white areas are recommended by Water Board.
        iii. Most input needed in Section 5 and Section 6. LWA needs to know how we'd like it to look, and what we're comfortable committing to.
        iv. Outreach: let LWA know your process for public participation & commenting, for SWRP as a plan and project-level.
        v. Funding: identify funding needs – engineer estimates, even high-level, are helpful. If you have funding for specific projects, include that. If all funding is dependent on grants, say that.
    b. Priority Project BMP Design and Benefit Quantification
        i. Included in the Draft SWRP. Review you project and bring up any issues with releasing to the public by August 16th.

4. Mini-training on SMARTS annual reporting
    a. SMARTS Questions are now on the site – same questions as last year. MCSTOPPP did a run-through to see what uploads are needed.
    b. Like previous years, MCSTOPPP will upload attachments for each municipality. Each municipality will have to answer questions (using Annual Report Response Guide) and certify.
    c. MCSTOPPP will send out Annual Report Response Guide (Excel sheet) by August 18th

5. Annual Report PEAIP Data Review
    a. Any changes to street sweeping frequency? – None
    b. Missing data – municipalities missing data from PEAIP excel sheet, return to MCSTOPPP. **Done, MCSTOPPP sent all data to LWA for PEAIP report.**

6. Trash
    a. 13383 Letters – Response letter and maps
        i. MCSTOPPP completed maps on everyone's behalf. MCSTOPPP to send out response template letter and maps.
        ii. Maps are not perfect, but satisfy Water Board requirements. If you're unhappy with map, let Rob know because we still have funds left over from EOA project. Otherwise, we will be reimbursed for unused EOA Trash Project funds.
        iii. MCSTOPPP will upload maps for each municipality on SMARTS
        iv. ASC needs to get letter signed by LRP and submitted to SMARTS.
    b. Trash Summit – Planning update
        i. Planned for November 1st (ASC meeting time) at Marin Center
        ii. David Lewis from Save the Bay is the keynote speaker

iii. MCSTOPPP doing much of the planning, but goal is to inspire other groups with tools for trash pickup groups
iv. First opportunity to put up preliminary trash maps and refine with local, on the ground knowledge.
v. Promote coordination between cities/towns and Clean groups.

c. Can Roads crews pick up volunteer clean-up trash?
    i. Came up as a Clean group question – how formally involved are the municipalities in Clean group activities? Materials? Pickup? Etc.
    ii. Mill Valley provides pick-up of trash, bags for clean-ups, and even traffic control for larger cleanups in congested areas.
    iii. Start to think about what kind of partnerships the municipalities would want with the groups/individuals
    iv. Ideally Clean Marin would get non-profit certification and get in an MOU with the municipalities and MCSTOPPP, but not there yet!

7. Staff updates
    a. MCSTOPPP Countywide staff updates
        i. Yard Smart Marin – survey, interested parties, events, speakers
        ii. Please share the survey and let the campaign (or MCSTOPPP) know if you have events in your municipality that you would like them at. They have speakers available.
    b. Local Program reports (public outreach/education, compliance questions/updates)
        i. Larkspur – getting started with legal issues around trash

Adjournment by 4pm

Next Meeting: **September 6, 2017** 1600 Los Gamos Conference Room 211, San Rafael. Enter building at Lobby C (this lobby fronts Los Gamos Drive)

MCSTOPPP ASC FY 17/18		MCSTOPPP Agency Staff Committee Meeting Attendance											
Representing	Name	7/5	8/2	9/6	10/4	11/1	12/6	1/3	2/7	3/7	4/4	5/2	6/6
Belvedere	Gerhard Laufer												
Belvedere	Robert Zadnik		x										
Corte Madera	Kevin Kramer												
Corte Madera	Kelly Crowe		x										
Corte Madera	Gary Downing												
Corte Madera	Matt Mitchell												
Corte Madera	Michael Palmer												
County of Marin	Beb Skye		x										
County of Marin	Craig Richardson												
County of Marin	Rob Carson	x											
County of Marin	Bene' Da Silva		x										
Fairfax	Mark Lockaby												
Fairfax	Ray Wrysinski												
Larkspur	Scott Metcho	x	x										
Mill Valley	Cecilia Zamora												
Mill Valley	Julie McClure		x										
Mill Valley	Dante Rovero		x										
Novato	Dave Meyers												
Novato	Joey Stene												
Novato	Edie Robbins												
Novato	Manijeh Larizadeh	x	x										
Novato	Christopher Blunk												
Ross	Robert Maccario	x	x										
Ross/Belvedere	John Moe												
Ross	Richard Issacs												
Ross	Anthony Alcozer												
Ross	Rich Simonitch												
San Anselmo	Eric Robbe												
San Anselmo	Sean Condry												
San Anselmo	Scott Schneider	x	x										
San Rafael	Diane Dillon	x	x										
San Rafael	Thomas Wong	x											
San Rafael	Kevin McGowan												
Sausalito	Loren Umbertis												
Sausalito	Andrew Davidson												
Sausalito	Jonathon Goldman												
Sausalito	Pat Guasco												
Sausalito	Bryant Ho	phone	x										
Tiburon	Dmitriy Lashkevitch		x										
Tiburon	Pat Barnes												
MCSTOPPP	Terri Fashing												
MCSTOPPP	Rob Carson		x										
MCSTOPPP	Howard Bunce	x	x										
MCSTOPPP	Angela Clapp	x	phone										
MCSTOPPP	Liz Lotz												
OTHERS PRESENT													
RWQCB	Fred Hetzel												
LWA, Inc. MCSTOPPP Consultant	Sandy Mathews												
LWA, Inc. MCSTOPPP Consultant	Karen Ashby		x										
LWA, Inc. MCSTOPPP Consultant	Will Lewis		phone										
LWA, Inc. MCSTOPPP Consultant	Shelli St. Clair		x										
Geosyntec, Inc. MCSTOPPP Consultant	Kelly Havens		phone										
Marin RCD	Sarah Phillips												
Marin County CUPA	Julia Barnes												
Mill Valley Fire/ Hazmat Team	Michael St. John												
MCFCWCD	Gerhard Epke												
Conservation Corps North Bay	Laura Vernon												
Conservation Corps North Bay	Erik Matisek												
Scott Weinstock	Marin County												
Steve Devine	Marin County												

North Bay Watershed Association

Board Meeting Notice

PLEASE NOTE SPECIAL MEETING PLACE

July 7th, 2017

9:30 a.m. – 11:30 a.m.
Central Marin Sanitation Agency
1301 Anderson Drive
San Rafael, CA 94901

Next Meeting

September 8th, 2017
9:30 a.m. – 11:30 a.m.
Novato Sanitary Dist.
500 Davidson Drive
Novato, CA 94945

Board Meeting Agenda

1. Call to Order 9:30 am
Jack Gibson, Chair

2. Public Comment

3. Approval of Agenda 1 min
Approve

4. Approval of Minutes 5 min
Approve

5. Treasurer's Report 1 min
Accept

6. Marin Stormwater Resource Plan 9:45
Rob Carson, Marin County
Presentation and Q&A

7. Items of Interest 10:00

8. Items for next agenda 10:10
Petaluma River Historic Hydrology Study
Sonoma RCD

9. Overview of Central Marin Sanitation Agency and Facilities Tour 10:15
Jason Dow, General Manager, CMSA

North Bay Watershed Association

Summary of the meeting of the North Bay Watershed Association (NBWA) Board of Directors

Date: July 7, 2017 - Time: 9:30 a.m. -Location: Central Marin Sanitary Agency, Novato

Board Member	Agency	Board Member	Agency
Mike Healy	City of Petaluma	Rick Fraites	North Marin Water District
Madolyn Agrimonti	City of Sonoma & Sonoma Valley Co. SD	Pamela Meigs	Ross Valley Sanitary District
Ryan Gregory	Napa Sanitation District	Brant Miller	Novato Sanitary District
Megan Clark	Las Gallinas Valley Sanitary District	Brad Sherwood	Sonoma County Water Agency
Jack Gibson	Marin Municipal Water District	Angela Clapp	Marin Co. Stormwater Pollution Prevention Program
Pam Drew	City of Novato		

Directors present represented 12 of the Association agencies.

1. **Call to Order –** Jack Gibson, Chair calls the meeting to order at 9:39 a.m.
2. **Public Comment** – No public comments were brought forward.
3. **Approval of the Agenda** – The agenda was unanimously approved by the Board.
4. **Approval of Minutes** – The previous Board Meeting's minutes were unanimously approved.
5. **Treasurer's Report** – Judy Kelly, NBWA Executive Director reported that as per usual, the NBWA finances are in excellent shape.
6. **Rob Carson, Marin County Stormwater Pollution Prevention [MCSTOPP] - Overview of the Marin County Stormwater Resource Plan.** Rob stated that the plan was developed to satisfy requirements for grant funding from several programs and will be used for watershed resource planning and to identify project opportunities with multiple benefits. Objectives are to compile information about the county watersheds, meet state planning requirements, create a site list for Marin jurisdictions based on metric-based methods, and develop one concept project for each municipality and engage the community in the planning effort. Rob described the four categories of projects: those planned by an agency; green streets; regional; and parcel based. Regional projects must be bigger than .5 acres. Each MCSTOPP agency has identified one project they are thinking of doing and starting to quantify the effect of the associated Best Management Practices. The Final version of Plan is set to be ready for the spring 2018 Prop 1 solicitation. When the Draft becomes available, MCSTOPP will send notice to NBWA for review and any comment. The question was asked, if a project is not already in the plan, is it out of consideration? Rob replied that frequent plan updates are anticipated. See the NBWA website for a link to Rob's full presentation.

7. **Jason Dow, General Manager Central Marin Sanitation Agency**. **Jason Dow, General Manager** Jason provided an overview of the Agency which was began operation in 1985; about 87% of the cost was paid by EPA and state grants. CMSA serves a population of approximately 105,000 people in central Marin County, including San Quentin. The Agency has

an $11.4 M budget and treats 7-116 million gallons a day [mgd]. Since the collection system and some lateral lines are old, during rain events the plant can get a lot of rainwater and groundwater in the system. The Agency also regulates about 500 businesses in the area under its authority and as required by regulatory agencies. The plant's outfall goes into deep water in the bay's shipping channel. Jason reviewed the water-cleaning process inside the plant: 1) Head-works; screens for wood, plastic, etc. Trash gets pushed out and then landfilled, and the water then flows into grit tanks that act as a vortex separator. Material that makes it through the two screens (grit, sand, etc) gets removed here. After this preliminary treatment, the water goes into primary clarifiers where gravity then works to cause particles heavier than water to settle out while grease and soap floats to top and skimmers take out this top material. For most places in the U.S. this is the end of what is considered primary treatment. However, here the water moves into secondary treatment where microorganisms consume additional unwanted dissolved material in the water. This is done inside bio-towers. Then the water moves into aeration tanks where the process of conversion takes place, going from dissolved material to bigger microbes that are more easily settled out. Secondary settlement is then used to remove the remaining microbes. This produces pretty clean water. Next comes the disinfection process - there are lots of ways to do this, but this plant uses chlorine injection. Then the water is de-chlorined, all of which is considered advanced secondary treatment. As part of each 5-year permit for the outfall, the Agency must meet current measures for suspended solids and BOD. While clean, the water is too salty now to use for landscape reuse with up to 1,000 chlorides (salts). Jason noted that with its biogas generation, the plant is almost energy efficient and the Agency plans to soon sell excess power.

There was a question about pharmaceuticals. Marin has passed an ordinance on the take back issue. Every drug store in county now has a take back. The bigger issue is what drugs pass through us and into the water. The Board and guests then took a tour of the plant.

Items of Interest – Pam Meigs asked about obtaining information regarding the status of reservoir levels in California. Judy Kelly replied she would look into sending additional information out regarding the subject.

Items for Next Agenda

Petaluma River historic hydrology study – Sonoma RCD/SDEI staff

SUBJECT TO BOARD APPROVAL
Submitted by: Judy Kelly, Executive Director

Next Meeting Information: September 8, 2017 –Novato Sanitary District, 500 Davidson, Novato, CA 94945

Marin County Department of Public Works
PO Box 4186, San Rafael, CA 94913-4186
Tel. (415) 473-6528 Fax (415) 473-3799
www.mcstoppp.org

Member Agencies:

Belvedere

Corte Madera

County of Marin

Fairfax

Larkspur

Mill Valley

Novato

Ross

San Anselmo

San Rafael

Sausalito

Tiburon

MCSTOPPP Citizen Advisory Committee Meeting
Monday 8/7/17 ▪ 1:30-3:00 pm
Meeting Location: Marin County Offices (NOT at the Civic Center)
1600 Los Gamos Dr., San Rafael, CA ROOM 210b

DRAFT Agenda - Citizens Advisory Committee (CAC) Meeting

1. Introductions & announcements 20 minutes

In attendance: Ann Thomas, Liz Falejczyk, Judy Shreibman, Rob Carson, Howard Bunce, Angela Clapp

   a. Introductions, Rob Carson as new MCSTOPPP Program Manager

2. Stormwater Resource Plan (SWRP) 25 minutes

   a. Present plan and seek input from CAC members – Rob gave presentation, similar to one given at NBWA Board. Presentation attached.

   b. SB 985 made it a requirement to have a SWRP in place to obtain Prop 1 grant funding for stormwater capture and reuse projects.

   c. SWRP stitches together many planning documents to satisfy SWRP requirements

   d. Draft SWRP will be posted to the MCSTOPPP website for public comment starting August 25th.

3. MCSTOPPP update on permit implementation 15 minutes

   a. Trash project update

      i. Water Board submitted 13383 letters in June requiring municipalities to pick a Track 1 or Track 2 compliance with the Trash Amendments

      ii. Trash Summit: November 1st Save the Date! MCSTOPPP to send out official save the date after securing the room & finalizing time

   b. Outreach –

      i. Our Water Our World – going strong, working to add store(s) for next contract year. One store thinking of voluntarily ridding fipronil from their store

      ii. Wetlands Days – Sewerage Agency of Southern Marin outreach day for kids. MCSTOPPP was present, did a station on watershed education. Liz: looking to expand this program in coming years to Las Gallinas!

iii. Pesticide Reduction Outreach campaign – First year over, did bus ads, outreach events, etc. to reduce pesticide use in Marin County. Funded by the Board of Supervisors, and MCSTOPPP is on an action committee.

1. They have speakers available, let MCSTOPPP know if your event would like a Yard Smart Marin speaker.
2. Please take/distribute the survey to help direct Year 2: https://www.surveymonkey.com/r/YSM1

c. Pesticide Monitoring project – waiting on final report

d. Pet Waste Management Outreach planning – MCSTOPPP got dog waste bags, will do outreach effort with pledge in this fiscal year. Ideas & support welcome!

4. Open discussion time 25 minutes
   a. Opportunities for CAC involvement
5. Review Action Items 5 minutes

NEXT MEETING: November 6, 2017 - 1600 Los Gamos Dr., San Rafael, CA, Room 210b

All public meetings and events sponsored or conducted by the County of Marin are held in accessible sites. Requests for accommodations may be requested by calling (415) 473-4381 (voice) (415) 473-3232 (TTY) at least four work days in advance of the event. Copies of documents are available in alternative formats, upon written request.


Valley Rd
Lucas Valley Rd. Exit
(Southbound)
101
Suite 210
MCSTOPPP
Enter Bldg. here (Lobby C)
Proceed straight through
double doors and continue
to the end of the long
hallway to Suite 210
Los Gamos Rd
101
Lucas Valley Rd. Exit
(Northbound)
100 feet
25 m

Appendix D – Summary of Land Use Categorization

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SUMMARY OF LAND USE CATEGORIZATION

The land use categorization applied to land use zoning data ("zoning grouped" layer in the analysis.gdb GIS file received from Marin County in March 2017) is provided in Table 1 below. The zoned land use code and description, if available, are indicated. In some cases, land uses identified as "planned" in the zoning layer were categorized as a developed land use type, if they could be confirmed by aerial images. Other planned areas were identified as open space. These zoning categories are noted in the table below.

Table 1: Categorization of Marin County Land Use Codes

Land Use Zoning Code : Description	Category
2/3MUE	Commercial
2/3MUW	Commercial
4SRC	Commercial
AP	Commercial
AP: Admin and Professional	Commercial
BFC-RCR: Resort and Commercial Recreation	Commercial
BPO: Business and Professional Office	Commercial
C/O	Commercial
C/O-C	Commercial
C-1	Commercial
C-1: Neighborhood Commercial	Commercial
C1: Retail Business	Commercial
C-2	Commercial
C-2: Downtown Commercial	Commercial
C-3	Commercial
C-3: General Commercial	Commercial
C-4	Commercial
CC	Commercial
C-C	Commercial
C-D	Commercial
CDB: Downtown Core Business	Commercial
CDR: Downtown Core Retail	Commercial
C-F	Commercial
CF: Community Facilities	Commercial
C-G	Commercial
CG: General Commercial	Commercial
C-H1: Limited Roadside Business	Commercial
CL	Commercial
C-L	Commercial
C-L: Limited Commercial	Commercial
C-N	Commercial
CN: Neighborhood Commercial	Commercial
CN-1	Commercial
CN-2	Commercial

Land Use Zoning Code : Description	Category
C-RCR: Resort and Commercial Recreation	Commercial
CS	Commercial
CSMU	Commercial
C-VCR: Village Commercial Residential	Commercial
C-VCR-B1: Village Commercial Residential	Commercial
C-VCR-B2: Village Commercial Residential	Commercial
C-VCR-B4: Village Commercial Residential	Commercial
CW	Commercial
GC	Commercial
GC-WO	Commercial
GD	Commercial
H	Commercial
H1: Limited Roadside Business	Commercial
M-C	Commercial
MU: Mixed Use	Commercial
M-WO-C	Commercial
MX-1	Commercial
NC	Commercial
NC/AHO: Neighborhood Commercial/Affordable Housing Overlay	Commercial
NC: Neighborhood Commercial	Commercial
RCR: Resort and Commercial Recreation	Commercial
REI: Research/Education-Institutional	Commercial
SD	Commercial
TD	Commercial
VC: Village Commercial	Commercial
VCR: Village Commercial Residential	Commercial
I	Heavy Industrial
CCI/O	Light Industrial
CI: Commercial/Industrial	Light Industrial
LI	Light Industrial
LI/O	Light Industrial
LIO: Light Industrial/Office	Light Industrial
LMU	Light Industrial
M	Light Industrial
M: Marine	Light Industrial
M3: Industrial High Density	Light Industrial
A10: Agriculture and Conservation	Open Space*
A2: Agriculture Limited	Open Space*
A20: Agriculture and Conservation	Open Space*
A2-B1: Agriculture Limited	Open Space*
A2-B2: Agriculture Limited	Open Space*
A2-B3: Agriculture Limited	Open Space*
A2-B4: Agriculture Limited	Open Space*
A2-B6: Agriculture Limited	Open Space*
A2-BD: Agriculture Limited	Open Space*

Land Use Zoning Code : Description	Category
A40: Agriculture and Conservation	Open Space*
A5: Agriculture and Conservation	Open Space*
A60: Agriculture and Conservation	Open Space*
AG: Agricultural	Open Space*
APZ-60: Agriculture Production Zone	Open Space*
ARP-1.5: Agriculture Residential Planned	Open Space*
ARP-1: Agriculture Residential Planned*	Open Space*
ARP-10: Agriculture Residential Planned	Open Space*
ARP-2: Agriculture Residential Planned	Open Space*
ARP-20: Agriculture Residential Planned	Open Space*
ARP-30: Agriculture Residential Planned	Open Space*
ARP-40: Agriculture Residential Planned	Open Space*
ARP-5: Agriculture Residential Planned	Open Space*
ARP-50: Agriculture Residential Planned	Open Space*
ARP-60,F2: Agriculture Residential Planned	Open Space*
ARP-60: Agriculture Residential Planned	Open Space*
ARP-7.5: Agriculture Residential Planned	Open Space*
ARP-7: Agriculture Residential Planned	Open Space*
BFC-ARP-1: Agriculture Residential Planned*	Open Space*
BFC-ARP-2: Agriculture Residential Planned	Open Space*
BFC-CP: Planned Commercial*	Open Space*
BFC-PF-RSP-4.36: Residential Single Family Planned*	Open Space*
BFC-PF-RSP-7.26: Residential Single Family Planned*	Open Space*
BFC-RMP-0.1: Residential Multiple Planned	Open Space*
BFC-RMP-0.2: Residential Multiple Planned*	Open Space*
BFC-RMP-1.35: Residential Multiple Planned*	Open Space*
BFC-RMP-1.5: Residential Multiple Planned*	Open Space*
BFC-RMP-12.45: Residential Multiple Planned	Open Space*
BFC-RMP-12: Residential Multiple Planned	Open Space*
BFC-RMP-15.7: Residential Multiple Planned*	Open Space*
BFC-RMP-17: Residential Multiple Planned*	Open Space*
BFC-RMP-18.1: Residential Multiple Planned*	Open Space*
BFC-RMP-2.1: Residential Multiple Planned*	Open Space*
BFC-RMP-2.47: Residential Multiple Planned*	Open Space*
BFC-RMP-2.96: Residential Multiple Planned*	Open Space*
BFC-RMP-3.6: Residential Multiple Planned*	Open Space*
BFC-RMP-4: Residential Multiple Planned*	Open Space*
BFC-RMP-5.62: Residential Multiple Planned*	Open Space*
BFC-RMP-6.36: Residential Multiple Planned*	Open Space*
BFC-RMP-6: Residential Multiple Planned*	Open Space*
BFC-RMPC: Residential Commercial Multiple Planned	Open Space*
BFC-RMPC-2.16: Residential Commercial Multiple Planned	Open Space*
BFC-RSP-0.1: Residential Single Family Planned	Open Space*
BFC-RSP-0.25: Residential Single Family Planned	Open Space*
BFC-RSP-0.5: Residential Single Family Planned	Open Space*

Land Use Zoning Code : Description	Category
BFC-RSP-1.2: Residential Single Family Planned*	Open Space*
BFC-RSP-1.6: Residential Single Family Planned	Open Space*
BFC-RSP-1: Residential Single Family Planned*	Open Space*
BFC-RSP-2.18: Residential Single Family Planned*	Open Space*
BFC-RSP-2.4: Residential Single Family Planned*	Open Space*
BFC-RSP-4.36: Residential Single Family Planned*	Open Space*
BFC-RSP-5.8,F1: Residential Single Family Planned	Open Space*
BFC-RSP-5.8: Residential Single Family Planned*	Open Space*
BFC-RSP-5: Residential Single Family Planned*	Open Space*
BFC-RSP-7.26: Residential Single Family Planned*	Open Space*
C-A2: Agriculture Limited Coastal Zone	Open Space*
C-APZ-60: Agriculture Production Zone	Open Space*
C-ARP-1.2: Agriculture Residential Planned	Open Space*
C-ARP-1.7: Agriculture Residential Planned	Open Space*
C-ARP-1.93: Agriculture Residential Planned	Open Space*
C-ARP-1: Agriculture Residential Planned	Open Space*
C-ARP-10: Agriculture Residential Planned	Open Space*
C-ARP-2: Agriculture Residential Planned*	Open Space*
C-ARP-20: Agriculture Residential Planned*	Open Space*
C-ARP-3: Agriculture Residential Planned	Open Space*
C-ARP-5: Agriculture Residential Planned*	Open Space*
C-ARP-60: Agriculture Residential Planned	Open Space*
C-CP: Planned Commercial	Open Space*
C-OA: Open Area	Open Space*
CON: Conservation	Open Space*
CON-10: Conservation	Open Space*
CON-60: Conservation	Open Space*
CP: Planned Commercial*	Open Space*
C-RMP-0.85: Residential Multiple Planned	Open Space*
C-RMP-1.23: Residential Multiple Planned	Open Space*
C-RMP-1: Residential Multiple Planned	Open Space*
C-RMP-2.2: Residential Multiple Planned	Open Space*
C-RMP-3.2: Residential Multiple Planned	Open Space*
C-RMP-4.3: Residential Multiple Planned	Open Space*
C-RMP-6.5: Residential Multiple Planned	Open Space*
C-RMP-8: Residential Multiple Planned	Open Space*
C-RMPC: Residential Commercial Multiple Planned	Open Space*
C-RMPC-0.7: Residential Commercial Multiple Planned	Open Space*
C-RMPC-1.2: Residential Commercial Multiple Planned	Open Space*
C-RSP-0.1: Residential Single Family Planned	Open Space*
C-RSP-0.144: Residential Single Family Planned	Open Space*
C-RSP-0.16: Residential Single Family Planned	Open Space*
C-RSP-0.2: Residential Single Family Planned*	Open Space*
C-RSP-0.25: Residential Single Family Planned	Open Space*
C-RSP-0.33: Residential Single Family Planned*	Open Space*

Land Use Zoning Code : Description	Category
C-RSP-0.4: Residential Single Family Planned	Open Space*
C-RSP-0.5: Residential Single Family Planned*	Open Space*
C-RSP-1.6: Residential Single Family Planned	Open Space*
C-RSP-1: Residential Single Family Planned*	Open Space*
C-RSP-2: Residential Single Family Planned	Open Space*
C-RSP-7.26: Residential Single Family Planned*	Open Space*
C-RSPS-0.346: Residential Single Family Planned	Open Space*
C-RSPS-0.387: Residential Single Family Planned	Open Space*
C-RSPS-1.4: Residential Single Family Planned	Open Space*
C-RSPS-2.9: Residential Single Family Planned	Open Space*
C-RSPS-3.5: Residential Single Family Planned	Open Space*
C-RSPS-4.39: Residential Single Family Planned	Open Space*
C-RSPS-4.5: Residential Single Family Planned	Open Space*
E/ER	Open Space*
F	Open Space*
FBWC	Open Space*
FC	Open Space*
HO	Open Space*
IP: Industrial Planned*	Open Space*
O	Open Space*
O: Office	Open Space*
OA	Open Space*
O-A	Open Space*
OA: Open Area	Open Space*
O-C	Open Space*
OP: Planned Office*	Open Space*
OS	Open Space*
OS: Open Space	Open Space*
O-WO	Open Space*
P/OS	Open Space*
P/OS-C	Open Space*
P/OS-H	Open Space*
P/OS-WO	Open Space*
P/OS-WO-C	Open Space*
P/QP	Open Space*
P/QP-WO	Open Space*
P/SP	Open Space*
P: Professional	Open Space*
P: Public/Quasi-public	Open Space*
Park: Park	Open Space*
PD(1091)	Open Space*
PD(1255)	Open Space*
PD(1255)-WO	Open Space*
PD(1308)	Open Space*
PD(1308)-C	Open Space*

Land Use Zoning Code : Description	Category
PD(1308)-WO-C	Open Space*
PD(1335)	Open Space*
PD(1349)	Open Space*
PD(1391)	Open Space*
PD(1393)-H	Open Space*
PD(1397)	Open Space*
PD(1397)-H	Open Space*
PD(1399)	Open Space*
PD(1411)	Open Space*
PD(1436)	Open Space*
PD(1439)	Open Space*
PD(1444)	Open Space*
PD(1444)(1604)	Open Space*
PD(1447)	Open Space*
PD(1448)-WO	Open Space*
PD(1449)	Open Space*
PD(1449)-WO	Open Space*
PD(1451)-WO	Open Space*
PD(1476)(1478)-H	Open Space*
PD(1488)(1507)(1573)	Open Space*
PD(1493)	Open Space*
PD(1496)	Open Space*
PD(1507)(1573)	Open Space*
PD(1508)	Open Space*
PD(1512)	Open Space*
PD(1519)	Open Space*
PD(1537)	Open Space*
PD(1542)	Open Space*
PD(1547)	Open Space*
PD(1555)	Open Space*
PD(1562)	Open Space*
PD(1563)	Open Space*
PD(1566)	Open Space*
PD(1569)	Open Space*
PD(1575)	Open Space*
PD(1581)-H	Open Space*
PD(1590)	Open Space*
PD(1594)	Open Space*
PD(1613)	Open Space*
PD(1626)-WO	Open Space*
PD(1627)	Open Space*
PD(1628)	Open Space*
PD(1629)	Open Space*
PD(1629)-H	Open Space*
PD(1630)	Open Space*

Land Use Zoning Code : Description	Category
PD(1631)	Open Space*
PD(1632)	Open Space*
PD(1633)-C	Open Space*
PD(1634)	Open Space*
PD(1635)	Open Space*
PD(1636)-WO	Open Space*
PD(1637)	Open Space*
PD(1638)	Open Space*
PD(1639)	Open Space*
PD(1659)	Open Space*
PD(1671)-WO	Open Space*
PD(1676)(1488)	Open Space*
PD(1678)	Open Space*
PD(1690)	Open Space*
PD(1697)	Open Space*
PD(1701)	Open Space*
PD(1711)	Open Space*
PD(1712)-WO-H	Open Space*
PD(1717)	Open Space*
PD(1729)	Open Space*
PD(1737)	Open Space*
PD(1750)	Open Space*
PD(1759)-H	Open Space*
PD(1770)	Open Space*
PD(1775)	Open Space*
PD(1779)	Open Space*
PD(1790)-H	Open Space*
PD(1801)	Open Space*
PD(1808)-H	Open Space*
PD(1821)	Open Space*
PD(1827)	Open Space*
PD(1828)	Open Space*
PD(1847)	Open Space*
PD(1860)-WO	Open Space*
PD(1870)	Open Space*
PD(1884)	Open Space*
PD(1895)	Open Space*
PD(1905)-H	Open Space*
PD(1909)-WO	Open Space*
PD(1910)	Open Space*
PD(1931)	Open Space*
PD(1933)	Open Space*
PD(1936)	Open Space*
PD: Planned District	Open Space*
PDD	Open Space*

Land Use Zoning Code : Description	Category
PD-H	Open Space*
PD-WO	Open Space*
PF: Public Facilities	Open Space*
PF-ARP-60: Agriculture Residential Planned	Open Space*
PF-CP: Planned Commercial	Open Space*
PF-OA: Open Area	Open Space*
PF-RSP-0.1: Residential Single Family Planned	Open Space*
PF-RSP-0.5: Residential Single Family Planned*	Open Space*
PF-RSP-1.56: Residential Single Family Planned*	Open Space*
PF-RSP-2: Residential Single Family Planned*	Open Space*
PF-RSP-3.96: Residential Single Family Planned*	Open Space*
PF-RSP-4.36: Residential Single Family Planned*	Open Space*
PF-RSP-5.8: Residential Single Family Planned*	Open Space*
PI	Open Space*
PL: Parkland	Open Space*
POS	Open Space*
PP	Open Space*
PPD/R-1: Preliminary Planned Development*	Open Space*
PPD/R-3: Preliminary Planned Development*	Open Space*
PR	Open Space*
RMP	Open Space*
RM-P	Open Space*
RMP: Residential Multiple Planned	Open Space*
RMP-0.031: Residential Multiple Planned	Open Space*
RMP-0.05: Residential Multiple Planned	Open Space*
RMP-0.1: Residential Multiple Planned*	Open Space*
RMP-0.2: Residential Multiple Planned	Open Space*
RMP-0.25: Residential Multiple Planned	Open Space*
RMP-0.33: Residential Multiple Planned	Open Space*
RMP-0.345: Residential Multiple Planned*	Open Space*
RMP-0.35: Residential Multiple Planned	Open Space*
RMP-0.379: Residential Multiple Planned	Open Space*
RMP-0.4: Residential Multiple Planned	Open Space*
RMP-0.44: Residential Multiple Planned	Open Space*
RMP-0.5: Residential Multiple Planned*	Open Space*
RMP-0.6: Residential Multiple Planned	Open Space*
RMP-0.75: Residential Multiple Planned	Open Space*
RMP-1.02: Residential Multiple Planned	Open Space*
RMP-1.3: Residential Multiple Planned*	Open Space*
RMP-1.33: Residential Multiple Planned	Open Space*
RMP-1.38: Residential Multiple Planned	Open Space*
RMP-1.5: Residential Multiple Planned	Open Space*
RMP-1.6: Residential Multiple Planned	Open Space*
RMP-1: Residential Multiple Planned*	Open Space*
RMP-10: Residential Multiple Planned*	Open Space*

Land Use Zoning Code : Description	Category
RMP-11.6: Residential Multiple Planned*	Open Space*
RMP-11.7: Residential Multiple Planned*	Open Space*
RMP-11.8: Residential Multiple Planned*	Open Space*
RMP-11: Residential Multiple Planned	Open Space*
RMP-12.0: Residential Multiple Planned*	Open Space*
RMP-12.1: Residential Multiple Planned*	Open Space*
RMP-12.45: Residential Multiple Planned*	Open Space*
RMP-12: Residential Multiple Planned	Open Space*
RMP-13.7: Residential Multiple Planned*	Open Space*
RMP-13: Residential Multiple Planned*	Open Space*
RMP-14.4: Residential Multiple Planned*	Open Space*
RMP-14.8: Residential Multiple Planned*	Open Space*
RMP-15.6: Residential Multiple Planned	Open Space*
RMP-15.7: Residential Multiple Planned*	Open Space*
RMP-16.7: Residential Multiple Planned*	Open Space*
RMP-17.42: Residential Multiple Planned	Open Space*
RMP-17.7: Residential Multiple Planned*	Open Space*
RMP-17: Residential Multiple Planned	Open Space*
RMP-18: Residential Multiple Planned*	Open Space*
RMP-19: Residential Multiple Planned*	Open Space*
RMP-2.47: Residential Multiple Planned*	Open Space*
RMP-2.5: Residential Multiple Planned*	Open Space*
RMP-2.8: Residential Multiple Planned	Open Space*
RMP-2: Residential Multiple Planned*	Open Space*
RMP-20: Residential Multiple Planned*	Open Space*
RMP-21.78: Residential Multiple Planned*	Open Space*
RMP-22: Residential Multiple Planned	Open Space*
RMP-26.6: Residential Multiple Planned*	Open Space*
RMP-27.4: Residential Multiple Planned*	Open Space*
RMP-29.04: Residential Multiple Planned*	Open Space*
RMP-29: Residential Multiple Planned*	Open Space*
RMP-30: Residential Multiple Planned*	Open Space*
RMP-34: Residential Multiple Planned*	Open Space*
RMP-4.2: Residential Multiple Planned*	Open Space*
RMP-4: Residential Multiple Planned	Open Space*
RMP-40: Residential Multiple Planned*	Open Space*
RMP-5.62: Residential Multiple Planned*	Open Space*
RMP-5.8: Residential Multiple Planned	Open Space*
RMP-5: Residential Multiple Planned*	Open Space*
RMP-6.6: Residential Multiple Planned*	Open Space*
RMP-6: Residential Multiple Planned*	Open Space*
RMP-7: Residential Multiple Planned*	Open Space*
RMP-8.5: Residential Multiple Planned*	Open Space*
RMP-8.6: Residential Multiple Planned*	Open Space*
RMP-8: Residential Multiple Planned*	Open Space*

Land Use Zoning Code : Description	Category
RMP-9.49: Residential Multiple Planned*	Open Space*
RMP-9.7: Residential Multiple Planned	Open Space*
RMP-9: Residential Multiple Planned*	Open Space*
RM-PA	Open Space*
RMPC: Residential Commercial Multiple Planned*	Open Space*
RMPC-0.1: Residential Commercial Multiple Planned	Open Space*
RMPC-1: Residential Commercial Multiple Planned	Open Space*
RMPC-12.7: Residential Commercial Multiple Planned	Open Space*
RMPC-2.16: Residential Commercial Multiple Planned*	Open Space*
RMPC-6: Residential Commercial Multiple Planned*	Open Space*
RMPC-7: Residential Commercial Multiple Planned*	Open Space*
RO-1: Residential Open (40,000 square feet)	Open Space*
RO-2: Residential Open (20,000 square feet)	Open Space*
ROS: Restricted Open Space	Open Space*
ROW	Open Space*
R-P	Open Space*
RPD: Residential Planned Development*	Open Space*
RSP-0.019: Residential Single Family Planned	Open Space*
RSP-0.05: Residential Single Family Planned	Open Space*
RSP-0.09: Residential Single Family Planned	Open Space*
RSP-0.1: Residential Single Family Planned	Open Space*
RSP-0.187: Residential Single Family Planned	Open Space*
RSP-0.2: Residential Single Family Planned*	Open Space*
RSP-0.23: Residential Single Family Planned*	Open Space*
RSP-0.25: Residential Single Family Planned	Open Space*
RSP-0.33: Residential Single Family Planned	Open Space*
RSP-0.47: Residential Single Family Planned	Open Space*
RSP-0.5: Residential Single Family Planned*	Open Space*
RSP-0.625: Residential Single Family Planned	Open Space*
RSP-0.65: Residential Single Family Planned	Open Space*
RSP-0.72: Residential Single Family Planned	Open Space*
RSP-0.75: Residential Single Family Planned	Open Space*
RSP-0.85: Residential Single Family Planned*	Open Space*
RSP-0.91: Residential Single Family Planned*	Open Space*
RSP-0.95: Residential Single Family Planned	Open Space*
RSP-1.04: Residential Single Family Planned*	Open Space*
RSP-1.5: Residential Single Family Planned*	Open Space*
RSP-1.5A	Open Space*
RSP-1: Residential Single Family Planned*	Open Space*
RSP-10A	Open Space*
RSP-1A	Open Space*
RSP-2.2: Residential Single Family Planned	Open Space*
RSP-2.5A	Open Space*
RSP-2.75: Residential Single Family Planned*	Open Space*
RSP-2: Residential Single Family Planned*	Open Space*

Land Use Zoning Code : Description	Category
RSP-2A	Open Space*
RSP-3.75: Residential Single Family Planned*	Open Space*
RSP-30	Open Space*
RSP-3A	Open Space*
RSP-4.4: Residential Single Family Planned*	Open Space*
RSP-4: Residential Single Family Planned*	Open Space*
RSP-4A	Open Space*
RSP-5	Open Space*
RSP-5.65: Residential Single Family Planned	Open Space*
RSP-5.8: Residential Single Family Planned*	Open Space*
RSP-5: Residential Single Family Planned*	Open Space*
RSP-5A	Open Space*
RSP-7: Residential Single Family Planned	Open Space*
RVL-40: Very Low Density Residential	Open Space*
RVL-80: Very Low Density Residential	Open Space*
S	Open Space*
SPD: Specific Planned Development*	Open Space*
Undesignated	Open Space*
W	Open Space*
WEV	Open Space*
W-WO	Open Space*
5/MR/O	Residential
BFC-R1: Residential Single Family	Residential
BFC-RF: Floating Home Marina	Residential
CR	Residential
C-R	Residential
C-R1: Residential Single Family	Residential
C-R1-B2: Residential Single Family	Residential
C-R1-B3: Residential Single Family	Residential
C-R1-B4: Residential Single Family	Residential
C-R1-B5: Residential Single Family	Residential
C-R1-BD: Residential Single Family	Residential
C-R2: Residential Two Family	Residential
C-RA-B2: Residential Agriculture	Residential
C-RA-B3: Residential Agriculture	Residential
C-RA-B4: Residential Agriculture	Residential
C-RA-B5: Residential Agriculture	Residential
C-RA-B6: Residential Agriculture	Residential
DR	Residential
DR-C	Residential
HR1	Residential
HR1.5	Residential
HR1.8	Residential
HR1-C	Residential
MHP	Residential

Land Use Zoning Code : Description	Category
MR2	Residential
MR2.5	Residential
MR3	Residential
MR5	Residential
MR5-WO-C	Residential
R	Residential
R/O	Residential
R1	Residential
R-1	Residential
R1: Residential Single Family	Residential
R-1: Single Family	Residential
R-1: Single Family Residential	Residential
R-1_B-10	Residential
R-1_B-10A	Residential
R-1_B-15	Residential
R-1_B-20	Residential
R-1_B-5A	Residential
R-1_B-6	Residential
R-1_B-7_5	Residential
R-1_B-A	Residential
R10	Residential
R10-2.0: Medium Density Multiple Family Residential	Residential
R10-2.2: Medium Density Multiple Family Residential	Residential
R10-2.5: Medium Density Multiple Family Residential	Residential
R10-4.5: Medium Density Multiple Family Residential	Residential
R10-C	Residential
R10-EA	Residential
R10-H	Residential
R10-WO	Residential
R1-10: Low Density Residential	Residential
R-1-20	Residential
R1-20: Low Density Residential	Residential
R1-40: Low Density Residential	Residential
R-15	Residential
R-1-6	Residential
R1-7.5: Low Density Residential	Residential
R-1-8	Residential
R1a	Residential
R-1-A	Residential
R1a-H	Residential
R-1-B	Residential
R1-B1: Residential Single Family	Residential
R1-B2	Residential
R-1-B-2: Modified Single Family Residential	Residential
R1-B2: Residential Single Family	Residential

Land Use Zoning Code : Description	Category
R1-B3: Residential Single Family	Residential
R1-B4: Residential Single Family	Residential
R-1-BA: Bel Aire Single Family Residential	Residential
R1-BD: Residential Single Family	Residential
R1-B-LV: Residential Single Family	Residential
R-1C	Residential
R-1-C	Residential
R-1-C: Single Family Conservation	Residential
R-1-H: Very Low Density	Residential
R-1L	Residential
R-1W	Residential
R-2	Residential
R-2: Medium Density	Residential
R2: Residential Two Family	Residential
R-2: Two-Family Residential	Residential
R20	Residential
R20-1.5: High Density Multiple Family Residential	Residential
R20-2.0: High Density Multiple Family Residential	Residential
R20-C	Residential
R20-H	Residential
R-2-2.5	Residential
R-2-5	Residential
R2a	Residential
R2a-H	Residential
R-3	Residential
R-3: High Density	Residential
R-3: Multi-Family Residential	Residential
R-3C	Residential
R4-6.0: Medium Density Detached Residential	Residential
R5	Residential
R5-4.5: Medium Density Residential	Residential
R5-7.5: Medium Density Residential	Residential
R5-C	Residential
R5-EA	Residential
R7.5	Residential
R7.5-C	Residential
R7.5-EA	Residential
R7.5-H	Residential
R-A	Residential
RA: Residential Agriculture	Residential
RA-B1: Residential Agriculture	Residential
RA-B2: Residential Agriculture	Residential
RA-B4: Residential Agriculture	Residential
RD-5.5-7	Residential
RE-B3: Residential Estate	Residential

Land Use Zoning Code : Description	Category
RF: Floating Home Marina	Residential
RM	Residential
RM-2.5	Residential
RM-3.0	Residential
RM-3.5	Residential
RM-B	Residential
RM-M	Residential
RR-80: Rural Residential	Residential
RR-B2: Residential Restricted	Residential
RR-B3: Residential Restricted	Residential
RS-10	Residential
RS-10A	Residential
RS-15	Residential
RS-20	Residential
RS-30	Residential
RS-43	Residential
RS-6	Residential
RS-7.5	Residential
RX: Residential Mobile Home Park	Residential
SC-H	Residential
TR	Residential
UR-10	Residential
UR-7	Residential

Note: Designations marked with * are planned zoning areas that may be out of date. Some individual parcels within these zoning designations have been manually reassigned to other categories after review of aerial imagery.