

LOCAL AGENCY MANAGEMENT PLAN



County of Marin
Environmental Health Services

*Onsite
Wastewater
Treatment
Systems*

April 26, 2016

Executive Summary

The Marin County Local Agency Management Plan (LAMP) has been prepared by the County of Marin to obtain approval for the regulation and management of septic systems now referred to as on-site wastewater treatment systems (OWTS). This document will be submitted to the Regional Water Quality Control Board for approval of the County's localized plan for the oversight of OWTS within the County of Marin. The LAMP provides a comprehensive explanation of the various requirements, policies, procedures, and measures, used to regulate and oversee the use of OWTS in the County.

Approval of the LAMP would allow the County to continue to provide local oversight of OWTS by implementing practices that: 1) are suited to the conditions in Marin County, 2) meet or exceed the environmental protections of the minimum "default" siting and design requirements of OWTS identified in Tier 1, and 3) ensure the best opportunity for coordinated and comprehensive management of OWTS, public health and water quality in Marin County.

The State OWTS Policy created five tiers of systems based on risk to public health and the environment. These tiers address minimum standards and accommodate the extreme variation of conditions in the State.

Tier 0 – existing OWTS that are functioning properly.

Tier 1 – minimum standards for low risk new or replacements OWTS.

Tier 2 – allows customized management programs (Local Agency Management Program for New or Replacement OWTS) that address conditions specific to the local jurisdiction.

Tier 3 – applies special, enhanced standards to OWTS located near a water body listed as impaired pursuant to Section 303(d) of the Clean Water Act.

Tier 4 – applies to OWTS that require corrective action.

Tier 2 – Local Agency Management Program for New or Replacement OWTS allows Marin County to submit a Local Agency Management Program for State approval. The County would then manage the installation of new and replacement OWTS under the approved program.

The approved LAMP would provide an alternate method from Tier 1 minimum standards to achieve the same policy purpose, which is to protect water quality and public health. In order to address local conditions, the LAMP may include standards that differ from the Tier 1 requirements for new and replacement OWTS. Examples are a management plan may authorize different soil characteristics and/or different densities for new developments. Once the LAMP is approved, it shall supersede Tier 1 and all future OWTS decisions will be governed by this LAMP until it is modified, withdrawn, or revoked.

The LAMP consists of the current Marin County Regulations (MCR) that are promulgated from Marin County Code (MCC) Chapters 18.06 and 18.07, which governs Standard and Alternative OWTS. Marin County has overseen OWTS in the County since the 1970s, using the MCR and MCC. Minor amendments will be made to these regulations and code to address the OWTS Policy requirements or LAMP regarding:

- Expanding the approved pretreatment units to NSF 350 units,
- OWTS in proximity to impaired water bodies and public water supply wells and reservoirs,
- Report of failures by septic tank pumpers,
- Change the total nitrogen concentration of septic tank effluent to a range, 40 - 60 mg/l,
- OWTS subject to operating permits will be expanded to address some of the OWTS Policy requirements.

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Part 1: Introduction and Background

Introduction

The State Water Resources Control Board (SWRCB) is the authority that regulates Onsite Wastewater Treatment Systems (OWTS)¹ in California. The policies of the SWRCB are implemented locally through nine regional water quality control boards. Each regional board has developed “basin plans” that identifies water quality objectives, policies, and programs to achieve the objectives within their respective jurisdiction. General guidelines for the siting, design, and construction of new OWTS were part of each regional board’s basin plan. Waste Discharge Requirements for OWTS with wastewater flows of under 10,000 gallons per day are waived and the permitting and oversight of new and replacement OWTS have generally been delegated to local agencies.

Assembly Bill 885, which required the State Water Resources Control Board to adopt standards or regulations for the permitting and operation of onsite wastewater treatment systems (OWTS) by January 1, 2004, was signed into law by Governor Gray Davis on September 27, 2000. AB 885, originally written to address coastal onsite wastewater treatment systems was amended to address OWTS throughout the state.

Due to opposition by the public and interest groups, the adoption of statewide standards was finally adopted on June 19, 2012. The State Water Resources Control Board (SWRCB) approved Resolution No. 2012-0032 adopting the *Water Quality Control Policy for Siting, Design, Operation, and Maintenance of Onsite Wastewater Treatment Systems (OWTS Policy)*.

The OWTS Policy recognizes that responsible local agencies can provide the most effective means to manage OWTS on a routine basis in their prospective areas. The Policy intent is to efficiently utilize and improve upon where necessary, existing local programs through coordination between the State and local agencies. The OWTS Policy establishes a statewide, risk-based, tiered approach for the regulation and management of OWTS installations and replacements, and sets the level of performance and protection expected from OWTS. In particular, the OWTS Policy requires actions for water bodies specifically identified as part of the Policy where OWTS contribute to water quality degradation that adversely affect beneficial uses.

California is well known for its extreme range of geological and climatic conditions. As such, the establishment of a single set of criteria for OWTS would be either too restrictive so as to protect for the most sensitive case, or would have broad allowances that would not be protective enough under some circumstances. The risk-based tiered approach established in the OWTS Policy provides a multi-tiered strategy for management of OWTS in California. The following tiers were created:

- Tier 0 – existing OWTS that are functioning properly.
- Tier 1 – minimum standards for low risk new or replacements OWTS.
- Tier 2 – allows customized management programs (Local Agency Management Program for New or Replacement OWTS) that address conditions specific to the local jurisdiction.
- Tier 3 – applies special, enhanced standards to OWTS located near a water body listed as impaired pursuant to Section 303(d) of the Clean Water Act.
- Tier 4 – applies to OWTS that require corrective action.

¹ Onsite Wastewater Treatment Systems (OWTS) are commonly known as septic systems which treat and disposes the wastewater from a home or business not connected to sanitary sewer.

This document represents the proposed Tier 2 - Local Agency Management Plan (LAMP) pertaining to the oversight of OWTS within the County of Marin. This LAMP has been prepared by the County of Marin to obtain approval for OWTS management under Tier 2 and 3 of the OWTS Policy. Approval of the LAMP would allow the County to continue to provide local oversight of OWTS by implementing practices that: 1) are suited to the environmental conditions in Marin County, 2) meet or exceed the environmental protections of the minimum “default” siting and design requirements of OWTS identified in Tier 1 by providing alternative requirements that will mitigate limiting conditions, and 3) ensure the best opportunity for coordinated and comprehensive management of OWTS, public health and water quality in Marin County.

This LAMP conforms to all of the applicable Tier 2 and Tier 3 criteria listed in Sections 9 and 10 of the OWTS Policy. Part 4 is structured and organized to address each section of Section 9 of the OWTS Policy and Part 5 addresses the Tier 3 criteria as outlined in Section 10 of the Policy. A copy of the OWTS Policy can be found in Appendix A.

This LAMP is organized to present a comprehensive explanation of the various requirements, policies, procedures, and measures used to regulate and oversee the use of OWTS in Marin County. It is also structured to address the items listed in the OWTS Policy pertaining to Local Agency Responsibilities and Duties (Section 3.0 of the OWTS Policy), Tier 2 Local Agency OWTS Management Program (Section 9.0) and Tier 3 Advanced Protection Management Program for Impaired Areas (Section 10) of the OWTS Policy. Reference is made throughout this LAMP to the current Marin County Code (MCC) and Marin County Regulations (MCR). The following summarize the contents of this document.

The actual standards for installation, use, and maintenance of OWTS in Marin County are contained in two documents: *Marin County Code Chapters 7.36 and 18 and Marin County Regulations for Design, Construction and Repair of Individual Sewage Disposal Systems*. These documents are contained in this LAMP as Appendix B and C respectively.

The LAMP consists of the current Marin County Regulations (MCR) that are promulgated from Marin County Code (MCC) Chapters 18.06 and 18.07. MCC Chapter 18.06 governs Standard OWTS and MCC Chapter 18.07 applies to Alternative OWTS. Refer to Table 1, *Summary of Marin County Code Chapters 7 & 18*, Table 2, *Summary of Marin County Regulations for Individual Sewage Disposal Systems*, and Appendices B and C to review applicable sections of Marin County Code and Regulations.

These regulations demonstrate the ability of Marin County Environmental Health Services (EHS) to provide substantial protection to groundwater and surface water sources through the proper siting, design, placement, installation, maintenance, and assessment of individual OWTSs. As recognized in the OWTS Policy, geologic and climatic conditions vary significantly throughout the state and responsible local agencies can provide the most effective means to manage an OWTS program.

Along with the regulations for standard and alternative OWTS, Marin County EHS has developed policies for proposed remodeling or expansions of residences and accessory structures that are served by an OWTS. These policies provide the means for evaluations and upgrades of existing older systems through the building permit application process.

MCC Chapter 18.07.100 requires an “Operating Permit” for all Alternative OWTS. Marin County has an active Alternative OWTS Operating Permit Program that oversees the ongoing operating performance of alternative OWTS by requiring periodic inspection/monitoring of those alternative OWTS that are under permit by the Marin County EHS. The criteria for requirement

of an operating permit will be expanded to include OWTS that may not meet all requirements such as horizontal setbacks.

This LAMP establishes regulations and management of OWTS through utilization and expansion of the existing local program MCC Chapter 18.07 and MCR Section 800 to provide the justification and the authority for an Advanced Protection Management Plan (APMP) to address Tier 3 requirements. Tier 3 APMP requirements for those properties that are within 600 feet of a Clean Water Act 303(d)² listed pathogen or nutrient impaired water body are addressed in Section 10 of the OWTS Policy and the corresponding Part 5 of this document.

Existing, new and replacement OWTS within 600 feet of an Impaired Water Body, as defined by the Clean Water Act Section 303(d) program, are subject to OWTS Policy Tier 3 requirements. Therefore, Marin County's proposed LAMP will be in accordance with Tiers 2 and 3 of the OWTS Policy requirements. Part 5, the Advanced Protection Management Plan proposes an alternative to the Tier 3 600 feet setback to impaired water bodies by instead, requiring a 200 feet setback and supplemental pretreatment of the wastewater prior to pressure distribution dispersal. The pretreatment and the pressure distribution dispersal methods improve the natural pollutant removal processes in the soil to ensure the wastewater is adequately treated before it reaches the water body. The Advanced Management Plan would therefore, uphold existing water quality standards.

Pursuant to the OWTS Policy, the County of Marin's LAMP will not include the following:

- Any OWTS with projected wastewater flow of 10,000 gallons or more per day.
- Any OWTS that has above ground surface discharge.
- Any OWTS that receives high-strength wastewater, unless the waste stream is from a commercial food service facility.
- Any OWTS that receives high-strength wastewater from a commercial food service facility: (1) with a BOD higher than 900 mg/l or (2) that does not have a properly sized and functioning oil/grease interceptor.
- OWTS dedicated to receiving significant amounts of wastes dumped from RV holding tanks.

OWTS treating and disposing of wastewater that meet the criteria above will be subject to Waste Discharge Requirements from the Regional Water Quality Control Board.

This LAMP shall apply to the unincorporated areas except for the Stinson Beach Water District area and within the cities excluding for the City of Novato. The LAMP shall not apply to OWTS located on State and Federally-owned lands unless the State or Federal governments choose to have EHS oversight of OWTS in these areas.

While every effort is made to make this a comprehensive plan, it is likely that it may be necessary to modify this LAMP in the future due to technology and/or conditions and experience change. If changes are necessary, they will be made in consultation with the Regional Water Quality Control Board, San Francisco Region and, if needed, the Marin County Board of Supervisors.

Regulation of Onsite Wastewater Treatment Systems

The County of Marin has been administering OWTS permits since the early 1970s. The County adopted OWTS regulations in October 1984 to comply with the Basin Plan of the Regional

² The Federal Water Pollution Control Act of 1948 was the first major U.S. law to address water pollution. As amended in 1972, the law became commonly known as the Clean Water Act (CWA).

Water Quality Control Board - San Francisco Bay Region (RWQCB). The regulations were amended several times with the most recent amendment adopted in 2008.

The County has operated its OWTS program under the authority granted by the RWQCB for those areas that drain to San Pablo Bay, San Francisco Bay, and the Pacific Ocean.

The Marin County EHS is responsible for regulating OWTS in the unincorporated areas except for the Stinson Beach Water District area and within the cities except for the City of Novato. OWTS are used for properties located outside of the municipal sewer districts, which are primarily in the rural areas and State Route 1. It is estimated that there are approximately 8,000 OWTS in Marin County. In 2003, the West Marin Septic Management Organizational Options and Feasibility Analysis estimated that there were 4,957 septic parcels in the communities of: Bolinas, Muir Beach, Dillon Beach, Eastshore/Marshall, Tomales, Forest Knolls, Lagunitas, San Geronimo Village, San Geronimo Valley, Woodacre, Nicasio, Inverness, Olema, and Point Reyes Station. These communities are in West Marin and in the interior of the county. See Map 2-8 for the distribution of OWTS in Marin County.

OWTS located within the incorporated areas of the county have historically been regulated by the County under memorandums of understanding with each city. With the exception of the City of Novato, Marin County OWTS Code and regulations have been administered in all cities. Under this LAMP, EHS is responsible for permitting the installation and regulation of OWTS within the County's jurisdictional boundaries. In addition, all cities within the county have designated the County's Health Officer as their jurisdictions' health officer.

Marin County Onsite Wastewater Treatment System Requirements

The following summarizes how key site suitability, land use, and development factors have been addressed in the OWTS requirements of Marin County's LAMP for protection of water quality. Requirements for the installation, use, and maintenance of OWTS in Marin County are contained in the Marin County Code and the Regulations. The applicable chapters and sections of these documents are contained in Appendix A and B and form the basis of this LAMP; they are summarized in Tables 1 and 2.

- **Soil Conditions.** Soil suitability is the single most critical aspect of onsite wastewater treatment and dispersal. The soil provides the medium for the absorption and treatment of wastewater discharged through sub-surface dispersal systems. This is accomplished mainly through a combination of physical filtering, biological and chemical processes, and dilution. Protection of underlying groundwater relies on provision of an adequate depth of permeable soil below the dispersal field (zone of aeration) for absorption and treatment to occur. Marin County EHS requires detailed site evaluation to document suitable soil characteristics and depth for each OWTS installation. The observed depth and percolation characteristics of the soil are used to select the appropriate location, sizing, and design of the OWTS to achieve proper effluent dispersal and groundwater protection.
- **Geologic Factors.** Geology is important to the suitability and performance of OWTS due to its influence on topography and landforms, the type and characteristics of soils that develop at the surface, the occurrence and movement of sub-surface water, and slope stability. Geologic factors are addressed for new OWTS based on information from basic site evaluations for all installations, including information on slope and proximity to potential unstable land masses.
- **Groundwater Conditions.** Site evaluations include requirements for documenting wet weather groundwater conditions. Documentation of groundwater levels, in combination with

soil permeability (percolation rates) provide the basis for selecting the appropriate OWTS design and maintaining an appropriate vertical separation between the point of effluent dispersal and the water table that will protect public health and avoid environmental degradation.

- **Alternative Treatment and Dispersal Technologies.** The alternative treatment and dispersal technologies (MCC Chapter 18.07 and MCR Section 800, *Alternative Sewage Disposal Systems*) and revised sizing standards are available to provide options for system repairs and replacements (MCR 304, *Repair of Existing Systems*). The use of alternative technologies producing higher quality effluent can compensate for reduced amount of soil absorption area where the repair system on an older, non-conforming development site encroaches within the normal setback requirement. Also, alternative dispersal methods and revised sizing criteria can reduce the amount of encroachment into the setback area by making more portions of the property (e.g. shallow soils) potentially feasible for wastewater dispersal, while also reducing the overall amount of land area needed for the dispersal system.
- **Erosion Control Measures.** The County requires that erosion control measures be implemented in connection with the installation of OWTS under certain circumstances, based on the type and size of the system and the prevailing ground slope conditions.
- **Flood Protection Measures.** MCC Chapter 23.09 - Floodplain Management restricts the development of manmade structures in the floodplain area as shown in the official flood identification map. In plain language, there shall be no new development in the 100 year floodplain area. The flood identification map indicates that the majority of the floodplain areas are located in the eastern portions of Marin County. For the most part, the eastern portions of the county are developed urban areas on sanitary sewer. The areas identified as floodplain that may have or require an OWTS are in the areas of: Point Reyes Station, Inverness Park, Olema, and Stinson Beach. Please see Part 4, Section 9.2.1 for more details on what EHS will require for OWTS located in the flood plain.
- **Enhanced Protection for Water Supply Watersheds and Impaired Water Bodies.** In accordance with the requirements of the OWTS Policy, the County **will** increase the setback standards for any OWTS located within the prescribed setbacks to a public water supply well and/or surface water intake. The provisions for identifying and notifying public water system owners of pending OWTS applications are discussed in Part 4 of this LAMP.
- **Impaired Surface Waters.** The following water bodies, impaired for pathogens and identified in Attachment 2 of the OWTS Policy, are subject to OWTS Policy Tier 3 requirements: China Camp Beach, Lawson's Landing, Pacific Ocean at Bolinas Beach, Pacific Ocean at Muir Beach, and Petaluma River. The water bodies impaired for nitrogen are: Lagunitas Creek, Petaluma River, Tomales Bay, and Walker Creek. The Advanced Protection Management Program (APMP) for OWTS in proximity to these water bodies addressed in Part 5 of this document sets out special provisions to prevent further impairment of the subject water body by an OWTS.

TABLE 1, SUMMARY OF MARIN COUNTY CODE CHAPTER 7 & 18

Chapter 7.36 - SEPTIC TANKS AND CHEMICAL TOILETS	
7.36.010	Definitions
7.36.020	Permit required (to operate any septic tank pumper or distribute any chemical toilet)
7.36.030	Permit suspension or revocation
7.36.040	Fees
7.36.050	Penalty for violation
Chapter 18.04 - SEWAGE DISPOSAL—PERMITS	
18.04.010	Definitions
18.04.020	Application
18.04.030	Prohibited acts
18.04.040	Connections required
18.04.050	Permits—Fees
18.04.060	Permits—Applications
18.04.070	Permit—Investigation and issuance
18.04.080	Permits—Expiration and revocation
18.04.090	Permits—Appeals
18.04.100	Permits—Nontransferable
18.04.110	System regulations
18.04.120	Certificate of occupancy
18.04.130	Building permit approval
18.04.140	Duty of health officer
18.04.150	Penalty for violations
18.04.160	Severability
Chapter 18.06 - INDIVIDUAL SEWAGE DISPOSAL SYSTEMS	
18.06.010	Purpose
18.06.020	Applicability
18.06.025	Coastal zone
18.06.030	Definitions
18.06.040	Prohibited acts
18.06.050	Connection to public sewer system and alternatives
18.06.055	Building permit approval
18.06.060	Regulations
18.06.062	Graywater requirements
18.06.066	Permits required
18.06.067	Graywater system permit exemptions
18.06.068	Graywater system notification
18.06.070	Application and fees
18.06.080	Health officer review
18.06.082	Environmental health services permits—Nontransferable
18.06.084	Environmental health services permits—Revocation
18.06.090	Certificate of inspection
18.06.100	Biennial inspection and renewal
18.06.110	Recordation and transfer of certificate
18.06.120	Defective systems
18.06.125	Abandoned sewage disposal and graywater distribution facilities
18.06.130	Enforcement
18.06.140	Appeals
18.06.150	Penalty for violations
18.06.160	Severability

Chapter 18.07 - ALTERNATIVE SEWAGE DISPOSAL SYSTEMS	
18.07.010	Purpose
18.07.020	Applicability
18.07.025	Coastal zone
18.07.030	Definitions
18.07.040	Prohibited acts
18.07.050	Connection to public sewer system and alternative
18.07.055	Building permit approval
18.07.060	Regulations
18.07.065	Permit required
18.07.070	Application forms and fees
18.07.075	Site evaluation
18.07.077	Cumulative impact assessment
18.07.080	Application process
18.07.085	Health officer review and notice of decision
18.07.090	Construction permit
18.07.095	Certificate of installation
18.07.100	Operating permits
18.07.105	Waiver/variance
18.07.107	Public hearings
18.07.110	Permits—Nontransferable
18.07.120	Performance monitoring and reporting
18.07.130	Abandoned alternative sewage disposal systems
18.07.140	Permits—Revocation
18.07.150	Abatement
18.07.160	Enforcement
18.07.170	Appeals
18.07.180	Penalty for violations
18.07.190	Severability
Chapter 18.08 - SEWER CONNECTIONS—CHARGES	
18.08.010	Connection charge established
18.08.020	Permit for fixtures
18.08.030	Basis for charge
18.08.040	Unit schedule
18.08.050	Connection fee per unit
18.08.060	Cases for special approval
18.08.070	Penalty for violation
Chapter 18.10 - SEWER USER SERVICE CHARGES	
18.10.020	Definitions
18.10.040	Services
18.10.060	Minimum monthly sewer service charges
18.10.080	Sewer service charge as minimum
18.10.100	Sewer user description
18.10.120	Assignment of sewer user units
18.10.140	Monthly service charge
18.10.160	Person responsible for payment
18.10.180	Effective date of sewer service charges
18.10.200	Termination of service
18.10.220	Collection of charges

**TABLE 2
SUMMARY OF MARIN COUNTY
REGULATIONS FOR DESIGN, CONSTRUCTION AND
REPAIR OF INDIVIDUAL SEWAGE DISPOSAL SYSTEMS**

100	Permit Application and Procedures
200	Definitions
300	General Provisions
400	Site Suitability Criteria
500	Site Evaluation Requirements
600	Design Criteria
700	Installation and Inspection
800	Alternative Systems
900	Waiver of Regulations
904	Nonconforming Lots
905	Geographical Area Waivers
ALTERNATIVE SYSTEMS	
801	General Provisions
802	Construction Permit and Review Requirements
803	Operating Permits
804	Performance Monitoring, Maintenance and Reporting
805	System Evaluation and Adoption of Standards
806	Types of Alternative Systems Permitted
807	Cumulative Impact Assessment
808	Siting and Design Criteria
Appendix A – Siting and Design Criteria for Alternative Systems	
I	Siting and Design Criteria for Standard Mound Systems
II	Siting and Design Criteria for Steep Slope Mound Systems
III	Siting and Design Criteria for Pressure-dosed Sand Trenches
IV	Siting and Design Criteria for Subsurface Drip Dispersal
V	Siting and Design Criteria for Intermittent Sand Filter Systems
VI	Siting and Design Criteria for Proprietary Recirculating Textile Filter Systems

Part 2: Environmental Conditions

Geographical Area

Marin County is located in the North San Francisco Bay Area of California in the California Coastal Range. The county forms a peninsula with the Pacific Ocean to the west, San Pablo Bay, and San Francisco Bay to the east and south. To the south across the Golden Gate Bridge is the city of San Francisco. Marin County borders Sonoma County to the north.

The San Andreas Fault dissects Marin County in a northwesterly direction from Bolinas Lagoon to Tomales Bay. The soils west of the fault and along the Pacific Ocean are in areas managed by the National Park Service. They are used for recreation and wildlife habitat and watershed. In the central part of the county the soils are moderately sloping to very steep uplands, used as rangeland and watershed and for wildlife habitat and recreation. In the eastern edge of the county the soils are used for urban development.

Marin County has a total area of 828 square miles, of which 308 square miles is water. A significant portion of land in Marin County is dedicated national, state, and local protected areas.

There are six reservoirs in Marin County which comprise the main source of water for the county.

- Nicasio Reservoir
- Kent Lake
- Alpine
- Bon Tempe
- Lagunitas
- Stafford Lakes

National protected areas

- Golden Gate National Recreation Area (part)
- Marin Islands National Wildlife Refuge
- Muir Woods National Monument
- Point Reyes National Seashore
- San Pablo National Wildlife Refuge (part)
- Gulf of the Farallones National Marine Sanctuary (part)

State Parks

- Angel Island State Park
- China Camp State Park
- Mount Tamalpais State Park
- Olompali State Historic Park
- Samuel P. Taylor State Park
- Tomales Bay State Park

Marin County Parks and Open Space

- Adrian Rosal Park
- Agate Beach
- Black Point Boat Launch

- Candy's Park
- Castro Park
- Chicken Ranch Beach
- Forest Knolls Park
- Hal Brown Park at Creekside
- Lagoon Park
- McInnis Park
- McNears Beach Park
- Miller Boat Launch
- Paradise Beach Park
- Point Reyes Playground
- Pueblo Park
- Stafford Lake Bike Park
- Stafford Lake Park
- Upton Beach Park
- Village Green
- White House Pool

In addition there are six underwater parks in Marin County that are managed by the State of California to protect and conserve ocean wildlife and marine ecosystems.

The Marin County ecology is very diverse with numerous ecosystems present including coastal strand, oak woodland, mixed evergreen forest, and coast redwood forest, chaparral, and riparian zones.

There are numerous watersheds in Marin County which are described in more detail in the Watershed Areas Section below.

Most of the population resides on the eastern side of Marin County along the San Francisco Bay. U.S. Route 101 is the main north/south corridor through the county and is where most of the cities are located. The interior contains large areas of agricultural and open space. Coastal West Marin is composed largely of beaches and parks with State Route 1 and small communities running alongside the coast.

Soils

The soils in Marin County have been grouped by the United State Department of Agricultural, Soil Conservation Service (USDA) into three general kinds of landscape broad uses.

Soils on alluvial fans and plains, in basin, and on tidal flats. The soils in this group are dominantly on the lower positions of landscape in the eastern part of Marin County. The soils are nearly level to sloping with elevation ranges from 2 feet below sea level at San Pablo Bay to 500 feet above sea level near Nicasio. These soils range from deep to very deep and *somewhat poorly drained and very poorly drained*. The surface layer is silt loam to clay.

This group of soils is used mainly as hayland, pastureland, rangeland, and wildlife habitat with some areas used for urban development.

The soil associations in this group:

1. BLUCHER-COLE: Very deep, gently sloping, somewhat poorly drained soils; in basin and on alluvial fans. This association makes up about 3% of the county.

2. REYES-NOVATO: Very deep, nearly level, somewhat poorly drained and very poorly drained soils; on tidal flats. This association makes up about 4% of the county.
3. URBAN LAND-XERORTHENTS: Urban land, and deep, nearly level to moderately sloping soils; on alluvial fans, alluvial plains, and tidal flats. This association makes up about 2% of the county.
4. XERORTHENTS- URBAN LAND: Deep, nearly level to sloping soils, and urban land; on alluvial fans, alluvial plains, and tidal flats. This association makes up about 6% of the county.

Coastal soils on dunes, terraces, hills, mountains, and uplands. The soils in this group are dominantly near the coast. They are gently sloping to *very steep* with elevation ranges from sea level to 1,700 feet. These soils are *shallow* to very deep and are somewhat *excessively drained* to *somewhat poorly drained*. The surface layer is sand to clay loam.

This group of soils is used mainly as rangeland and for recreation and wildlife habitat with some areas used as hayland and woodland and for urban development.

The soil associations in this group:

1. DUNE LAND-SIRDRAK: Dune land, and very deep, gently sloping to steep, somewhat excessively drained soils; on coastal dunes. This association makes up about 3% of the county.
2. KEHOE-SHERIDAN VARIANT: Moderately deep, strongly sloping to very steep, well drained soils underlain by sandstone and quartz-diorite; on hills. This association makes up about 4% of the county.
3. PALOMARIN-WITTENBERG: Deep, strongly sloping to very steep, well drained soils underlain by siliceous shale and sandstone; on hills and mountains. This association makes up about 3% of the county.
4. PABLO-BAYVIEW: Shallow, moderately steep to very steep, well drained soils underlain by siliceous shale and sandstone; on uplands. This association makes up about 3% of the county.
5. CRONKHITE-DIPSEA-CENTISSIMA: Moderately deep and deep, strongly sloping to very steep, moderately well drained and well drained soils underlain by sandstone and shale; on uplands. This association makes up about 8% of the county.
6. TAMALPAIS-BARNABE VARIANT: Shallow and moderately deep, moderately steep to very steep, well drained soils underlain by chert and sandstone; on uplands. This association makes up about 2% of the county.
7. TOMALES STEINBECK: Deep, gently sloping to steep, moderately well drained and well drained soils underlain by soft sandstone; on uplands. This association makes up about 13% of the county.
8. OLOMPALI-SOULAJULE-FELTON VARIANT: Moderately deep and deep, gently sloping to very steep, somewhat poorly drained and well drained soils; on terraces and uplands. This association makes up about 6% of the county.

Inland soils on uplands. The soils in this group are in the central and eastern part of Marin County. They are gently sloping to *very steep* with elevation ranges from 50 to 2,500 feet. These soils are *shallow* and moderately deep and are somewhat *excessively drained* and well drained. The surface layer is loam or gravelly loam.

This group of soils is used mainly as rangeland. The areas adjacent San Pablo Bay are used for urban development.

The soil associations in this group:

1. TOCALOMA-SAURIN: Moderately deep, gently sloping to very steep, well drained soils underlain by sandstone and shale; on uplands. This association makes up about 23% of the county.
2. LOS OSOS-BONNYDOON: Shallow and moderately deep, gently sloping to very steep, well drained and somewhat excessively drained soils underlain by sandstone and shale; on uplands. This association makes up about 6% of the county.
3. TOCALOMA-MCMULLIN: Shallow and moderately deep, moderately steep to very steep, well drained soils underlain by sandstone and shale; on uplands. This association makes up about 8% of the county.
4. MAYMEN-MAYMEN VARIANT: Shallow and moderately deep, steep and very steep, somewhat excessively drained and well drained soils underlain by sandstone and shale; on uplands. This association makes up about 4% of the county.
5. TOCALOMA-MCMULLIN-URBAN LAND: Moderately deep and shallow, well drained, moderately steep to very steep soils underlain by sandstone and shale, and Urban land; on uplands. This association makes up about 2% of the county.

The observations and soil evaluations conducted by EHS staff during the past 30 years indicate that the types, depth, and composition of the soil on a site, can vary from within 10-25 feet on the same site. The descriptions in italics in the soil summaries identify some of the challenging soil and geologic factors when siting an OWTS in Marin County.

Watershed Areas

Major watersheds in Marin County include Bolinas Lagoon, Estero Americano, Las Gallinas Creek, Tomales Bay, Novato Creek, Miller Creek, Ross Valley, San Rafael Creek, Richardson Bay, South Coastal Creeks, Point Reyes National Seashore Creeks, Rush Creek, San Antonio Creek, and Stemple Creek. A description and map of each watershed follows.

Bolinas Lagoon Watershed

In May 2008, the Board of Supervisors authorized the Department of Public Works to begin implementation of a County-wide Watershed Program. The purpose of the County-wide Watershed Program is to provide a framework to integrate flood protection and environmental restoration goals with public and private partners to protect and enhance Marin County's watersheds. A watershed program was recommended for Stinson Beach to develop a suite of integrated projects that address on-going flooding and sedimentation issues in the lower sections of the Easkoot Creek while maintaining and improving habitat for steelhead trout and Coho salmon.



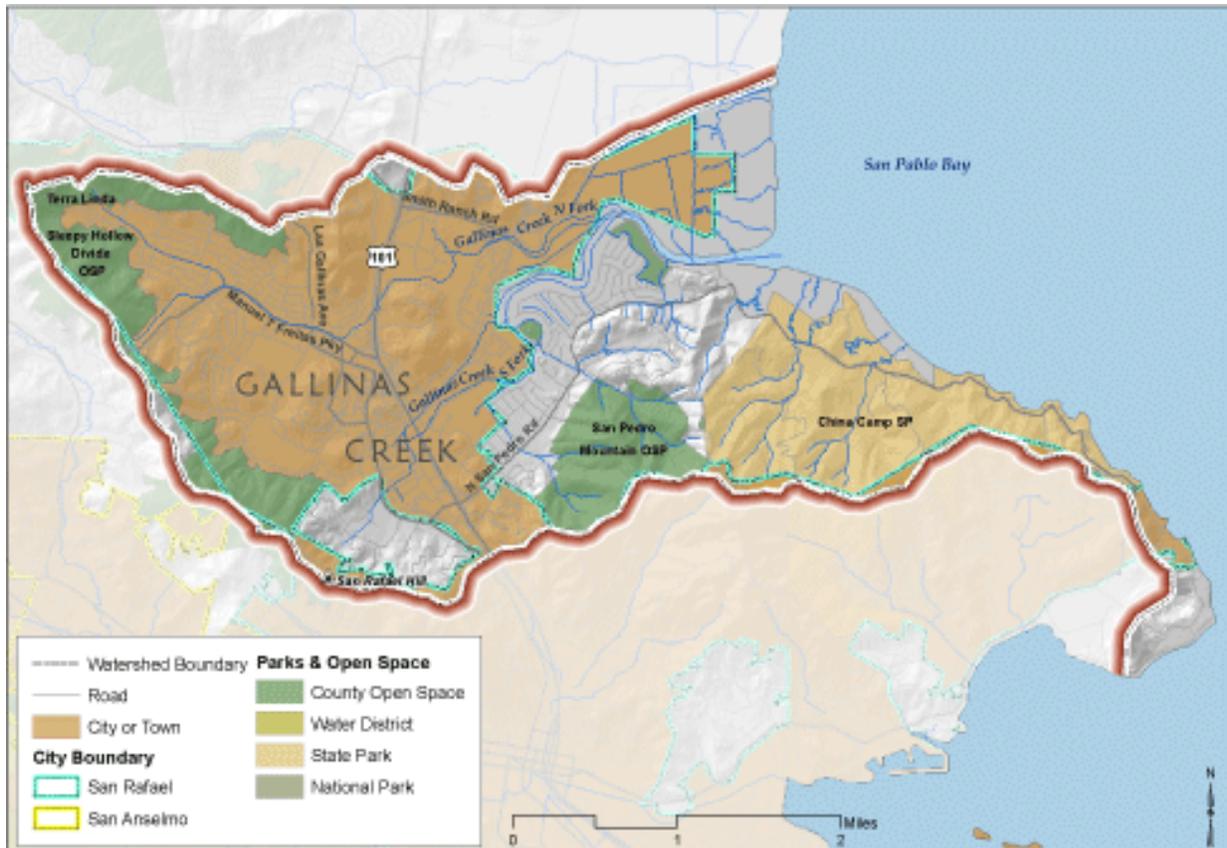
Estero Americano Watershed

The Estero Americano is a coastal estuary at the base of Americano Creek; the watershed area is 49 square miles. It forms a portion of the northern boundary between Marin and Sonoma counties where it drains into Bodega Bay. In some years, a seasonal sand bar at the mouth restricts tidal exchange. Periods of hypersalinity have been recorded in the Estero. When the mouth is open, the tidal influence ranges up to 4 miles upstream. Americano Creek, the sole tributary of the Estero, is ephemeral and generally dries up for 4 to 6 months between late spring and fall.



Las Gallinas Watershed

The Gallinas Creek watershed is located on the eastern side of Marin County between the Miller and San Rafael watersheds. The 5.6 square mile basin has two main drainage areas. The north fork is the larger of the two drainages and flows from the ridgeline through Santa Margarita Valley and the community of 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 communities of San Rafael Meadows and Santa Venetia.



Tomales Bay Watershed

Tomales Bay is included in the Gulf of the Farallones National Marine Sanctuary. It is also part of the Central California Coastal Biosphere Reserve and the Western Hemisphere Shorebird Reserve Network (TBWC 2003 1). In 2002, the U.S. Fish and Wildlife Service (USFWS) designated Tomales Bay as a Wetland of International Importance (TBWC 2003). The National Audubon Society has recognized the Bay as an "Important Bird Area."

The Inverness sub-watershed is a collection of many small creeks draining into the west shore of Tomales Bay. These creeks include Haggerty Gulch, Fish Hatchery Creek, Redwood Creek, and First, Second, and Third Valley Creeks.

The Lagunitas Creek sub-watershed 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. The sub-watershed includes the Kent, Alpine, Bon Tempe, Lagunitas, and Nicasio reservoirs. The San Geronimo Valley is the last undammed 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, the County has prepared a draft San Geronimo Valley Salmon Enhancement Plan.

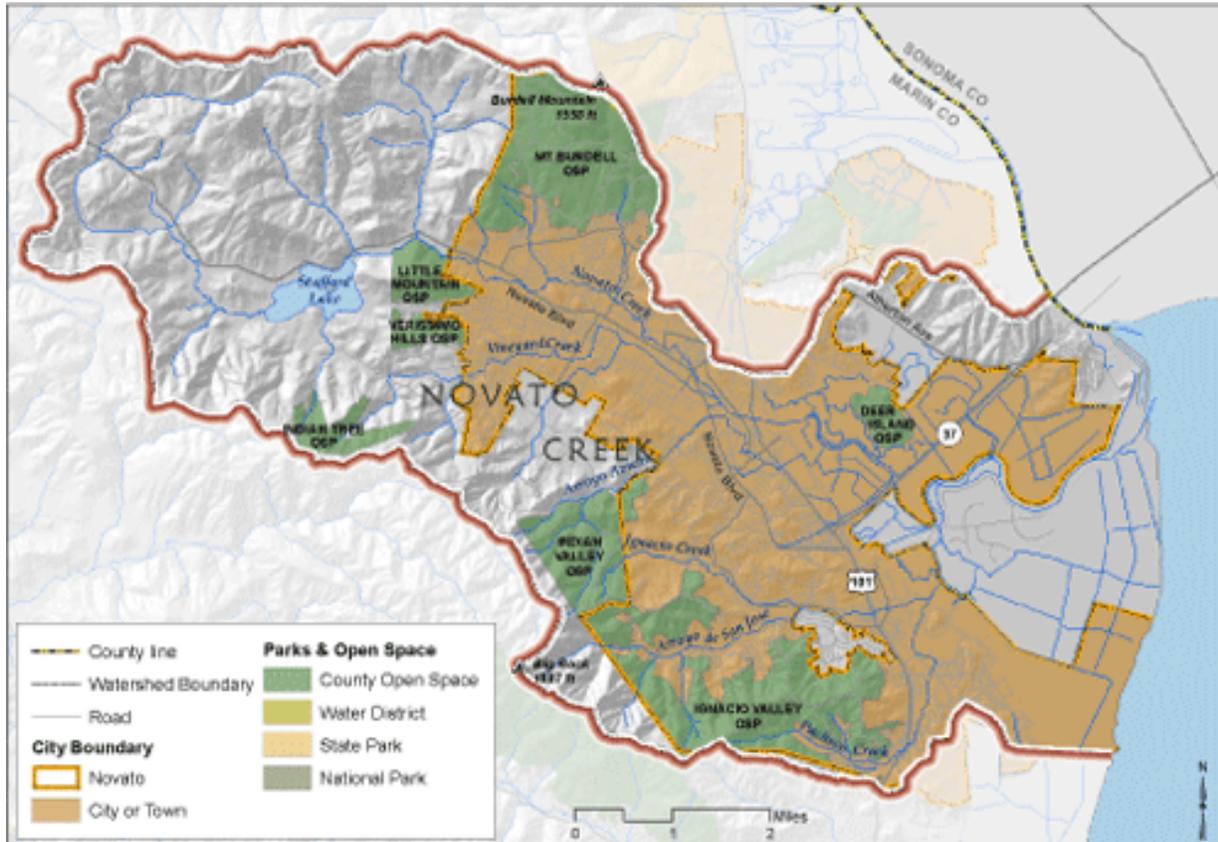
Topography in the 76-square mile Walker Creek watershed ranges from 1,500 feet to sea level where the creek empties into Tomales Bay just south of its mouth. The northern tributaries, Keyes Creek and Chileno Creek, flow through wide valleys with gentle, grassy hills. The upper watershed is much more rugged with extensive areas of coast live oak forest. The watershed contains a 220-acre natural lake, Laguna Lake, at the top of Chileno Valley. Soulajule Reservoir, constructed in 1968 in Arroyo Sausal and enlarged in 1980, is managed by the Marin Municipal Water District (MMWD).

The small tributaries draining the east side of Tomales Bay include Millerton Gulch, Grand Canyon, Tomasini Canyon, and other unnamed tributaries. These small watersheds occur on both public and private lands.



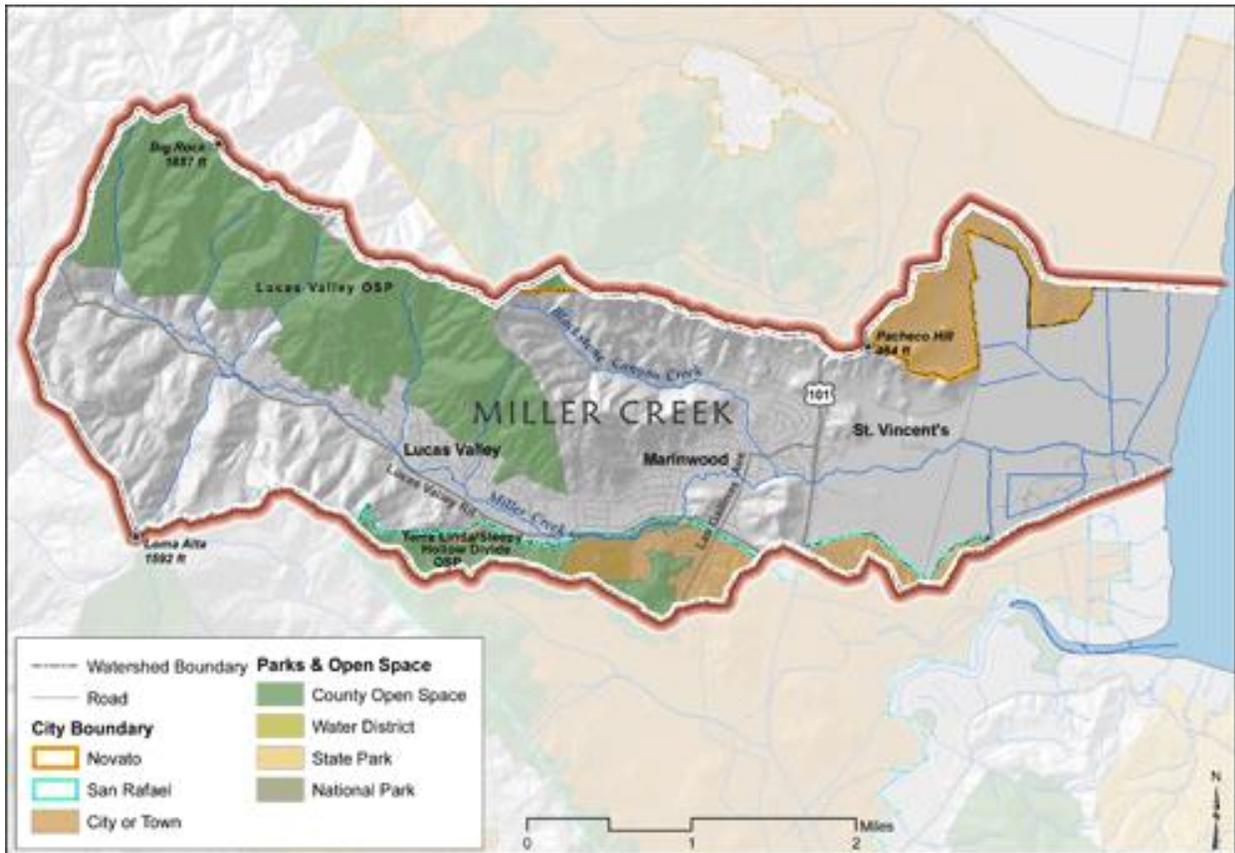
Novato Creek Watershed

The Novato Creek, 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.



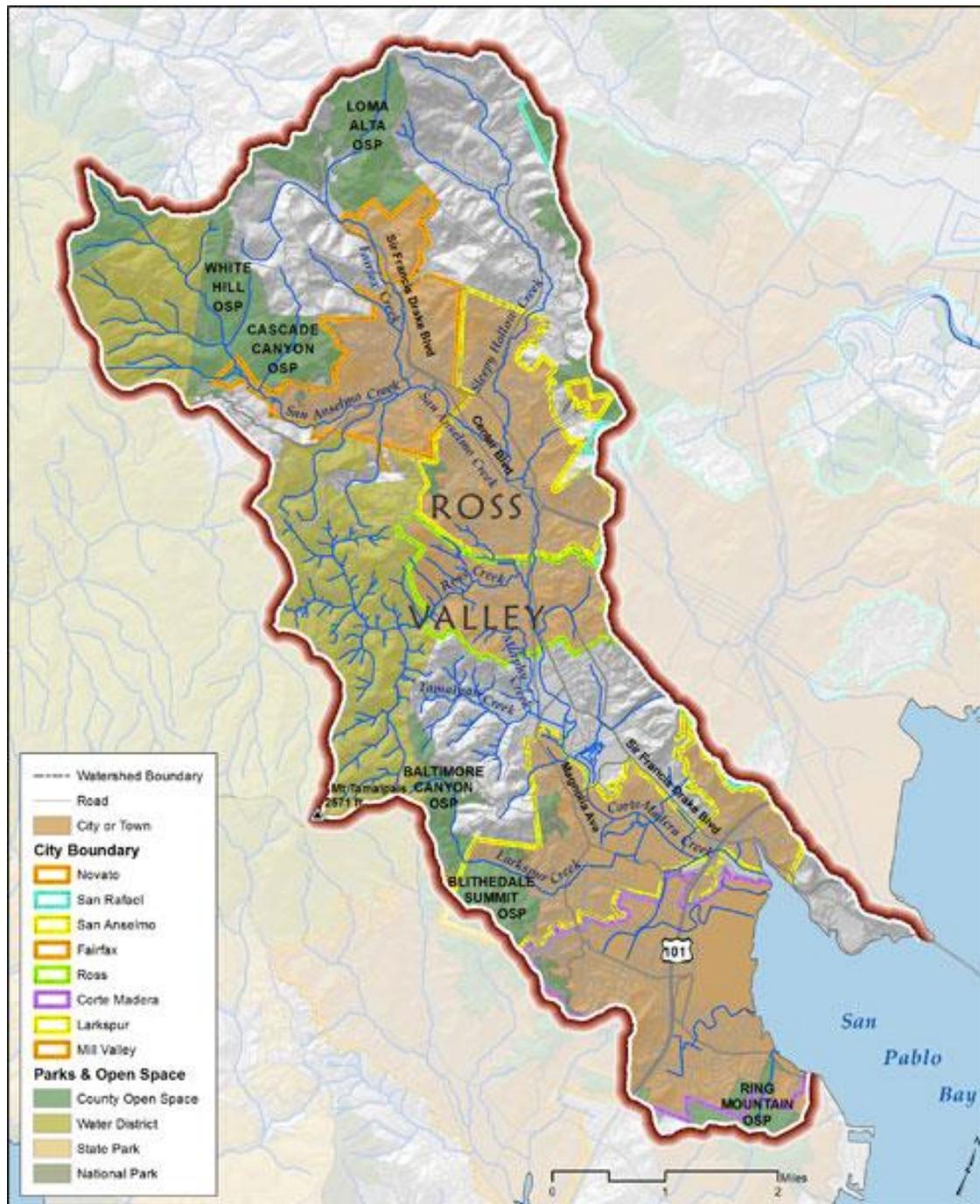
Miller Creek Watershed

The Miller Creek watershed covers 12 square miles with 30 miles of channels. 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.



Ross Valley Watershed

The 28-square mile Corte Madera watershed 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 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 of San Pablo Bay.



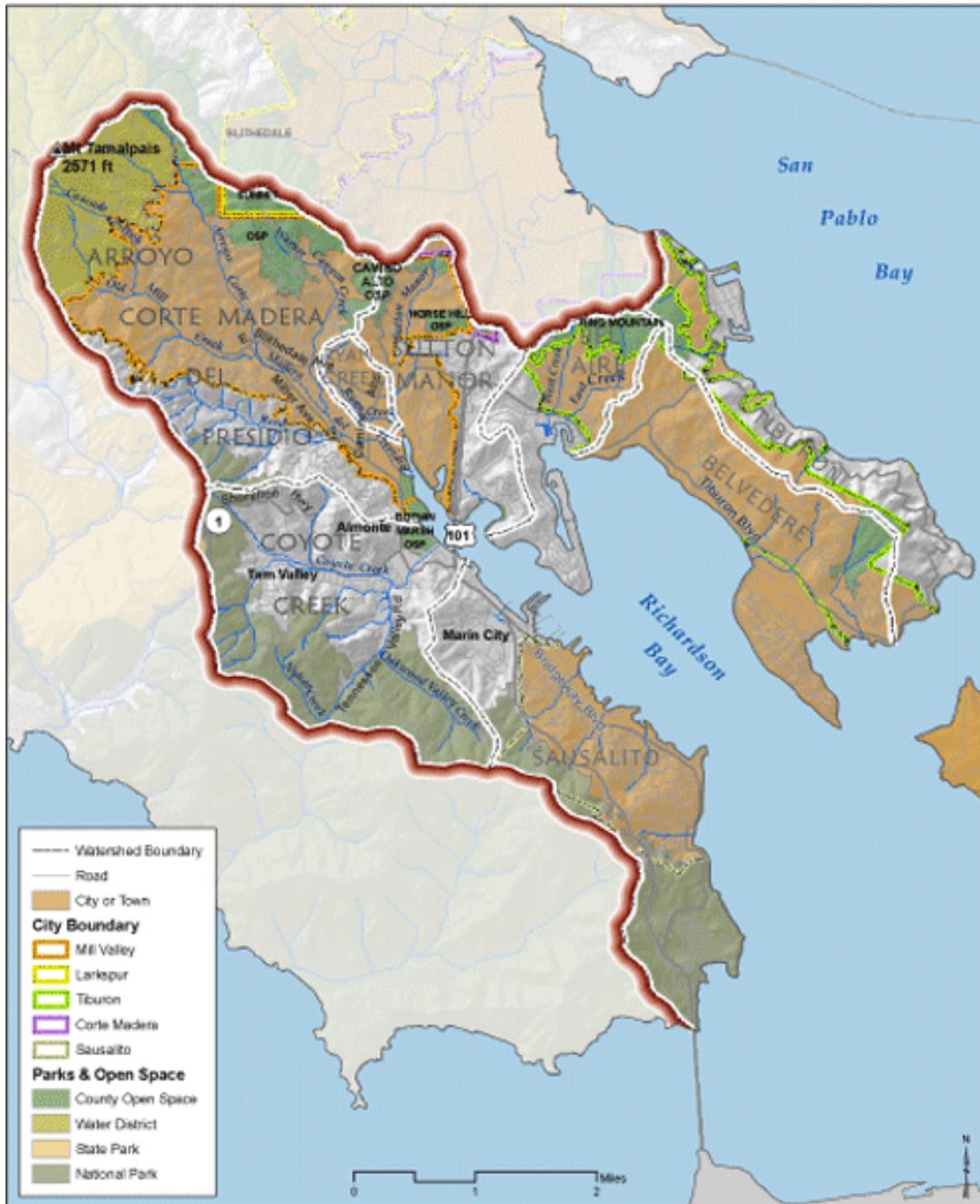
San Rafael Creek Watershed

The San Rafael watershed comprises 11 square miles and is densely developed from its hills to filled wetlands. The San Rafael 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.



Richardson Bay Watershed

The Mill Valley, Tiburon, Sausalito, Marin City, Tamalpais Valley, and Belvedere communities are linked together by the watershed lands draining to Richardson Bay, a shallow, protected, biologically-rich wildlife preserve. 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. Fourteen square miles drain to Richardson Bay including the sub-watersheds of Arroyo Corte Madera del Presidio, Coyote Creek, Ryan Creek, Sutton Manor Creek, and East and West Creeks.



Southern Coastal Creeks Watershed

Marin's southern coastal watersheds include Webb Creek, Lone Tree Creek, Cold Stream, Redwood Creek, Alder Creek, Rodeo Lagoon, and Tennessee Valley.

Webb Creek originates at the peaks of Mt. Tamalpais and flows towards the Pacific Ocean through Steep Ravine Canyon and Mt. Tamalpais State Park. The creek drains into the Pacific between Stinson Beach and Rocky Point. North of the community of Muir Beach, Lone Tree Creek and Cold Stream drain the area west of the ridge line that forms the Dipsea and Coastal Fire Roads. They flow through the lands of the Golden Gate National Recreation Area (GGNRA) and into the Pacific Ocean.

The Redwood Creek watershed begins at the peak of Mt. Tamalpais and extends southwest to Muir Beach where it drains into the Pacific Ocean. The watershed encompasses an area of less than 9 square miles. At the mouth of the watershed is Big Lagoon, an intermittent tidal lagoon. The watershed provides habitat for several sensitive species, including northern spotted owl, California red-legged frog, Coho salmon, and steelhead trout. The watershed is located in a recognized global biodiversity "hot spot" (one of only 5 in the continental United States) and is also within Golden Gate Biosphere Reserve. The main tributaries to Redwood Creek include Bootjack, Fern, Kent Canyon, Rattlesnake, and Spike Buck Creeks.

Alder Creek drains the western half of the Bolinas Mesa, including most of the town of Bolinas itself. The creek flows into Duxbury Reef and the Pacific Ocean through Agate Beach; it is typically dry from April to November. To the north, Arroyo Hondo and several smaller tributaries also flow into Duxbury Reef; these are part of Point Reyes National Seashore. The shoreline throughout the watershed is part of the Duxbury Reef Area of Special Biological Significance (ASBS).

The most southerly coastal streams are the Rodeo Lagoon and Tennessee Valley drainages, located north of Point Bonita and south of the Muir Beach community and Coyote Ridge. These systems flow through the lands of GGNRA and along the western slopes of the Marin Peninsula. Approximately five intermittent streams flow through the 2 square miles of the Tennessee Valley drainage. Two main drainages flow from the north and south into Rodeo Lagoon near Fort Cronkhite; the Lagoon drains an area of approximately 4 square miles.



Point Reyes National Seashore Creeks Watershed

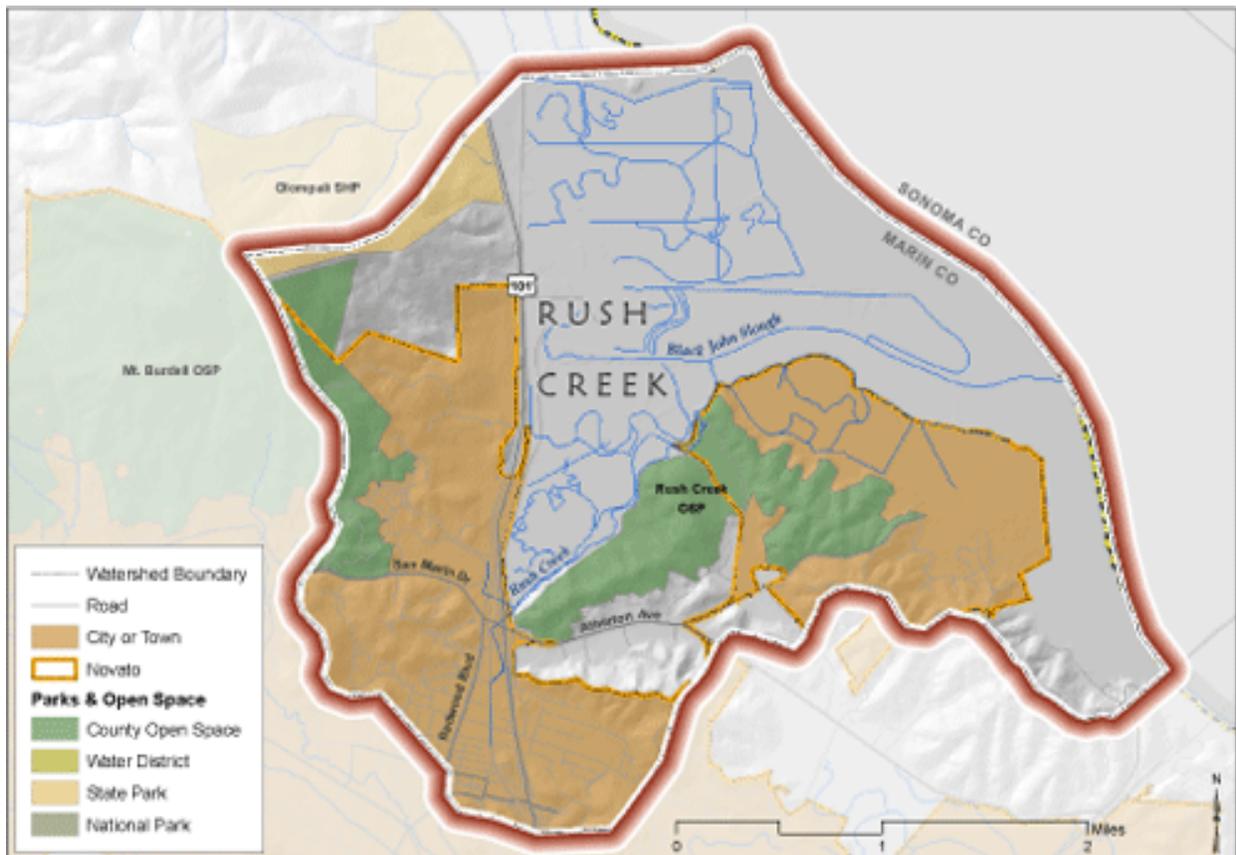
The Point Reyes National Seashore (PRNS) includes the watersheds that drain into Drake's Estero, Abbotts Lagoon, Estero de Limantour, the Pacific Ocean, and portions of the Bolinas Lagoon and the Tomales Bay east and west shore drainages. PRNS extends from Tomales Point at the mouth of Tomales Bay toward the town of Bolinas at Pablo Point. It comprises nearly 100 square miles of open grasslands, coastal scrub, forested habitats, and coastal beaches and headlands as well as nearly 80 miles of undeveloped coastline. It is renowned for its unique biological and historical elements. Over 45% of North American bird species, 20% of the State's flowering plants, 37 native land mammals, and a dozen marine mammals have been identified on the peninsula. Point Reyes has been recognized as an "Important Bird Area" by the National Audubon Society; in particular, the extensive saltmarsh and mudflats of Drake's Estero provide habitat for many migrating and wintering water birds.



Rush Creek Watershed

Rush Creek, at the northern edge of Novato, provides critical wetland habitat year-round. It supports coastal saltwater marsh and coastal brackish-water marsh habitats. The wetlands provide suitable habitat for the San Pablo song sparrow, California black rail, saltmarsh common yellowthroat, California brackish water snail, and California clapper rail.

Northeastern Novato stormwater is directed into either Rush Creek, which then flows into Black John Slough and eventually to the Petaluma River, or the Deer Island Basin and Simmons Slough. Simmons Slough goes to Novato Creek by pump. Rush Creek wetlands are managed for both wildlife habitat and winter stormwater management through a series of levees and floodgates.



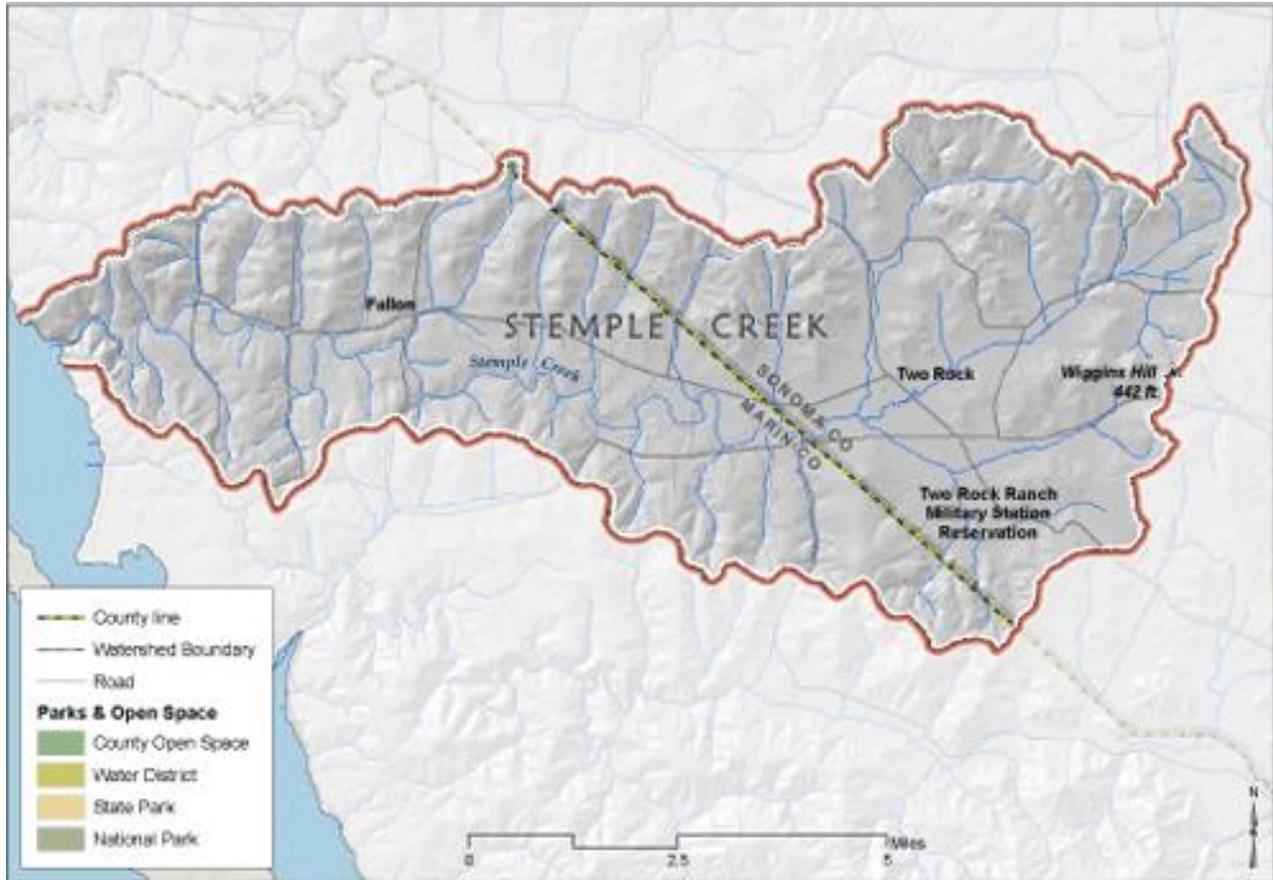
San Antonio Creek Watershed

The San Antonio Creek watershed comprises approximately 25% of the Petaluma River watershed; it extends from Antonio Mountain and Chileno Valley in the northwest to Petaluma Marsh and the Petaluma River to the southeast. The creek, which has a seasonal flow, forms a portion of the border between Sonoma and Marin Counties.



Stemple Creek Watershed

The Stemple Creek watershed begins just west of Petaluma and empties into the Pacific Ocean through the Estero de San Antonio, draining 50 square miles. The watershed is characterized by grassy, rolling hills that are used extensively for agriculture. The drainage is cut almost exactly in half by the Sonoma-Marín county line. The watershed changes sharply from Highway 1 west. Slopes increase in steepness, and coastal scrub and dense stands of native perennial grasses take over the hills. The Estero de San Antonio, a small coastal lagoon, is part of the Gulf of the Farallones National Marine Sanctuary and is also included in the Central California Coast Biosphere Reserve (UNESCO Man and Biosphere Program). A sandbar often closes the mouth of the Estero in the summer or early fall. It remains closed until winter rains with heavy runoff break open the sandbar.



Groundwater

There are five (5) groundwater basins underlying Marin County. One groundwater basin, the Wilson Grove Formation Highlands, underlies both Marin County and Sonoma County.

TABLE 3, GROUNDWATER BASINS IN MARIN COUNTY

BASIN	BASIN NAME	SIZE (sq mi)	CASGEM BASIN RANKING*	CASGEM PRIORITY 2014
1-59	Wilson Grove Formation Highlands	135	0.0	Very Low
2-27	Sand Point Area	2.2	0.0	Very Low
2-28	Ross Valley	2.8	0.0	Very Low
2-29	San Rafael Valley	1.4	0.0	Very Low
2-30	Novato Valley	32	0.0	Very Low
*Basin Ranking Score = Population + Population Growth + PSW + (Total Wells x .75) + Irr Acreage + (GW Use + GW %)/2 + Impacts + Other				

The groundwater basins in the San Francisco Bay Region account for about 5 percent of the region's estimated average water supply for agricultural and urban areas (Bulletin 118). The smaller groundwater basins are relatively thin with small well yields and are less utilized. Additionally, the groundwater basins situated close to the San Francisco Bay typically exhibit high total dissolved solids (TDS) and chloride concentrations and there are indications that salt water intrusion may occur.

Three of the groundwater basins in Marin County (Ross Valley, San Rafael Valley, and Novato) are located on San Pablo/San Francisco Bay in urbanized areas. The Ross Valley, San Rafael Valley, and Sand Point Area basins are very small and are not generally drinking water sources for residents. The California Statewide Groundwater Elevation Monitoring (CASGEM) Program ranked all of the groundwater basins in Marin County at very low priority as potable water sources for residents.

Part 3: Local Agency Requirements and Responsibilities

The responsibilities and duties of OWTS Owners are detailed in Section 2 of the OWTS Policy including that: 1) they shall adhere to the requirements prescribed in local codes and ordinances, and 2) their OWTS shall meet minimum standards contained in Tier 1 or an alternate standard provided by a Local Agency Management Program per Tier 2, or 3) if they are near an impaired water body, comply with Tier 3, or 4) they provide corrective action for their OWTS if their system is failing or may fail as deemed in Tier 4.

3.1: Local Agency Requirements and Responsibilities

Marin County as a Local Agency, has determined OWTS could not meet the Tier 1 minimum requirements due to the conditions pertaining to the soil, geology, and groundwater, in the County. Marin County will implement a Local Agency Management Program (LAMP) in accordance with Tier 2. This LAMP establishes the minimum requirements and responsibilities for Marin County as a Local Agency with an OWTS management program that provides an alternative from Tier 1 (Sections 7 and 8 of the OWTS Policy) to achieve the same policy purpose of protecting water quality and public health.

3.2: Intent to Regulate OWTS

The submission of this LAMP for RWQCB approval shall serve as notice of Marin County's intent to regulate OWTS using alternative standards as contained in this document. As noted above, the Marin County program will provide protection of water quality and public health equal to or better than Tier 1 standards.

3.3: Annual Report

Marin County shall submit a report to the San Francisco Bay RWQCB that includes the following information:

- Number and location of complaints, complaint investigations and outcomes.
- Permits issued for septic tank pumper trucks (MCC Chapter 7.36 Septic Tanks and Chemical Toilets).
- Number, location, and description of permits issued for new and replacement OWTS with Tier indicated.

3.4: Permanent Records

All OWTS permit related records (Site Reviews, Percolation tests, Wet Weather Groundwater Inspections, OWTS Plan Checks, New and Replacement Standard and Alternate OWTS Permits, Operational Permits for Alternate OWTS, Abatement and Voluntary Repair Permits, Septic Tank Replacement, Septic Tank Destruction, and Variance Requests) are maintained in paper files, microfiche/microfilm, and the various County databases including SWETE, COMET, and OnBase.

OnBase houses digital records of plans and documents. SWETE is an older software system that tracks the permits and services provided on a particular parcel. COMET, a permitting system implemented in November 2015, tracks the OWTS and water well permits on parcels. Additionally, the OWTS and well locations will be GPS and included on a GIS database prior to LAMP implementation.

3.5: Public Water Supply Notification

The EHS shall notify the owner of a public well or water intake by telephone, email, and/or site visit as soon as practicable but no later than 72 hours, upon discovery of a failing OWTS within the allowable setbacks as follows:

- OWTS Section 7.5.6: 150 feet from a public water well where the depth of effluent dispersal field does not exceed 10 feet.
- OWTS Section 7.5.7: Within 1200 feet from a public water system surface water intake if the failing system is 400 feet or less from the high water mark.
- OWTS Section 7.5.8: Within 2500 feet from a public water system surface water intake if the failing system is less than 200 feet from the high water mark.

All parcels with public water system wells and surface water intake locations within the prescribed setbacks will be captured in the County's GIS database by the date of LAMP approval. Water systems to be notified shall be determined using the appropriate GIS buffer based on the location of the failing OWTS.

Part 4: Local Agency Management Program for Minimum OWTS Standards

This LAMP establishes minimum standards that provide an alternative from Tier 1 (Sections 7 and 8 of the OWTS Policy) to achieve the same policy purpose of protecting water quality and public health.

As recognized in the OWTS Policy, geologic and climatic conditions vary significantly throughout the state and responsible local agencies can provide the most effective means to manage an OWTS program. The Marin County OWTS regulations were developed to provide substantial protection to groundwater and surface water sources in the County through the proper siting, design, placement, installation, maintenance, and assessment of individual OWTSs.

Along with the regulations for standard and alternative OWTS, Marin County EHS has developed policies for proposed remodeling or expansions of residences and accessory structures that are served by an OWTS. These policies provide the means for evaluations and upgrades of existing older systems through the building permit application process.

Background of Conditions

Marin County as a Local Agency, has determined OWTS could not meet the Tier 1 minimum requirements due to the conditions pertaining to the soil, geology, and groundwater, in the County. The general conditions summarized for the following areas demonstrate the need for an alternative from Tier 1 requirements as vertical and horizontal setbacks as well as acceptable soil percolation cannot be met. The conditions described below are based on observations and soil evaluations conducted by EHS staff during the past 30 years.

Chileno Valley: high groundwater, clay soils.

Dillon Beach: tiny parcels with structures covering 80% of the parcel, high groundwater, and deep dune sands with pockets of clay resulting in fast percolation rates. Municipal water source is available.

Marshall: some small parcels, high groundwater, clay soils, many springs.

Inverness: bay parcels cannot meet setbacks, high groundwater while the parcels on the Ridge have deep groundwater and deep soils.

Bolinas: tiny parcels, high groundwater, poor and clay soils, wells.

Point Reyes: high groundwater, gravelly and clayey soil in the Mesa and small parcels, gravelly soil in Point Reyes Station.

San Geronimo: small parcels in the Flats, high groundwater, higher parcels have steep slopes and clay-sandy clay loam with rock out-crops.

Woodacre: small parcels, steep slopes, limited shallow soil with rock out-crops.

Lagunitas Creek: steep slopes, limited soil, proximity to creek.

Muir Beach: tiny parcels, steep slopes, poor limited soils, many springs in the Old Section. The New Section has slightly larger parcels and poor limited soils.

Panoramic Drive: tiny to larger parcels, steep slopes, clayey limited soils with rock out-crops.

Tiburon: shallow soils and heavy clays. Sewer is available in some areas in the event there are problems with the OWTS.

Black Pointe: small parcels, consolidated soils/rock, high groundwater, proximity to Petaluma River.

Indian Valley: high groundwater, poor soils, heavy clays. (Sewer was proposed but community opposed.)

Green Pointe: high groundwater, poor soils in the flats and consolidated soils/rock in the steep sloped areas.

In addition to the difficult conditions noted in the above areas, it was noted in Part 2 that Marin County is a peninsula with 308 square miles of its 828 square miles, covered in water. This is notable because the water bodies and water ways in the County is another factor that make siting an OWTS in Marin County very challenging.

The following references the OWTS management in Marin County.

9.1: Considerations for LAMP

- Differing system designs from Tier 1 requirements are found in MCR 600, *Design Criteria* pursuant to MCC Chapter 18.06, *Individual Sewage Disposal Systems* and MCR 808, *Siting and Design Criteria* pursuant to MCC Chapter 18.07, *Alternative Sewage Disposal Systems*. These are based on MCR 500, *Site Evaluation Requirements*.
- Differing siting controls such as system density and setback requirements are found in MCR Section 305, *Land Divisions and Subdivisions* pursuant to MCC Chapter 20.24.060(c) and MCR Sections 400 *Site Suitability Criteria* and 904 *Non-conforming Lots* pursuant to MCC Chapter 18.06.060 *Regulations*.
- Requirements for owners to enter monitoring and maintenance agreements are found in MCR Section 803 *Operating Permits* pursuant to MCC Chapter 18.07.100 *Operating Permits*.
- The authority for the creation of onsite management district or zone is found in MCR Section 307 *Common Systems* pursuant to MCC Chapter 18.06.020 *Applicability*.

9.1.1: Degree of vulnerability to pollution due to hydrological conditions within this jurisdiction

In addition to the water quality assessment program monitoring discussed in further detail in LAMP Section 9.3.2, EHS may occasionally sample Alternative OWTS performance wells for total coliform and fecal coliform bacteria and nitrates as indicators of the degree of treatment and function of Alternative OWTS. (MCR Section 804 B *Performance Monitoring, Maintenance, and Reporting* and MCC Chapter 18.07.100, *Operating Permits*) Authority to provide cumulative analysis on hydraulic mounding, nitrates and/or 303(d) listed pollutants of concern is contained in MCR Section 807 *Cumulative Impact Assessment* and MCC Chapter 18.07.077

Cumulative Impact Assessment. If evidence indicates a hydro-geologically vulnerable area, the LAMP will be updated based on the data collected during the five years between LAMP water quality assessment reports (OWTS Policy Section 9.3.3.)

9.1.2: High Quality Waters and Other Environmental Conditions Requiring Enhanced Protection

OWTS within specified geographic areas near specific impaired water bodies subject to Tier 3 requirements are discussed in OWTS Policy Subsections 9.1.8, 9.2.2, and Part 5. In addition, any OWTS proposed within the coastal zone may be subject to a Coastal Development Permit (MCC Chapter 18.06.025). See Section 9.2.1 for more discussion on Coastal Development Permits.

Existing geographic areas with existing higher densities that predate current code requirements are considered as Tier 0 and will remain as such until or unless a failure is documented, in which case the system will be repaired per the applicable Tier 2 or Tier 3 requirements. The primary measure for protection of surface water quality is the establishment of safe horizontal setback buffers between OWTS components (septic tanks and dispersal field) and various water and landscape features. They address setbacks to perennial, intermittent and ephemeral watercourses, seasonal wetlands, ocean, bay or tidal estuaries, downslope or adjacent cuts, embankments or natural bluffs, roadside ditches, and culverts. (MCR Section 401 *Setbacks*)

9.1.3: Shallow Soils Requiring Non-Standard Dispersal Systems

MCR Section 501 *Site Evaluation Requirements General*, requires site evaluations to be performed by one of the following: Registered Civil Engineer, Registered Environmental Health Specialist; Registered Geologist, Certified Engineering Geologist, or Certified Professional Soil Scientist.

If shallow soils are found, an Alternative OWTS shall be designed and installed in accordance with the MCR Section 801 *Requirements*. These standards require a conventional OWTS to have a minimum soil cover of 12". If it is not possible to provide a minimum of 12" of soil cover over a conventional OWTS dispersal field due to shallow soil depth, but if 36" minimum suitable soil depth below trench bottom can be provided, an Alternative OWTS (MCR Section 800, *Alternative Systems*) is required.

9.1.4: High Domestic Well Usage

Measures to assure protection of existing and new domestic water supply wells from the effects of OWTS include: 1) minimum horizontal setback distances between OWTS and any well and the availability of alternative non-standard treatment, and 2) dispersal technologies to mitigate documented or potential impacts to groundwater in area of high domestic well usage (MCR Section 401 *Setbacks*).

In addition MCR Section 308 2.a *Cumulative Impact Assessment, Nitrate Loading, For Areas Served by Water Wells* requires proposals involving subdivisions of 3 or more lots, large flow systems (1,500 – 10,000 gpd), or systems closer than 100 feet upslope or downslope of existing systems or within 50 lateral feet of existing systems to also provide an assessment of potential cumulative impacts that could result from the installation of the system.

EHS staff has a large number of well locations in a GIS database and will continue to maintain GPS locations of all new well sites. If a pattern of areas with high domestic well usage develops, consideration will be given to further study those areas and the areas having a high

incidence of OWTS failure or marginal performance for potential pathogen transport toward receptor wells.

9.1.5: Fractured Bedrock

MCR Section 501 *Site Evaluation Requirements, General* requires a qualified professional to perform site evaluations. If shallow soils are found due to fractured bedrock (MCR Section 502C - *Soil Profile Inspection*), an Alternative OWTS shall be designed and installed in accordance with the MCR Section 800 requirements. A minimum of three feet of acceptable soil between the dispersal area and the fractured bedrock is required for a conventional Standard OWTS (MCR Section 603 *Standard Drainfield Design*) and a minimum of two feet of acceptable soil between the dispersal area and the fractured bedrock is required for the design of any Alternative OWTS.

9.1.6: Poorly Drained Soils

MCR Section 501 *Site Evaluation Requirements, General* requires a qualified professional to perform site evaluations. If poorly drained soils are found due to seasonal elevated groundwater (MCR Section 504 *Wet Weather Testing*), an Alternative OWTS shall be designed and installed in accordance with the MCR Section 800 requirements. A minimum of three feet of acceptable soil between the dispersal area and depth to groundwater is required for a conventional Standard OWTS (MCR Section 603 *Standard System Design*) and a minimum of two feet of acceptable soil between the dispersal area and the depth to groundwater is required for the design of any alternative OWTS (MCR Section 800 *Alternative Systems*).

9.1.7: Vulnerable Surface Water

The primary measure of protection of surface water quality is the establishment of safe horizontal setback distances between OWTS and various water and landscape features. MCR Section 401 *Setbacks* requires the following setbacks to the dispersal field 1) a 50 feet setback from an ephemeral watercourse, 2) a 75 feet setback from an intermittent watercourse or seasonal wetland, 3) a 100 foot setback to any perennial water course, ocean, bay, or estuary, and 4) a 200 foot setback to any natural lake, wetland, or water supply reservoir. This will be amended to include a 400 foot setback if the OWTS is located less than 1200 feet to a public water system surface water intake.

MCR Section 401 also requires a 50 feet setback from septic tanks to all of the water bodies and water ways except natural lakes, wetlands, or water supply reservoirs. The minimum setback between natural lakes, wetlands, or water supply reservoirs and septic tanks, is 100 feet.

9.1.8 Impaired Water Bodies in Marin County

Several water bodies in Marin County are listed as impaired pursuant to Section 303(d) of the Clean Water Act. The table below lists the water bodies, the impairment and the proposed completion dates of the Total Maximum Daily Load (TMDL) by the Regional Water Quality Control Board.

TABLE 4, IMPAIRED WATER BODIES IN MARIN COUNTY

Water Bodies Impaired for Pathogens as of 2012*	
WATER BODY NAME	TMDL Completion Date
China Camp Beach	2014
Lawsons Landing	2015
Pacific Ocean at Bolinas Beach	2014
Pacific Ocean at Muir Beach	2015
Petaluma River	2017
Petaluma River (tidal portion)	2017
Tomales Bay Watershed	Completed 2005

Water Bodies Impaired for Nitrogen as of 2012*	
WATER BODY NAME	TMDL Completion Date
Lagunitas Creek	2016
Petaluma River	2017
Petaluma River (tidal portion)	2017
Tomales Bay	2019
Walker Creek	2016

*Data from OWTS Policy, Attachment 2

All new and replacement OWTS within 600 feet of an impaired water body are subject to the Tier 3 Advanced Protection Management Program, discussed in further detail in Sections 10.0 through 10.16 of the OWTS Policy. OWTS in proximity to a listed water body above are subject to OWTS Policy Tier 3 requirements until such time as either: (a) a TMDL is adopted by the RWQCB for the water body; or (b) the County’s proposed LAMP containing substitute “Special Provisions” for OWTS near impaired water bodies (per Part 5) is approved by the RWQCB.

Part 5 of this LAMP addresses the Marin County Advanced Protection Management Plan.

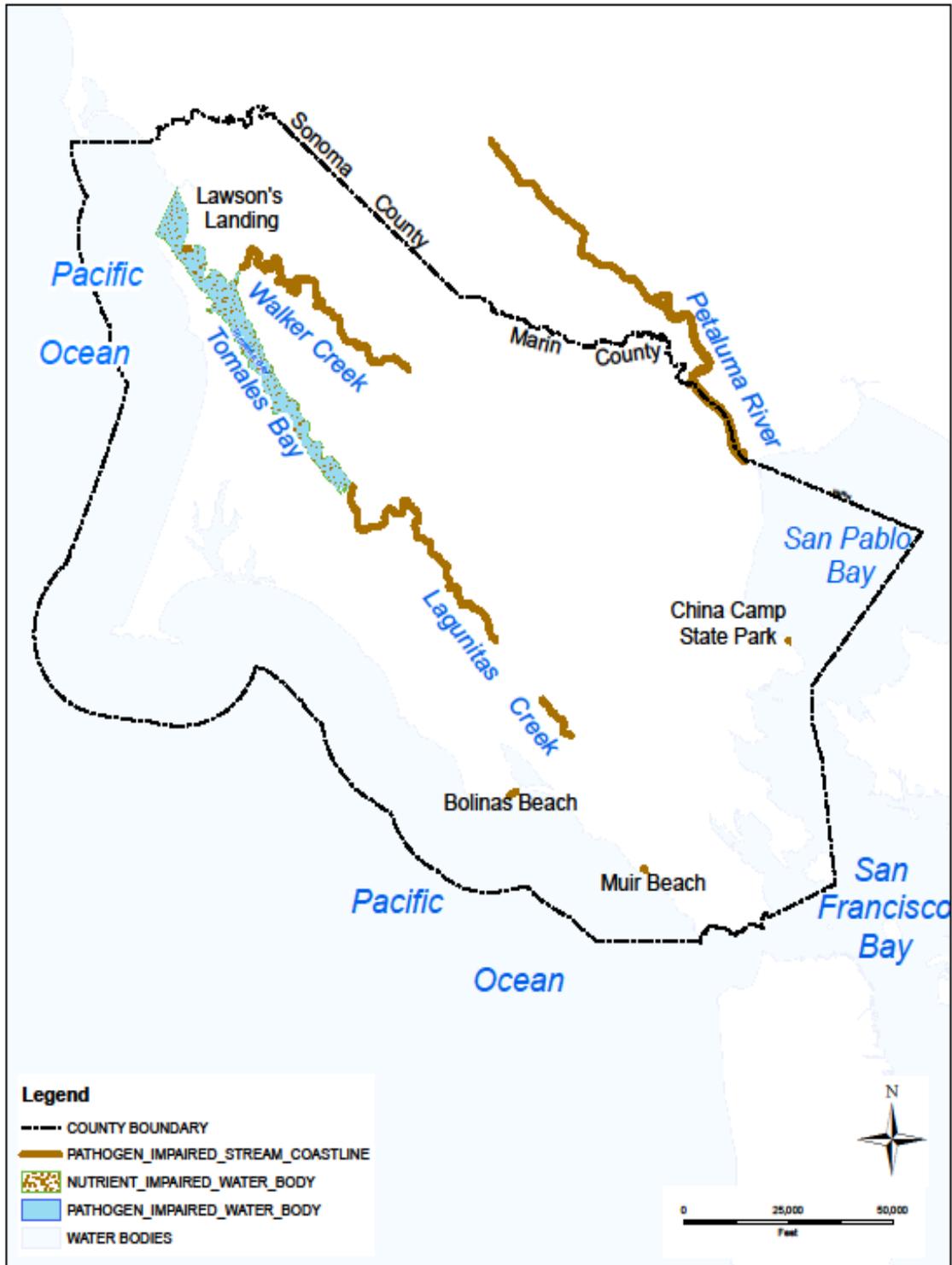
9.1.9: OWTS Located in an Area of High Density OWTS

Consideration of OWTS density, parcel size, and potential cumulative impact issues are addressed in MCC Chapter 18.07.077 *Cumulative impact assessment* and MCR Section 807. Table 8-1 of Section 807 calls for the completion of cumulative impact assessments for hydraulic mounding, nitrates and/or 303(d) listed pollutants of concern for certain types of projects or locations.

9.1.10: Limits to Parcel Size

Marin County’s Development Code establishes zoning districts and development standards (e.g. minimum setback, maximum height, and maximum floor area). The ability to develop a property depends on a number of factors, including compliance with zoning regulations and other land use development standards such as vehicular access, parking, and utilities. Land in Marin County is zoned under one of two zoning district families (Conventional Zoning Districts or

303(d) LISTED WATER BODIES



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Planned Zoning Districts). For purposes of new divisions of land, minimum lot sizes ranging from 6,000 square feet to 3 acres are established for Conventional Zoning Districts (e.g. R-1, R-A). Planned zoning districts do not establish minimum lot size, but instead, utilize the concept of maximum density in order to provide flexibility for development to be sited as to avoid sensitive areas. Neither of these districts establishes a minimum lot size in order to site an OWTS.

However, a parcel approved for development shall have sufficient area on the parcel to accommodate the wastewater flows from the proposed development. The design flows for residential buildings shall be based on 150 gallons per day per bedroom. A 30% reduction may be granted for the installation of low flow plumbing fixtures in the residence. (MCR Section 601 *Sewage Flows*) Dual drainfields each containing 100% of the required absorption area, shall be installed in the OWTS for the proposed development. The dual drainfields shall be connected by a diversion valve which allows alternate use of each drainfield. (MCR Section 603 *Dual Drainfields*)

9.1.11: Areas with Existing OWTS Predating Any Adopted Standards

Older, non-conforming OWTS are dispersed throughout the County. Many of these properties were originally developed for seasonal/recreational cabins and have converted over the years to year-round residences. Parcels are typically are very small (<1/2 acre in size), with OWTS constructed prior to the modern codes. Some systems consist of cesspools, and repairs/replacement systems tend to be very challenging. Non-conformance with adopted setback requirements (e.g. from structures, water features, cut banks, and sharp changes in slope, etc.) are also common. Existing conditions are allowed to continue as is under Tier 0 until a failure is identified. The failures will be captured in a data base and mapped to a GIS layer. If a particular area with OWTS that predate adopted standards show significantly higher numbers of failures, special considerations for protection of groundwater, water quality, and the environment will be included in the LAMP update in 5 years.

The availability of alternative treatment and dispersal system designs provide an opportunity for more effective upgrades and repairs for lots having limited area, soil limitations or other constraints for conventional OWTS. Building improvements to existing structures provide addition opportunities to improve old, nonconforming OWTS through the EHS *Onsite Wastewater Program Permit Remodel and Additions Policy* (included in Appendix D).

9.1.12: Areas with Multiple, Existing OWTS within Prescriptive Tier 1 Setbacks

Aside from those areas identified in the OWTS Policy Attachment 2 and Table 4, Impaired Water Bodies in Marin County, there are no other significant areas in Marin County with known multiple, higher density developments with existing OWTS that are within the prescriptive setbacks set forth in Section 7.5 of the OWTS Policy. Those that may exist are limited and dispersed throughout the County.

9.2: Scope of Coverage, Permitting, Site Evaluation, Design, and Construction

The Marin County LAMP covers the following types of OWTS: residential and commercial domestic wastewater systems producing flows of 10,000 gallons per day or less and high strength domestic wastewater from commercial food service buildings that do not exceed 900 mg/L BOD. The LAMP provides regulations/guidelines for the local site evaluation conducted by a qualified professional, siting, design, construction monitoring, and maintenance requirements.

9.2.1: Installation/Inspection Permits

Marin County requires an application and issuance of a valid permit to install, repair, replace, modify, destroy, or abandon any part of an OWTS (MCC Chapter 18.04 and MCR Section 100). All new installations, repairs, replacements, and abandonments require plan review, an issued permit, and construction inspection(s) for final approval to use of the OWTS. Additionally, all Alternative OWTS require annual Operating Permits and routine inspections by either the County and/or a service provider (MCC Chapter 18.07.100, *Alternative Sewage Disposal Systems, Operating permits* and MCR Section 803 *Operating Permits*.)

COMET Database System

The Community Development Agency implemented the County of Marin Enterprise Tracking (COMET) System in 2011 with the Code Enforcement Division. Phase 2 was implemented in November 2012 for the Environmental Health Services Food, Swimming Pool, Housing, Solid Waste, Medical Waste, Alternative System Septic System Operating Permit, and Septic Tank Pumper programs. Complaints for all programs have been tracked in COMET since implementation. Data on the number, location, investigation, and outcomes of OWTS complaints will be tracked and included in the annual report to the RWQCB.

Phase 4 for the septic system and well construction services and permits was implemented in November 2015. Phase 4 for septic system permits tracks the dates of application, construction and final inspections, type of OWTS, the design capacity, and if an operating permit is required. By LAMP implementation, the COMET system will be aligned with GIS so the latitude and longitude of each system will be available. Well locations will also be GPS, so setbacks between OWTS and wells or water bodies and water ways can be identified.

Coastal Permits

Development in the coastal zone of Marin County is subject to compliance with the California Coastal Act which is administered locally through the County's Local Coastal Program Units I and II (LCP). The definition of "development" is very broad and can encompass every component of an OWTS. However, certain minor types of development, including repair and maintenance, may be exempted or excluded from the requirement to obtain a Coastal Permit. In addition, in the County's current proposal to amend its LCP the County is proposing a "de minimis waiver" process (for minor classes of development that would otherwise require a Coastal Permit), and an emergency Coastal Permit process for emergency work. These changes are expected to be considered by the California Coastal Commission in 2016. Should the changes not be approved, the County will continue to administer its LCP through the existing Coastal Permit, Coastal Exclusion, and Exemption processes.

The LCP has designated single family residential development as categorically **excluded** from a Coastal Permit if they are located in certain geographical areas and meet all zoning standards. The geographical areas designated are: Point Reyes Station; Olema; Old Dillon Beach/Oceana Marin; Tomales. OWTS systems associated with residential development in

these coastal communities would qualify for a Coastal Exclusion provided the County can certify that the development meets all of the exclusion criteria.

Repair and maintenance to an OWTS may be **exempt** from Coastal Permits if the “repair and maintenance activities do not result in the addition to, or enlargement or expansion of, the object of repair or maintenance”. A key point regarding OWTS is that often OWTS repairs require the installation of new disposal areas which are considered “disturbance” of new area in the Coastal Zone. A Coastal Permit would not be required if the new area of “disturbance” for a repair/maintenance is **not** in an Environmentally Sensitive Habitat Area (ESHA). ESHAs typically include coastal wetlands, streams and riparian vegetation, and areas designated as habitat for special status plant or animal species. If the area of “disturbance” is in an environmental sensitive area, a Coastal Permit will be required.

Emergency work will be allowed to be finalized but final approval will be withheld until a Coastal Permit is issued. A provision in the proposed LCP amendments would change this procedure by providing a process for the County to issue emergency Coastal Permits.

The County’s current proposal to amend its LCP includes a De Minimis Coastal Permit Waiver process. A De Minimis Waiver may be granted if the project would have no potential for adverse coastal resource impacts and is consistent with the LCP. The process includes notifying the Executive Director of the Coastal Commission, adjoining property owners/residents, and public agencies and interested parties either by mailed notice and/or electronic delivery of the proposed De Minimis Waiver at least 10 working days prior to the Board of Supervisors’ hearing to provide opportunities for public comment. If the Executive Director decides the waiver should not be issued, a Coastal Permit shall be obtained for the proposed development project. Similarly, a Coastal Permit will be required if two or more members of the Board of Supervisors request it at the hearing.

Flood Protection

MCC Chapter 23.09, Floodplain Management restricts the development of manmade structures in the floodplain area as shown in the official flood identification map. In plain language, there shall be no new development in the 100 year floodplain area. The flood identification map indicates that the majority of the floodplain areas are located in the eastern portions of Marin County. For the most part, the eastern portions of the county are developed urban areas on sanitary sewer. The areas identified as floodplain that may have or require an OWTS are in the areas of: Point Reyes Station, Inverness Park, Olema, and Stinson Beach.

MCC Chapter 23.09.035(b) Standards for Utilities states, “*On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.*”

MCC Chapter 23.09.030(38) defines “*substantial improvement as any repair, reconstruction, or improvement of a structure, the cost of which equals or exceeds fifty percent of the market value of the structure... The term does not, however, include either:*

- (A) *Any project for improvement of a structure to comply with existing state or local health, sanitary or safety code specifications which are solely necessary to assure safe living conditions...*”

New development with an OWTS shall comply with MCC Chapter 23.09 and not be located within a designated floodplain area. If it is determined that the structures can be located appropriately out of the floodplain area but the OWTS cannot, EHS will work with the Department of Public Works on an acceptable system that can be located, constructed, and “*designed to prevent water from entering or accumulating within the components during conditions of flooding*” and to “*avoid impairment to them or contamination from them during*

flooding". (MCC Chapters 23.09.034 and 23.09.035) This type of OWTS would be subject to an application for variance from Chapter 23.09 and must submit engineering justification.

All efforts would be made to locate a repair or replacement OWTS for an existing home outside of the designated floodplain area. In cases where it is not possible to locate a repair OWTS outside a floodplain, the system will be located, constructed, and "*designed to prevent water from entering or accumulating within the components during conditions of flooding*" and to "*avoid impairment to them or contamination from them during flooding.*"

All OWTS located in the flood plain shall be placed under an operating permit and will be subject to all the monitoring and maintenance provisions as specified in MCR section 800. These OWTS will be GPS and documented in a GIS layer.

9.2.2: Special Provisions for OWTS near Impaired Water Bodies

The impaired water bodies in Marin County are identified in 9.1.8 in Table 4, *Impaired Water Bodies in Marin County*. They are subject to a TMDL implementation plan or special requirements to address Tier 3 standards.

As of the writing of this document, no TMDL except for the Tomales Bay Watershed Pathogen TMDL has been completed by the Regional Water Quality Control Board, San Francisco Region. (See Table 5, *TMDL Status of Impaired Water Bodies in Marin County*, in Part 5.) Therefore, beyond the special provisions listed below, no specific provisions related to each identified impaired water body have been adopted for OWTS in Marin County at this time. Upon completion of each TMDL, Marin County will develop and implement an APMP to address the specific impairment for that water body in lieu of Tier 3 requirements.

In the absence of TMDLs for most of the impaired water bodies, EHS will adhere to the standards in the Marin County Code and Regulations as shown in Appendices B and C, and will implement the following special provisions:

- For OWTS within 200 feet of an impaired water body, the following provisions will be in effect for new, expanded or repairs/replacement OWTS.
- For OWTS within 200 feet of a water body impaired by pathogens, the OWTS shall: (a) be located at least 100 horizontal feet from the water body; (b) be supplemented with a pretreatment process that produces secondary effluent quality or better, with average 30-day BOD and TSS not exceeding 30 mg/L; and (c) be supplemented with disinfection treatment; and (d) utilize pressure distribution for effluent dispersal.
- For OWTS within 200 feet of a water body impaired by nitrogen, the OWTS shall: (a) be located at least 100 horizontal feet from the water body; (b) be supplemented with an approved NSF Standard 350 nitrogen removal pretreatment unit that has been certified to meet 50% reduction in total nitrogen when comparing the 30-day average influent to the 30-day average effluent; and (c) utilize pressure distribution for effluent dispersal.
- For repair/replacement of existing OWTS that are failing or otherwise require corrective action and that are unable to meet the 100-foot horizontal water body setback requirement, the replacement OWTS shall meet the horizontal setback to the greatest extent practicable. The OWTS will be supplemented with pretreatment components appropriate for its proximity to the impaired water body, whether it is for pathogens or nitrogen or both, and will also require use of pressure distribution for effluent dispersal.

- If an alternative to the pretreatment and/or disinfection requirements specified above is proposed, the OWTS professional shall provide technical justification on why the pretreatment and/or disinfection is not needed. Justification could include, for example, factors related to the depth and characteristics of the soil, vertical separation to groundwater, ground slope and terrain, and wastewater volume/size of the OWTS. This will require a cumulative impact report or a similar technical report that demonstrates and indicates that equal water quality protection will be provided.
- Upon completion of installation, all new, expanded and repair/replacement OWTS within 200 feet of impaired water bodies shall be placed under an Operating Permit and will be subject to all the monitoring and maintenance provisions as specified in MCR section 800. These OWTS will be GPS and documented in a GIS layer.

The Regional Water Quality Control Board, San Francisco Region adopted Resolution R2-2005-0046 on September 21, 2005 to establish the Total Maximum Daily Load (TMDL) and implementation plan for pathogens in Tomales Bay and its tributaries. It included the submission and approval of an implementation plan by Marin County Community Development Agency (CDA). The Environmental Health Services Division of CDA submitted the Tomales Bay Pathogen TMDL Compliance Plan for Onsite Systems on January 3, 2007. EHS is carrying out the compliance plan as detailed in Part 5.

9.2.3: Variance Process

The LAMP recognizes that not all new replacement and repair OWTS will be able to meet minimum required setbacks, soil depth, groundwater separation, and/or additional minimum requirements and has therefore provided for a process for the evaluation and approval of variance requests. The variance process will not authorize any of the prohibited items in Section 9.4 of the OWTS Policy. (MCC Chapter 18.07.105 *Waiver/variance* and MCR Section 900 *Waiver of Regulations*)

9.2.4: Educational, Training, Certification, Licensing Requirements

The OWTS regulations provides minimum educational, training, certification, and/or licensing requirements that are required for OWTS Site Evaluators, Designers, Installers, Service Providers, Pumpers, and any other person relating to OWTS activities. (MCR Section 501B *Site Evaluation Requirements General*, 802C *Alternative Systems Construction Permit and Review Requirements*, 804D *Alternative Systems Performance Monitoring, Maintenance, and Reporting*, 246 *Service Provider* and MCC Chapter 7.36.020 *Septic Tanks and Chemical Toilets Permit Required*.)

9.2.5: Education and Outreach Program

The primary method of education and outreach is by direct interaction between EHS staff and the public. EHS staff receives and responds to phone calls and office visits daily, by private property owners, real estate agents, consultants and contractors with questions about the code, regulations, and/or the permit process. Documents, links, reports, and frequently-asked-questions are available on the Marin County website for the Community Development Agency, Environmental Health Services.

The LAMP provides for an education and outreach program including informational materials to inform OWTS owners and the public about: standard and alternative systems, the permitting process, special provisions for flood plain areas, and more. Existing materials include

information on how to locate, operate, and maintain an OWTS, Septic System Performance Evaluation Guidelines and Maintenance, the Operating Permit program, etc. Additionally, the Onsite Wastewater Program Remodel and Additions Policy guide property owners on the process if they are contemplating a remodel or addition to their home. More material is in development. Copies of the current documents are shown in Appendix D.

Additionally, EHS staff addresses the public at community meetings. Many meetings were held regarding AB 885 and the OWTS Policy. Community meetings regarding the OWTS Policy continue as Marin County embarks on proposals to establish community wastewater systems to replace existing, potentially malfunctioning OWTS.

9.2.6: Septage Volumes and Disposal Locations

Most of the septage generated from within Marin County is taken to septage-receiving facilities within the county, with some local pumpers taking septage to various locations outside the County.

The septage receiving facilities in Marin County are:

- Bolinas Community Public Utility District (BCPUD) in Bolinas,
- Central Marin Sanitation Agency (CMSA) in San Rafael,
- Millerton Creek Ranch/Giammona Ponds in Point Reyes Station,
- Novato Sanitary District in Novato,
- Sewerage Agency of Southern Marin (SASM) in Mill Valley.

The septage receiving facilities outside of Marin County are:

- East Bay Municipal (EBMUD) in Oakland,
- Oro Loma Sanitary District in San Lorenzo,
- National Construction Rentals disposes waste at their site in San Leandro.

EHS is the responsible agency for the licensing of septic tank pumpers and haulers.

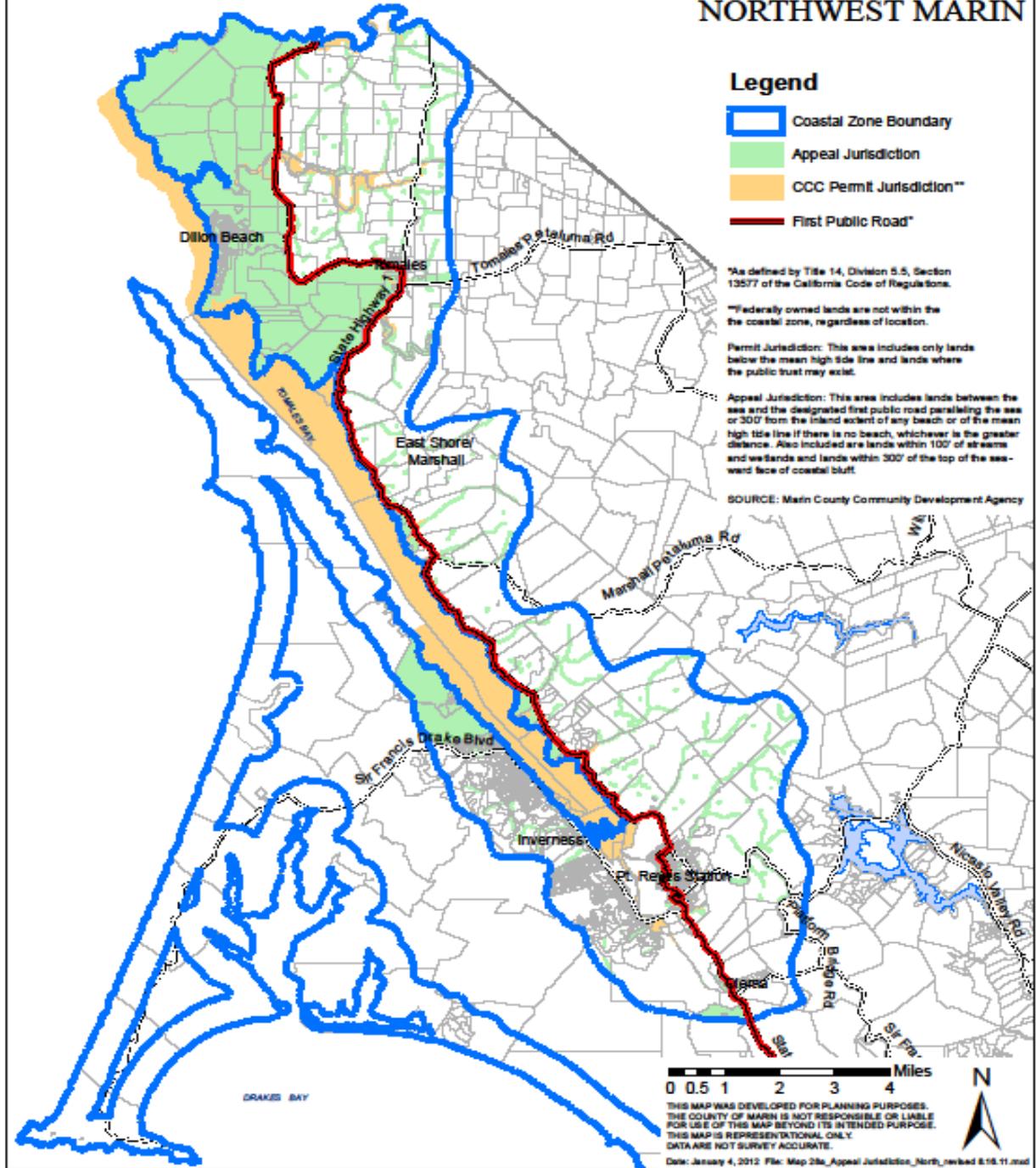
9.2.7: On-Site Maintenance Districts or Zones

The Marshall Community Wastewater System was formed with a special district, which EHS oversees. Should a proposal be submitted in the future for any onsite maintenance district and/or community type wastewater solution in a particular area, feasibility studies and environmental review of all project alternatives would be conducted in consideration of such a formation in accordance with the provisions of California Health and Safety Code Sections 6950-6982. Formation of such a district must meet MCC Chapter 18.06.020 *Applicability* and MCR Section 307 *Common Systems*.

9.2.8: Regional Salt and Nutrient Management Plans

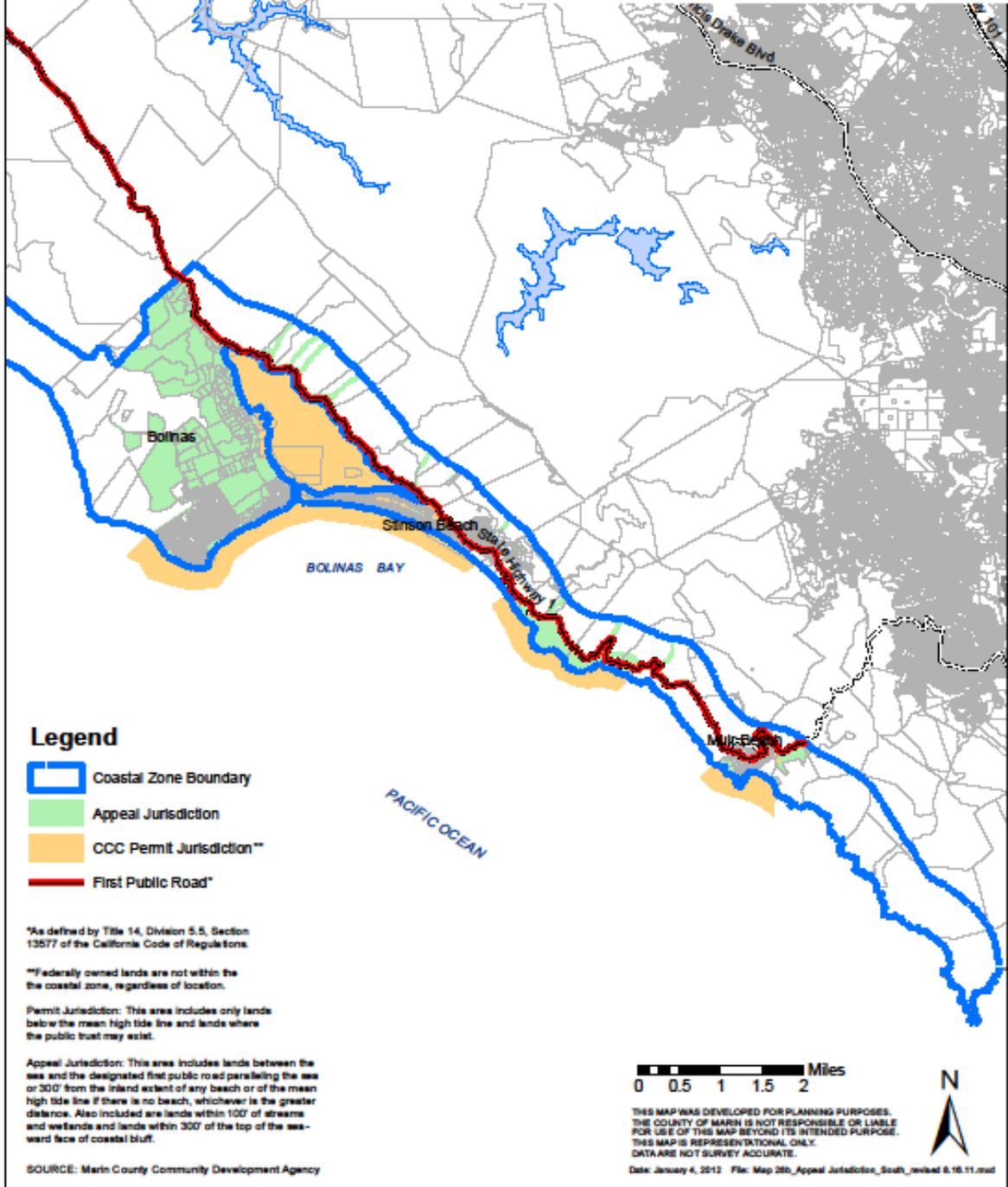
The purpose of a Salt and Nutrient Management Plan (SNMP) is to promote local sustainable water sources and manage salts and nutrients to ensure water quality objectives are met and beneficial uses of groundwater are protected. Marin County does not currently have a SNMP. If the development of a SNMP is considered in the future, EHS will participate in its development and implementation.

MAP 28a - Revised 8/16/11 APPEAL AND PERMIT JURISDICTION AREAS NORTHWEST MARIN



The Coastal Zone Boundary depicted on this map is shown for illustrative purposes only and does not define the Coastal Zone. The delineation is representational, may be revised at any time in the future, is not binding on the Coastal Commission, and may not eliminate the need for a formal boundary determination made by the Coastal Commission.

**MAP 28b - Revised 8/16/11
 APPEAL AND PERMIT JURISDICTION AREAS
 SOUTHWEST MARIN**



The Coastal Zone Boundary depicted on this map is shown for illustrative purposes only and does not define the Coastal Zone. The delineation is representational, may be revised at any time in the future, is not binding on the Coastal Commission, and may not eliminate the need for a formal boundary determination made by the Coastal Commission.

9.2.9: Coordination with Watershed Management Groups

There are numerous watershed groups in Marin County as exemplified by the following list.

- Friends of Corte Madera Creek,
- Friends of Novato Creek,
- Friends of Willow Creek,
- Gallinas Watershed Council,
- Lagunitas Creek Technical Advisory Committee,
- Marin Conservation League Water & Watersheds Committee,
- Marin Resource Conservation District,
- Mill Valley Streamkeepers,
- Miller Creek Watershed Stewards,
- Northbay Watershed Association,
- Salmon Protection and Watershed Network (SPAWN),
- San Geronimo Valley Stewards,
- San Geronimo Valley Planning Group
- Sleepy Hollow Creek Committee,
- Tam Valley Watershed Group,
- Tomales Bay Watershed Council,
- Trout Unlimited,
- Watershed Alliance of Marin.

EHS has and will continue to collaborate with the watershed groups and others to develop and implement scientifically sound watershed management plans and policies. The Marshall Community Wastewater System is an example of a project that was developed out of collaboration with a watershed group.

9.2.10: Evaluation of Proximity of Sewer Systems

The MCC Chapter 18.06.050 *Connection to Public Sewer System and Alternatives*, provides the criteria for the connection to public sewer systems for parcels with structures generating sewage. Sewer district boundaries are mapped and if a property is close to a boundary, EHS staff will consult with the district prior to the issuance of any permits. If connection to a public sewer system is not possible or unfeasible, the Health Officer may require an alternate method of sewage disposal utilizing an OWTS. Parcels within a designated service area will not be issued a new OWTS permit until or unless the district issues a variance based on specific conditions.

9.2.11: Public Water System Notification within Prescribed Setbacks

EHS will coordinate with the California State Water Resources Control Board Division of Drinking Water and the local water districts to identify all parcels having public water supply systems. The County will notify the owner of a public water system prior to issuing an installation permit for any new, replacement, or repair OWTS in such cases that the OWTS is:

- within 1200 feet of an intake point for a surface water treatment plant for drinking water;
- in the drainage area catchment in which the intake point is located;
- located such that it may impact water quality at the intake point such as upstream of the intake point for a flowing water body; and/or
- within 150 feet of a public water supply well.

9.2.12: Policies and Procedures when OWTS within Public Water System Setbacks

The LAMP outlines policies and procedures to be followed when a proposed OWTS dispersal area is within the horizontal sanitary setbacks of a public well or a surface water intake point. These policies and procedures include:

- compliance with the horizontal setback requirements to the maximum extent practicable;
- supplemental pretreatment to mitigate the potential adverse impact to the public water source;
- compliance with the minimum vertical separation to groundwater; and
- completion of a cumulative impact analysis if the setback issue involves a public water well. (MCC Chapters 401 *Setbacks*, 800 *Alternative Systems*, and 807 *Cumulative Impact Assessment*.)

9.2.13: Cesspool Usage

Cesspools are not permitted in Marin County. However, there may be existing cesspools that were installed prior to the requirement for permits. If a cesspool is discovered pursuant to a complaint, malfunction or failure, or a building remodel and/or addition, the cesspool shall be properly abandoned and a repair or replacement OWTS installed as soon as practicable (MCC Chapter 18.06.040 *Prohibited Acts*.)

A change to the Marin County Code may be necessary to require the septic tank pumpers report cesspools upon their discovery. This will necessitate follow-up inspections and abatement by EHS staff.

9.3: Local Agency Management Responsibilities

The following describe the provisions contained in the MCC and MCR and demonstrate compliance with the required minimum responsibilities set forth in the SWRCB OWTS Policy.

9.3.1: Variances

OWTS that are granted either a waiver/variance in conjunction with an issued permit are captured in the County's permitting data base and will be mapped on a GIS layer. Information on the number, location, and description of permits can be queried in a report as needed for the required OWTS Policy 9.3.3 Annual Report. (MCC Chapter 18.07.105 *Waiver/variance* and MCR Section 900 *Waiver of Regulations*)

9.3.2: Water Quality Assessment Program

The GIS OWTS layer will be used to capture the location of OWTS for which a variance was granted and/or for which a repair was installed.

There are several ways in which failures are identified. In some instances, a property owner will work with a contractor who in turn works with the County on a voluntary repair. In other instances, a complaint is received about a possible failing OWTS and the complaint is logged and investigated. Complaints are logged in the COMET data base. Based on the outcome of the investigation, a repair permit may be required.

Oftentimes an OWTS is upgraded by expansion, replacement or relocation of an existing OWTS because of a proposed major change to the existing structure served by an OWTS (MCR Section 303 *Modification to Existing Systems*.)

All Alternative OWTS subject to the Operational Permit requirements are inspected either by a service provider or County staff (or both). Inspection report key fields will be used to identify failing systems. In addition, authority for periodic sampling of performance wells is available. (MCR Section 803 *Operating Permits*.)

Ideally, the State will make compilation of data from other sources (SWRCB Drinking Water Division, Geotracker, GAMA, etc.) available in a useful format for local agencies to include in their LAMP as part of surveillance and water quality assessment activities. This LAMP will be updated to include action to be taken upon availability of this data.

The information required for this section (9.3.2- 9.3.2.9) will be evaluated during the five years between LAMP assessment reports (Section 9.3.3). Any trends identified will be used to modify the LAMP if determined necessary for future program improvements and changes.

9.3.2.1: Domestic Well Sampling

The County of Marin requires property owners to obtain a domestic water permit for water sources used for their potable water supply. Water testing to determine compliance with the California Code of Regulations (CCR) Title 22, Chapter 15 Standards is required at initial application. However, it is not required for the annual renewal of the domestic water permit. Routine fecal coliform and/or nitrate testing is not required for the continued use of existing wells.

9.3.2.2: Real Estate Transfer Sampling

Information on well sampling for routine real estate transactions is not captured at this time and there are no plans to require this in the future.

9.3.2.3: Public Water System Sampling

There are public water supply systems that rely on wells and public water systems that rely on surface water that are regulated by the SWRCB Division of Drinking Water. In addition, there are state small water systems that are overseen by EHS. Monitoring results of raw water for nitrates and fecal coliform will be evaluated as a component of the water quality assessment program. EHS will initiate notifications in the event of a failure within proximity of a public water supply system or a state small water system.

9.3.2.4: New Well Development Sampling

As noted in subsection 9.3.2.1, new domestic wells are tested for compliance with CCR Title 22, Chapter 15 standards. Non-domestic wells are not required to be tested.

9.3.2.5: Beach Water Quality Testing Data

EHS collects water samples and tests for total coliform, fecal coliform, and enterococcus on a weekly basis between April 1 and October 31 at 15 ocean beaches and three freshwater water bodies in Marin County. The tests are evaluated for compliance with the California Health & Safety Code, Sections 115875 – 115915, Public Beach Sanitation.

9.3.2.6: NPDES Permit Receiving Water Sampling

The Marin County Department of Public Works (DPW) administers the county-wide NPDES permit for the unincorporated county areas and the cities within the County. EHS will work with DPW and other agencies to access water quality studies that have already been conducted and/or will be conducted, to evaluate the impact of OWTS discharges and assess the extent to which groundwater and local surface water quality may be adversely impacted.

9.3.2.7: California Water Quality Assessment Database

The California Integrated Water Quality Assessment (CIWQS) database monitoring and sampling results for pathogens and nitrates is available for preparation of the Section 9.3.3 Five Year Water Quality Assessment Report.

9.3.2.8: Waste Discharge Requirements Groundwater Sampling

This section references groundwater monitoring as part of WDRs. This information is not available online as there is no requirement in place at this time for the data to be uploaded to the CIWQS data base. The monitoring data for WDR facilities may be required to be uploaded to CIWQS in the future but at this time, to access the monitoring data requires a file review request to the respective RWQCB.

9.3.2.9: Groundwater Ambient Monitoring and Assessment Program Groundwater Data

Data collected as part of the GAMA program will be included in the Section 9.3.3 Five Year Water Quality Assessment Report.

9.3.3: Annual Report of the Water Quality Assessment Program

No later than February 1st of each year, the County will submit to the RWQCB a report, in tabular, spreadsheet form, summarizing the status of the following items:

1. The number and location of complaints pertaining to OWTS and how the complaints were resolved;
2. Applications and registrations issued as part of the County septic tank cleaning registration (pumper truck) program pursuant to Section 117400 et.seq. of the California Health and Safety Code;
3. The number location, and description of permits issued for new and replacement OWTS and under which tier the permit was issued ;
4. Number, location, and description of permits issued for OWTS where a Waiver Request is granted;
5. Results of the Water Quality Assessment Program. Refer to LAMP Section 9.3.2.

Five Year Water Quality Assessment Report. Every five years, the annual report to the RWQCB will be accompanied by a Water Quality Assessment Evaluation Report that summarizes the information and findings from the County's Water Quality Assessment Program (9.3.2). The report will provide an assessment of any evidence of water quality impacts from OWTS along with any recommended changes to the LAMP to address the identified impacts. The RWQCB is expecting to issue a guidance document on how this information should be gathered and organized for submittal. Upon receipt of such guidance, this section of the LAMP will be updated to include specifics identified. Any water quality data generated by the County from monitoring activities will be submitted in an electronic format as required.

9.4: Prohibitions

The following describe the provisions contained in the Marin County Code and Regulations with the required prohibitions set forth in the OWTS Policy.

9.4.1: Cesspools

Cesspools are not permitted in Marin County. However, there may be existing cesspools that were installed prior to the requirement for permits. If a cesspool is discovered pursuant to a complaint, malfunction or failure, or a building remodel and/or addition, the cesspool shall be properly abandoned and a repair or replacement OWTS installed as soon as practicable (MCC Chapter 18.06.040 *Prohibited Acts*).

A change to the Marin County Code may be necessary to require the septic tank pumpers report cesspools upon their discovery. This will necessitate follow-up inspections and abatement by EHS staff.

9.4.2: OWTS Over 10,000 gpd Capacity

If the volume of wastewater produced is 10,000 gpd or more or where a community system serving multiple discharges under separate ownership is proposed, the method of treatment and dispersal must be approved by the RWQCB.

9.4.3: OWTS with Surface Discharge

Surface discharge of wastewater from an OWTS is not authorized by definition (OWTS Policy). Any OWTS that has pooling effluent or discharges wastewater to the surface is deemed to be failing and subject to corrective action pursuant to OWTS Policy Section 11.1 Tier 4 requirements and MCC Chapter 18.07.160 *Enforcement*. OWTS that are authorized to discharge treated wastewater to the surface of the ground are subject to Title 22 requirements and the issuance of WDRs by the RWQCB.

9.4.4: OWTS on Steep Slopes

If the installation of a standard OWTS dispersal field exceeds 20% slope, a geological engineering report shall be prepared and submitted. The report, prepared by a registered civil engineer or certified engineering geologist, shall demonstrate that the use of a soil absorption system will not create a public health hazard or otherwise jeopardize the proposed building site or contiguous properties. For slopes greater than or equal to 30%, pressure distribution of effluent is required (MCR Section 403 *Ground Slope*.)

9.4.5: Sizing Reductions for IAPMO Certified Dispersal Systems

Reductions in design sewage flows may be granted where certain water saving devices are incorporated permanently into the buildings being served. Otherwise, sizing reduction for International Plumbing & Mechanical Officials (IAPMO) certified disposal systems is not allowed (MCR Section 601 *Sewage Flows*.)

9.4.6: Supplemental Treatment without Monitoring and Inspection

Supplemental treatment without monitoring and inspection is not allowed. All systems with supplemental treatment require an annual Operating Permit and monitoring, as well as inspection by either a service provider or the County (MCR Section 804 *Alternative Systems Performance Monitoring, Maintenance and Reporting*.)

9.4.7: RV Holding Tanks

The OWTS Policy defines domestic wastewater to include only incidental RV holding tank dumping but does not include wastewater consisting of a significant portion of RV holding tank wastewater such as an RV dump station. Pursuant to the OWTS policy, OWTS dedicated to receiving significant amounts of wastes dumped from RV holding tanks will not be permitted by EHS and is not subject to this LAMP. Applications for OWTS proposed for this use will be referred to the RWQCB.

9.4.8: Separation to Groundwater

The absolute minimum amount of native soil allowed for installation of a Standard OWTS is three feet between the dispersal line and the limiting layer including groundwater. The absolute minimum amount of native soil allowed for installation of an Alternative OWTS is two feet between the dispersal line and the limiting layer including groundwater (MCR Sections 404 *Standard System Soil Depth* and MCR Section 808 *Alternative Systems Siting and Design Criteria*.)

9.4.9: Installations near Existing Sewer Systems

Connection to a public sewer is required for all new proposed lots, existing structure additions that propose to generate additional wastewater and/or repairs to existing OWTS if sewer is available. Sewer is considered available if it is within 400 feet of the parcel with a structure and/or there is willingness by the sewer agency to permit connection to the sewer main (MCC Chapter 18.06.050 *Connection to Public Sewer System and Alternatives*.)

9.4.10: Public Water System Minimum Setbacks

Minimum setbacks as specified in OWTS Policy Sections 9.4.10.1 – 9.4.10.5 and 9.2.11 of this document, shall be maintained unless authorized through the repair/variance process.

9.4.11: Replacement OWTS, Public Water System Minimum Setbacks, and Supplemental Treatment

For replacement OWTS unable to meet the horizontal setback requirements specified in the OWTS Policy Sections 9.4.10.1 – 9.4.10.5, the replacement OWTS shall meet the setback requirements to the greatest extent practicable and shall incorporate supplemental pretreatment and other measures, as appropriate, unless there is no evidence of an existing or potential threat or impact to the public water source by the OWTS based on topography, soil depth and composition, and groundwater conditions. In no case shall a repair OWTS be installed any closer than the existing OWTS to a public water supply well or public surface water intake point.

9.4.12: New OWTS, Public Water System Minimum Setbacks, and Supplemental Treatment

For new OWTS on parcels created prior to the effective date of the LAMP that are unable to meet the horizontal setback requirements of OWTS Policy 9.4.10.1 through 9.4.10.5, the new OWTS shall meet the setback requirements to the greatest extent possible. An Alternative OWTS with supplemental pretreatment may be required and the OWTS sited to meet the required setback to the maximum extent possible. Supplemental pretreatment with disinfection may be required when deemed necessary for the water supply. In no case shall a new OWTS that is a result of new construction be installed any closer than 150 feet to a public water supply well or 400 feet from a public surface water intake point.

9.5: Technical Support of LAMP

The LAMP, including the MCC, MCR and all related technical documents, provide adequate detail to support how all the criteria in this local program work to protect water quality and public health.

9.6: RWQCB Consideration of LAMP

The RWQCB will generally consider past performance of local programs to protect water quality based on reviews of annual status and evaluation reports. Should deficiencies be identified, the County and the RWQCB will work together to make programmatic improvements.

Part 5: Advanced Protection Management Plan

There are many water bodies in Marin County that are listed pursuant to Section 303(d) of the Clean Water Act. They are China Camp Beach, Lawson's Landing, Pacific Ocean at Bolinas Beach, Pacific Ocean at Muir Beach, Petaluma River, Petaluma River (tidal portion), Tomales Bay, Lagunitas Creek, and Walker Creek. The OWTS Policy states that existing, new and replacement OWTS that are near impaired water bodies may be addressed by a TMDL. At this time, only one TMDL has been completed. This Advanced Protection Management Plan (APMP) describes the action Marin County has taken and will continue to take to address the Tomales Bay TMDL. The last section of this part describes the special provisions that will be implemented for OWTS in proximity to an impaired water body absent adopted TMDLs.

Tomales Bay Watershed Pathogen TMDL

The Regional Water Quality Control Board, San Francisco Region adopted Resolution R2-2005-0046 on September 21, 2005 to establish the Total Maximum Daily Load (TMDL) and implementation plan for pathogens in Tomales Bay and its tributaries. It included the submission and approval of an implementation plan by Marin County Community Development Agency (CDA). The Environmental Health Services Division of CDA (EHS) submitted the Tomales Bay Pathogen TMDL Compliance Plan for Onsite Systems on January 3, 2007.

The compliance plan included:

1. Formation of the Onsite Wastewater Disposal Zone for the Marshall Wastewater Improvement Project, to construct and operate a wastewater treatment system for homes and businesses in the Marshall area on the east shore of Tomales Bay.
2. Reactivate an outreach program using a certified onsite disposal system (OSDS) inspector to perform inspections of 100 systems to assess and improve the conditions and functioning of OSDSs.
3. Work on the Integrated Watershed Management Plan to reach OSDS owners in Inverness and the San Geronimo Valley to advise them about maintaining their systems and offering inspection services as noted in #2.
4. Development and implementation of a new electronic database to improve the inventory of OSDS and wells.

Marin County Implementation of Compliance Plan

The compliance plan for the Tomales Bay Pathogen TMDL was implemented by the completion of the following projects: the construction and operation of the Marshall Community Wastewater System, the Septic Matters Program, the Woodacre/San Geronimo Flats Wastewater Project, and the COMET Database System. These projects are described below.

Marshall Community Wastewater System

The improvement of onsite wastewater system management practices in the County, and particularly in the Tomales Bay watershed had been a concern for many years. The East Shore Wastewater Improvement Project was initiated in 2001 to study the existing septic systems and investigate potential wastewater management alternatives. The studies led to the identification of Marshall as the focal point for initial wastewater improvement efforts.

The intent of the Marshall Community Wastewater System was to replace the existing failing septic systems with a central wastewater collection system (STEP system) and a community wastewater disposal field. The process for the Marshall Community Wastewater System started in 2001 with the engineering and environmental review and culminated with the installation and startup of Marshall Phase 1 Community Wastewater System in 2008. Phase 1 serves 35 residences and businesses along a one-mile stretch of shoreline.

The Marshall Phase 2 project area is located directly south of the Phase 1 area and encompasses 20 residences and businesses. Phase 2 provides for the construction of a central wastewater collection system (STEP system) for the Marshall Phase 2 Service Area and connection to the existing Marshall Phase 1 community system for wastewater disposal. An AdvanTex secondary treatment system was added to treat the combined wastewater flows from Phase 1 and Phase 2 areas, instead of installing additional disposal trenches. The higher level of wastewater treatment is thought to increase the effective capacity of the Phase 1 disposal field sufficiently to accommodate the additional flow from Phase 2 without any changes to the disposal field. The installation and startup of Phase 2 was completed in January 2016.

Septic Matters

EHS obtained State Water Resources Control Board and Coastal Conservancy grants to survey the condition of OWTS in close proximity to Tomales Bay and to waterways in the Tomales Bay watershed. The Septic Matters Program was created to educate property owners regarding the function of septic systems and the impacts of failing or marginal systems and to provide a sampling of the condition and function of the septic systems close to Tomales Bay and its tributaries.

Free and confidential third party inspection and testing of the septic systems were offered. Two (2) National Association of Wastewater Transporters (NAWT) certified inspectors conducted 146 inspections in 2004 – 2006 and in December 2007 – March 2008. The inspections were made in the communities of Forest Knolls, Inverness, Lagunitas, Marshall, Nicasio, San Geronimo, Petaluma, Point Reyes Station, and Woodacre.

In general, the findings were most of the septic systems were:

- Were 30 – 50 years old;
- On small parcels (8,000 – 15,000 square feet);
- Parcels were overdeveloped;
- Systems in high seasonal groundwater, 16 – 18 inches below surface with 4 inches observed;
- Smaller than what would be required by current standards;
- In soils poorly suited for wastewater dispersal;
- Closer to waterways than current standards would allow;
- Had no replacement area if the system were to fail;

The inspectors concluded that there was a problem with many older septic systems in the Tomales Bay Watershed. They recommended improvements to most of the septic systems and a local community decentralized system or public sewer. Already in the works, was the Marshall Community Wastewater System.

Woodacre/San Geronimo Flats Wastewater Project

The findings of the Septic Matters survey in the Woodacre and San Geronimo areas were supported by a 2005 staff report from the RWQCB on the Tomales Bay Watershed Pathogens Total Maximum Daily Load (TMDL). The RWQCB report identified the communities of Woodacre and San Geronimo as a high priority for correcting failed septic systems. These

communities are located along San Geronimo Creek, a tributary to Lagunitas Creek and Tomales Bay. Homes in this area are served by OWTS.

A feasibility study to identify and evaluate potential wastewater improvement options for an area of 158 homes in Woodacre Flats was completed in 2011. Interest by adjacent property owners in the San Geronimo Valley has led to an enlarged project for 300 parcels. At this time, funding is being confirmed for an expanded feasibility study and environmental review to construct a community sewer collection system to replace OWTS in the Woodacre and San Geronimo Flats. The Environmental Impact Report will start at the end of 2016 and will examine the four alternatives identified in the initial feasibility study. The preferred alternative identified in the initial feasibility study includes effluent treatment at a tertiary wastewater treatment facility. Effluent from the tertiary treatment unit would meet California Code of Regulations Title 22 and provide recycled water suitable for irrigating the local golf course. The recycled wastewater would reduce the amount of fresh water currently supplied to the golf course from the local water district by 25% (approximately 50 acre-feet).

The varied topographic and geologic conditions throughout Woodacre and the San Geronimo Valley, along with constraints on the size of the effluent storage ponds, limit the extent of this project. This project would serve parcels in the flat areas of Woodacre and San Geronimo within close proximity to San Geronimo Creek.

COMET Database System

The Community Development Agency implemented the County of Marin Enterprise Tracking (COMET) System in 2011 with the Code Enforcement Division. Phase 2 was implemented in November 2012 for the Environmental Health Services Food, Swimming Pool, Housing, Solid Waste, Medical Waste, and Alternative System Septic System Operating Permit programs. Phase 4 for the septic system and well construction services and permits was implemented in November 2015.

Other TMDL

Attachment 2 of the OWTS Policy listed the impaired water bodies in Marin County with the proposed TMDL completion dates. Many of the TMDLs proposed for completion in 2014, 2015, and 2016, have not been completed. Table 5 below, shows the status of the TMDL completion as reported in January 2016 by the Planning/TMDL unit of the Regional Water Quality Control Board, San Francisco Region(RWQCB). Additionally, the RWQCB is currently in the process of analyzing the TMDL for San Francisco Bay Beaches. It was stated that two of the beaches, China Camp and McNears, have attained the numeric targets already and the TMDL does not include implementation actions for them and were not included in the Regulatory Analysis. Upon completion of each TMDL, the County will develop and propose an APMP to address Tier 3 Impaired Areas as an addendum to this LAMP.

TABLE 5, TMDL STATUS OF IMPAIRED WATER BODIES IN MARIN COUNTY

Water Bodies Impaired for Pathogens		
WATER BODY NAME	TMDL Completion Date*	Status per RWQCB Planning/TMDL Unit 1/2016
China Camp Beach	2014	No separate TMDL planned
Lawsons Landing	2015	
Pacific Ocean at Bolinas Beach	2014	
Pacific Ocean at Muir Beach	2015	Delisting in progress
Petaluma River	2017	TMDL in development
Petaluma River (tidal portion)	2017	
Tomales Bay Watershed	Completed 2005	NA

Water Bodies Impaired for Nitrogen		
WATER BODY NAME	TMDL Completion Date*	Status per RWQCB Planning/TMDL Unit 1/2016
Lagunitas Creek	2016	
Petaluma River	2017	TMDL in development
Petaluma River (tidal portion)	2017	
Tomales Bay	2019	Potential for delisting
Walker Creek	2016	

*Data from OWTS Policy, Attachment 2

In the absence of TMDLs for most of the impaired water bodies, EHS will adhere to the standards in the Marin County Code and Regulations as shown in Appendices B and C and implement the following special provisions:

- For OWTS within 200 feet of an impaired water body, the following provisions will be in effect for new, expanded or repairs/replacement OWTS.
- For OWTS within 200 feet of a water body impaired by pathogens, the OWTS shall: (a) be located at least 100 horizontal feet from the water body; (b) be supplemented with a pretreatment process that produces secondary effluent quality or better, with average 30-day BOD and TSS not exceeding 30 mg/L; and (c) be supplemented with disinfection treatment; and (d) utilize pressure distribution for effluent dispersal.
- For OWTS within 200 feet of a water body impaired by nitrogen, the OWTS shall: (a) be located at least 100 horizontal feet from the water body; (b) be supplemented with an approved NSF Standard 350 nitrogen removal pretreatment unit that has been certified to meet 50% reduction in total nitrogen when comparing the 30-day average influent to the 30-day average effluent; and (c) utilize pressure distribution for effluent dispersal.
- For repair/replacement of existing OWTS that are failing or otherwise require corrective action and that are unable to meet the 100-foot horizontal water body setback requirement, the replacement OWTS shall meet the horizontal setback to the greatest extent practicable. The OWTS will be supplemented with pretreatment components

appropriate for its proximity to the impaired water body, whether it is for pathogens or nitrogen or both, and will also require use of pressure distribution for effluent dispersal.

- If an alternative to the pretreatment and/or disinfection requirements specified above is proposed, the OWTS professional shall provide technical justification on why the pretreatment and/or disinfection is not needed. Justification could include, for example, factors related to the depth and characteristics of the soil, vertical separation to groundwater, ground slope and terrain, and wastewater volume/size of the OWTS. This will require a cumulative impact report or a similar technical report that demonstrates and indicates that equal water quality protection will be provided.
- Upon completion of installation, all new, expanded and repair/replacement OWTS within 200 feet of impaired water bodies shall be placed under an Operating Permit and will be subject to all the monitoring and maintenance provisions as specified in MCR section 800. These OWTS will be GPS and documented in a GIS layer.

Part 6: OWTS Requiring Corrective Action

All OWTS have the potential to fail due to age, misuse or improper design and the failure may result in surfacing effluent, wastewater being discharged to the ground surface, or wastewater backing up into plumbing fixtures. OWTS that are failing or will fail at any time, will require corrective action to mitigate any risk to public health or contamination of the environment. The OWTS Policy includes OWTS requiring corrective action in Tier 4 as outlined in the Policy Section 11.0. This part will address corrective action that will be required in the event an OWTS fails and enforcement actions that will be taken if the corrective action is not completed within acceptable time frames.

Failure

The OWTS Policy describes the following as failure:

- Any OWTS that has pooling effluent, discharges wastewater to the surface, or has wastewater backed up into plumbing fixtures, because its dispersal system is no longer adequately percolating the wastewater.
- Any OWTS septic tank failure, such as a baffle failure or tank structural integrity failure such that either wastewater is exfiltrating or groundwater is infiltrating.
- Any OWTS that has a failure of a component other than those listed above, such as a distribution box or broken piping connection.
- Any OWTS that has affected, or will affect groundwater or surface water to a degree that makes it unfit for drinking or other uses, causing a public health nuisance.

Corrective Action Requirements

1. Any OWTS that is determined to be failing by EHS shall be considered a Tier 4 system and remain in that Tier until corrective action has been completed.
2. EHS will complete an investigation within 24-48 hours to determine the validity of the complaint or other notification of a failing OWTS.
3. A notice of violation shall be issued to a property owner of any OWTS that is found to be failing. The notice of violation shall require action to eliminate the immediate health hazard through pumping of the septic tank by a licensed sewage hauler and/or elimination of wastewater flows to the failing OWTS. The notice of violation will also require a repair to be completed to the OWTS as needed within a reasonable time frame as determined by EHS.
4. The proposed repair design shall be evaluated by EHS to ensure it meets the minimum design requirements and is in substantial conformance to the greatest extent practicable as required by this LAMP, MCC, and MCR.
5. The LAMP recognizes that not all repair OWTS will be able to meet minimum required setbacks, soil depth, groundwater separation, and/or minimum requirements.
6. The repair shall be completed under permit and inspection by EHS.
7. Failure to complete the required corrective action within the time frames given will result in additional enforcement and referred to the Marin County Code Enforcement Division for further legal action.

8. The failures will be captured in a data base and mapped in a GIS layer. If a particular area with OWTS show significant higher number of failures, special considerations for protection of groundwater, water quality, and the environment will be included in the LAMP update in 5 years.