Appendix B

Proposed Basin Plan Amendment

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since July 18, 2019

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Changes to the July 18, 2019, version circulated for public comment are shown in underline and strike through mode. Underlined text represents new text, and strike through text represents deleted text.

BASIN PLAN AMENDMENT

The following text is to be inserted into Section 7.8.5.

7.8.5.1 Petaluma River Bacteria Total Maximum Daily Load (TMDL)

The following sections establish the TMDL for bacteria in Petaluma River and its tributaries. The numeric targets, load and wasteload allocations, and Implementation Plan are designed to support and protect the water body's designated beneficial use of water contact recreation (e.g., swimming and fishing).

7.8.5.2 Problem Statement

Petaluma River and its tributaries are impaired by bacteria. Bacteriological water quality objectives are exceeded based on elevated indicator bacteria densities, and, thus, there is impairment of the water contact recreation (REC-1) beneficial use in these water bodies. Recreating in waters with elevated indicator bacteria densities has long been associated with adverse health effects. Specifically, national epidemiological studies demonstrate that there is a causal relationship between adverse health effects and recreational water quality, as measured by indicator bacteria densities. Impaired segments include the entire Petaluma River, San Antonio Creek, Lichau Creek, Willow Brook, Lynch Creek, Adobe Creek, Ellis Creek, as well as other named and unnamed tributaries.

7.8.5.3 Pollutant Sources

If not properly managed, the following source categories have the potential to discharge bacteria to Petaluma River and its tributaries: municipal wastewater treatment plant, sanitary sewer collection systems, private sewer laterals, onsite wastewater treatment systems (OWTS), vessel marinas, homeless encampments, confined animal facilities (CAF), grazing lands/operations, domestic pets, and municipal and Californian Department of Transportation (Caltrans) stormwater runoff.

7.8.5.4 Numeric Targets

The desired or target condition for the water contact recreation beneficial use in Petaluma River and its tributaries listed in Table 7.8.5-1 are based on protective water quality objectives for fecal indicator bacteria (FIB). These targets are based on applicable water quality objectives for water contact recreation in fresh and marine (estuarine) waters adopted by the State Water Board in the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California.

Table 7.8.5-1. Numeric Targets[a,b] for Fecal Indicator Bacteria in the Petaluma River Watershed to Protect Water Contact Recreation		
Indicator/Applicable Waters	**Geometric Mean (cfu/100 mL)[c]**	**Statistical Threshold Value (cfu/100 mL)**
Enterococcus (for estuarine portions where the salinity is greater than 1 ppth more than 5 percent of the time)	30	110
E. coli (for fresh water portions where the salinity is equal to or less than 1 ppth 95 percent or more of the time)	100	320

cfu/100 mL Colony forming unit per 100 milliliters of sample

ppth Parts per thousand

a. Frequency and duration: The water body geometric mean shall not be greater than the applicable geometric mean magnitude in any six-week interval, calculated weekly. The applicable STV shall not be exceeded by more than 10 percent of the samples collected in a calendar month, calculated in a static manner.

b. Attainment: To determine the attainment of the bacteria water quality standards, the geometric mean values shall be applied based on a statistically sufficient number of samples, which is generally not less than five samples equally spaced over a six-week period. However, if a statistically sufficient number of samples is not available to calculate the geometric mean, then attainment of the water quality standard shall be determined based only on the STV.

c. cfu/100mL is equivalent to Most Probable Number (MPN) per 100 milliliters of sample.

7.8.5.5 Total Maximum Daily Load

The TMDL is equivalent to the numeric targets in Table 7.8.5-1. The TMDL is expressed as the total density of either *E. coli* or *Enterococcus* indicator bacteria, depending on the water body type (freshwater or estuarine), that can be discharged from all sources while not causing the water quality in the river or its tributaries to exceed the protective standards. The “daily” load expression of this TMDL is equivalent to the STV value for Enterococcus and/or E. coli as applicable based on water body type. The TMDL is applicable year-round.

7.8.5.6 Load and Wasteload Allocations

Table 7.8.5-2 summarizes the allocations for discharges of bacteria in the Petaluma River watershed. The load allocations (LAs) and wasteload allocations (WLAs) are the same as the numeric targets specified in Table 7.8.5.1 and the TMDL, except that the allocation for sanitary sewer collection systems, OWTS, and vessel marinas is zero. The allocations are expressed in terms of applicable FIB densities. Discharges to estuarine waters have allocations based on the *Enterococcus* targets. Discharges to fresh waters have allocations based on the *E. coli* targets. The “daily” load expression of the WLAs and LAs in Table 7.8.5-2 are equivalent to the appropriate STV, unless the discharge of bacteria is prohibited and the allocation is zero.

The attainment of these allocations will ensure protection of the water quality and applicable beneficial uses of the river. All LAs and WLAs shall be achieved for each implementation party no later than 15 years of the TMDL effective date. Complete and successful implementation of corrective actions called for in the Implementation Plan may be used to show respective source categories have achieved their LAs or WLAs.

Table 7.8.5-2. Load and Wasteload Allocations[a] of Fecal Indicator Bacteria for Petaluma River

Pollutant Source Category	Allocation Type	Estuarine waters *Enterococcus* (cfu/100 mL)	Fresh waters *E. coli* (cfu/100 mL)
City of Petaluma Wastewater Treatment Facility	WLA	Geometric mean[b] < 30 STV[c] = 110	Not Applicable
Sanitary Sewer Collection Systems-City of Petaluma collection system; Penngrove Sanitation Zone (Sonoma County Water Agency)	WLA	0	0
Onsite Wastewater Treatment Systems (e.g., septic systems)	LA	0	0
Vessel Marinas	LA	0	0
Confined Animal Facilities (e.g., dairy, horse facilities)	LA	Geometric mean < 30 STV = 110	Geometric mean < 100 STV = 320
Grazing Lands/Operations (e.g., cattle, sheep ranches)	LA	Geometric mean < 30 STV = 110	Geometric mean < 100 STV = 320
Wildlife[d]	LA	Geometric mean < 30 STV = 110	Geometric mean < 100 STV = 320
Municipal Stormwater Runoff[e]	WLA	Geometric mean < 30 STV = 110	Geometric mean < 100 STV = 320
Caltrans Stormwater Runoff	WLA	Geometric mean < 30 STV = 110	Geometric mean < 100 STV = 320

cfu/100 mL Colony forming unit per 100 milliliters of sample, which is equivalent to Most Probable Number (MPN) per 100 milliliters of sample

LA Load allocation

STV Statistical threshold value

WLA Wasteload allocation

a. All allocations apply year-round and will be measured in the ambient water (e.g., Petaluma River and its tributaries), except for WLA for the City of Petaluma Wastewater Treatment Plant, which shall be measured at any point in the outfall pipe between the point of discharge to the Petaluma River (Discharge Point No. 001) and the point at which all flow contributing to the outfall is present.

b. The water body geometric mean shall not be greater than the applicable geometric mean magnitude in any six-week interval, calculated weekly.

c. If a statistically sufficient number of samples is not available to calculate the geometric mean, then attainment of the water quality standard shall be determined based only on the STV. The applicable STV shall not be exceeded by more than 10 percent of the samples collected in a calendar month, calculated in a static manner.

d. Wildlife is an uncontrollable source of bacteria and its contribution is considered natural background. No management measures will be required for wildlife sources.

e. WLA for discharges from municipal stormwater runoff via the municipal separate storm sewer system includes contributions from pet waste.

The load allocations in this TMDL are identical to the U.S. EPA criteria and State Water Board water quality objectives established as protective standards. Therefore, the margin of safety is implicitly incorporated into the proposed TMDL and LAs and WLAs. No additional or explicit margin of safety is needed for this TMDL.

While FIB densities can be greater during the winter wet season due to factors such as stormwater runoff, they can be high at any time of year. Recreational uses of the river are most prevalent during the summertime but can occur at any time of year. Therefore, the TMDL and allocations must be applied equally during all time periods and conditions. No seasonal variations to the above listed TMDLs and allocations are proposed.

7.8.5.7 Implementation Plan

The Petaluma River Bacteria TMDL Implementation Plan specifies actions needed to attain the TMDL and allocations. This Implementation Plan includes new actions and actions for which requirements are already in place. The new actions include requirements for the following sources:

- Confined animal facilities not currently enrolled under the Water Board's CAF Waste Discharge Requirements (WDRs) (e.g., commercial horse boarding facilities);
- Grazing lands/grazing operations not affiliated with existing dairies;
- Vessel marinas;
- Homeless encampments;
- Sanitary sewer collection systems segments within 2000 feet of the river or major tributaries[1];
- OWTS within the Advanced Protection Management Program boundary, within 200 feet of the river or major tributaries; and

[1] "Major tributaries" are any National Hydrography Dataset medium resolution (1:100,000 scale) mapped stream in the Petaluma River watershed.

- Municipal and Caltrans stormwater runoff.

Actions for which requirements are already in place include:

- Reduction of bacteria discharges from cow dairy facilities by measures required by the CAF WDRs or conditional waiver of CAF WDRs;
- Effluent limitations required by the National Pollutant Discharge Elimination System (NPDES) permit for the City of Petaluma Ellis Creek Wastewater Treatment Facility; and
- Reduction of sanitary sewer waste discharges by the measures already required by the Statewide General WDRs for sanitary sewer systems.

Regulatory Tools

The Water Board will use its regulatory authorities to require actions in the Implementation Plan, including individual and general WDRs under Water Code section 13263; waiver of WDRs under Water Code section 13269; technical or monitoring program reports under Water Code section 13267; NPDES permits for wastewater discharges from sanitary sewer collection systems and treatment facilities and for stormwater discharges from municipal and Caltrans separate storm sewer systems under the Clean Water Act section 402, and Water Code section 13377; and vessel sanitation requirements under the Harbors and Navigation Code section 775 et seq. The Water Board will also use its regulatory authorities in connection with overseeing implementation of the State Water Board's Water Quality Control Policy for Siting, Design, Operation, and Maintenance of Onsite Wastewater Treatment Systems (OWTS Policy). The Water Board may also enforce the Basin Plan's prohibition of discharges of raw sewage or any waste failing to meet WDRs to any waters in the Basin.

Implementing Parties

Responsibility for reducing bacteria discharges include the following parties:

- Confined animal facilities owners/operators;
- Grazing lands owners/operators;
- Vessel marina owners/operators;
- OWTS owners within the Advanced Protection Management Program boundary;
- Sonoma County;
- Sonoma County Water Agency (Penngrove Sanitation Zone);
- City of Petaluma;
- Marin County;
- City of Novato; and
- Caltrans.

Achieving the TMDL requires action by all the implementing parties and each is required to meet its pollutant load allocation. Cooperation is encouraged not only to attain the TMDL, but also to avoid duplicative actions, such as monitoring and reporting. To the

extent possible, implementing parties should coordinate actions and water quality monitoring efforts.

Implementation Actions and Schedule

This section describes the actions necessary to achieve the TMDL. Tables 7.8.5-3 through 7.8.5-11 set forth the implementation and monitoring actions, lists the implementing parties, and provides the schedule for implementation to achieve the TMDL. The implementation schedule allows time for the implementing parties to identify and implement measures that are necessary to control bacteria discharges resulting in exceedances of allocations. If source control actions are fully implemented throughout the watershed and the TMDL targets are not met, the Water Board may re-evaluate or revise the targets, TMDL, and allocations as appropriate.

The Water Board will adopt WDRs or waivers thereof for grazing operations in the Petaluma watershed, by December 2022, to require those implementation actions listed in Table 7.8.5-8 applicable to grazing lands and operations. Pursuant to Harbors and Navigation Code sections 775 et seq. and Water Code section 13267, the Water Board will require marina owners and operators to comply with the implementation actions listed in Table 7.8.5-6 applicable to vessel marinas. For new implementation actions for sanitary sewer collection systems and municipal separate storm sewer systems listed in Tables 7.8.5-4 and 7.8.5-9, respectively, the Water Board will require the actions through amended or reissued NPDES permits and Water Code sections 13267 and 13383, as necessary. The Water Board will use its stormwater NPDES permitting and Water Code sections 13267 and 13383 authorities to require Table 7.8.5-10 implementation actions related to homeless encampments. General WDRs for sanitary sewer collection systems, general WDRs and a waiver thereof for confined animal facilities, and an NPDES permit for the Ellis Creek Wastewater Treatment Plant exist and Tables 7.8.5-4, 7.8.5-7, and 7.8.5-3, respectively, requires ongoing compliance with these requirements. Confined animal facilities not yet covered under these requirements are required to obtain coverage. OWTS implementation actions are further described below.

Advanced Protection Management Program for OWTS

Implementation of actions to eliminate OWTS waste discharges is supported by Prohibition 15 of the Basin Plan (Table 4-1), which prohibits discharges of raw sewage or any waste failing to meet WDRs to any waters of the Basin. In addition, the OWTS Policy provides a multi-tiered strategy for management of OWTS in California. For all OWTS located near a water body that has been listed as impaired due to FIB or nutrients pursuant to Section 303(d) of the Clean Water Act (e.g., Petaluma River and tributaries), an Advanced Protection Management Program (APMP) is the minimum required management program. Local agencies who are responsible for regulating OWTS (e.g., Sonoma and Marin Counties) are authorized to implement APMPs in conjunction with an approved Local Agency Management Program (LAMP). This Implementation Plan establishes APMP requirements for OWTS in the Petaluma River watershed. As required by the OWTS Policy, the relevant local agencies, Sonoma and Marin Counties, shall submit a revised LAMP to the Water Board that includes these TMDL requirements in an appropriate APMP within a year of the TMDL effective date.

Applicability

The APMP applies to OWTS, which are defined as individual disposal systems, community collection and disposal systems, and alternative collection and disposal systems that use subsurface disposal. The APMP applies to any OWTS that is partially or fully contained within the APMP boundary. Owners of existing, new, and replacement OWTS whose OWTS are located entirely outside the boundaries of the APMP are not subject to the APMP requirements, but must still comply with relevant requirements of the OWTS Policy, any approved LAMP, and if applicable, individual and/or general WDRs or waiver of WDRs.

Boundary

The APMP boundary in the Petaluma River watershed includes the following areas:

- The area within 200 linear feet from the top of the bank in the horizontal (map) direction on either side of the entire Petaluma River mainstem; or
- The area within 200 linear feet from the top of the bank in the horizontal (map) direction on either side of any National Hydrography Dataset medium resolution mapped stream in the Petaluma River watershed.

APMP Requirements

Owners of OWTS within the boundaries of the APMP shall comply with the following minimum requirements:

1. **General Operation and Maintenance Requirements –** Owners of OWTS shall maintain their OWTS in good working condition, including inspections and pumping of solids, as necessary, or as required by local ordinances and requirements established in an approved LAMP, to maintain proper function and assure adequate treatment and disposal.
2. **Basic Operational Inspection –** To facilitate timely identification and resolution of maintenance and operational issues, owners of OWTS shall obtain a basic operational inspection of the septic tank, effluent dispersal area(s), and related appurtenances of the OWTS by a qualified professional[2] within ~~18 months~~ three years of the effective date of the TMDL and once every ~~five~~ ten years thereafter. Satisfaction of operational inspection requirements may occur in conjunction with pumping of the septic tank, a property transaction, issuance of a local building permit, an in-field performance verification performed by a service provider certified by an OWTS manufacturer, or an inspection otherwise required by the local agency or Water Board. ~~At a minimum, a~~A basic operational inspection

[2] Qualified Professional is an individual licensed or certified by a State of California agency to design OWTS and practice as professionals for other associated reports, as allowed under their license or registration. Depending on the work to be performed and various licensing and registration requirements, this may include an individual who possesses a registered environmental health specialist certificate or is currently licensed as a professional engineer or professional geologist. For the purposes of performing site evaluations, Soil Scientists certified by the Soil Science Society of America are considered qualified professionals. A local agency may modify this definition as part of its Local Agency Management Program to permit a licensed contractor (C42, C36, A license), or a pumper who has received certification from the National Association of Wastewater Technicians to perform the required inspections.

shall provide sufficient information for the Water Board or local agencies to determine that OWTS are not discharging any waste to the river or its tributaries and ~~shall~~ may include the following evaluations:

a. Overall system

   i. A basic description and layout diagram of the existing system, including the components of the systems, north arrow, assessor's parcel number, direction of slope, and measurement to relevant features on the property, including any streams or creeks;

   ii. The units/structures served by the system;

   iii. Estimated age of the system (both tank and effluent dispersal system);

   iv. Capacity of the system components (e.g., the volume of the septic tank, the hydraulic capacity of the effluent dispersal area);

   v. Availability and condition of the reserve replacement area of the effluent dispersal area; and

   vi. Inspection of all relevant documents, when available, such as: permits, plans, operation and maintenance manuals, and recent pumpers report (within last 5 years).

b. Septic Tank

   i. *Tank Water Level*

      1. Measure liquid elevation with respect to tank interior bottom; and

      2. Measure liquid level with respect to inlet and outlet elevations.

   ii. *Tank Solids*

      1. Measure vertical depth of accumulated settled solids ("sludge");

      2. Measure vertical depth of accumulated floating solids ("scum"); and

      3. Estimate total volume of solids present (based on i and ii above).

   iii. *Tank Water-tightness and Integrity*

      1. Water-tightness: Verify status. Conduct water-tightness test and record results; and

      2. Integrity: After pump-out, observe general conditions, including evidence of leaks, cracks, excessive corrosion, inadequate seals, root intrusion, or other integrity compromises.

iv. *OWTS Components (e.g., distribution box, effluent filter, dosing tank)*

1. Describe equipment and current conditions. Describe any evidence of problems.

c. Pump Systems

i. Alarms (if present): Describe equipment and operating condition of all water-level alarms and pump-function alarms; and

ii. Pumps (if present): Describe equipment and operating conditions. Review and assess equipment settings, monitoring and operations.

d. Effluent Dispersal Area(s)

i. Investigate dispersal system area and adjacent downhill areas, for any evidence of surfacing effluent;

ii. Observe for odors;

iii. Inspect distribution box for proper settings and proper operating condition;

iv. Observe inspection ports or monitoring wells;

v. Provide depth to groundwater if information is already available; and

vi. Conduct a dye test, if one has not been conducted in the past five years.

e. Supplement Treatment or Custom-Designed Systems

i. The ~~minimum~~ requirements of a basic inspection for OWTS utilizing supplemental treatment components and/or enhanced effluent distribution systems will depend on the type of individual OWTS. Applicable inspection protocol will include obtaining the information described here for all OWTS. It will include inspection requirements specified by the appropriate local agency's permits for the OWTS, and as otherwise dressed in Local Agency OWTS codes and regulations.

3. **Need for Corrective Action –** In addition to conditions requiring corrective action set forth in section 11.0 of the OWTS Policy, OWTS meeting any of the following criteria are also deemed to be in need of corrective action and must be replaced, repaired, or modified so as to comply with requirements of an approved LAMP, WDRs, or a waiver of WDRs:

a. OWTS discharging to the ground surface or surface waters;

b. OWTS that do not include a septic tank and an effluent dispersal system that complies with the OWTS Policy; and

c. OWTS with projected wastewater flow exceeding the capacity of one or more components of the treatment and disposal system.

Water Board OWTS Assessment Program

The Water Board will conduct an initial OWTS assessment to identify OWTS that are failing and/or in need of corrective action. The Water Board will assess all OWTS within the boundaries of the APMP to determine whether the OWTS is failing and/or in need of corrective action. The assessment will primarily rely on the results of the basic operational inspection performed by a qualified professional. It may also include a desktop or local record review. Information that may be used to ascertain the performance of an existing OWTS includes, but is not limited to, the OWTS type, age, approved variances, repair history, monitoring and inspection results, septic tank pumping records, maintenance records, peak hydraulic loading, and record of any un-corrected deficiencies or substantiated complaints received.

To obtain information for the OWTS assessment, the Water Board will work with local agencies to obtain records pertaining to OWTS and building permits from each local agency within three months of the TMDL effective date. It will also require each property owner within the APMP boundary to submit a basic operational inspection report to the Water Board within ~~18 months~~ three years of the effective date of the TMDL. To do so, the Water Board will issue Water Code section 13267 Orders to homeowners within six months of the TMDL effective date. The Water Board staff will screen the inspection reports to classify the OWTS into three categories as follows:

- Category 1 - Acceptable[3]: no actions needed;
- Category 2 - Needing Possible Follow Up[4]: Within two years after receiving the basic operational inspection report, the Water Board will review, prioritize, and recommend a schedule for corrective actions commensurate with the level of threat to water quality. The level of threat to water quality will be determined based on parameters such as system's age, proximity to waters, expansion without septic permit records. If Water Board staff determine that an OWTS in this category is in need of corrective actions, the Water Board staff will identify the appropriate corrective action, set an appropriate time schedule for compliance that is not more than ~~10~~ 12 years from the TMDL effective date, notify the property owner of the requirement to contact the local agency to obtain appropriate local agency permit(s) and initiate the corrective actions, and rely on Water Board enforcement authorities, if necessary; and
- Category 3 - Needing Major Repair[5]: The Water Board will report these systems to local agencies for immediate initiation of permitting process and corrective

[3] Acceptable: means those systems that are clearly functioning properly and are not in need of any corrective actions.

[4] Needing Possible Follow Up: means those systems that might be in need of corrective actions but would need a closer and more thorough evaluation before that determination is made.

[5] Needing Major Repair: means either (1) for a dispersal system, repairs required for an OWTS dispersal system due to surfacing wastewater effluent from the dispersal field and/or wastewater backed up in to plumbing fixtures because the dispersal system is not able to percolate the design flow of wastewater associated with the structure served, or (2) for a septic tank, repairs required to the tank for a compartment baffle failure or tank structural integrity failure such that either wastewater is exfiltrating or groundwater is infiltrating, or (3) if the OWTS utilizes a cesspool or a redwood tank that needs to be replaced with a conventional septic tank.

actions. The Water Board expects that all OWTS in this category will be treated by the local agencies as an immediate risk to public health. The local agencies are the lead for contacting the landowner to require corrective actions, setting an appropriate time schedule for compliance that shall be commensurate with the risk, and taking enforcement actions as necessary. The time schedule for compliance in no case shall be more than ~~10~~ 12 years from the TMDL effective date.

OWTS Requiring Corrective Actions

Property owners with OWTS within the boundaries of the APMP that require corrective action are subject to Tier 4[6] ("OWTS requiring corrective actions") of the OWTS Policy and must follow the requirements as specified in Section 11 of the Policy. Property owners who are required to upgrade, repair, or replace an existing OWTS or acquire a new OWTS must obtain the appropriate local agency permit in accordance with the local agency's ordinances and policies. The local agencies are the lead organization for plan review, local permit issuance, construction inspection, monitoring of new and upgraded OWTS (if applicable), and overseeing repairs or replacement of existing OWTS, as provided in their permitting and enforcement process.

Local agencies shall track and report status of corrective actions for Category 2 systems on an annual basis, and for Category 3 systems (major repairs) on a quarterly basis. The local agencies shall incorporate these reporting timelines into their respective APMPs.

If an owner fails to comply with the corrective action requirements of Tier 4 of the OWTS Policy, the OWTS discharges will no longer be covered under the OWTS Policy's waiver of WDRs. The Water Board may require such an owner to submit a report of waste discharge for evaluation on a case-by-case basis and/or take appropriate enforcement action.

This Implementation Plan does not affect or supersede any more stringent local requirements.

7.8.5.8 Water Quality Monitoring

The implementing parties are responsible for developing and implementing a comprehensive monitoring plan to accomplish the following goals: 1) better characterize FIB contributions from their sources/jurisdictions, 2) assess best management practices (BMP) effectiveness, and 3) assess progress towards attainment of their respective LAs and WLAs. Relying on Water Code section 13267, the Water Board will require the implementing parties to submit a monitoring plan for achieving these goals within one year of the TMDL effective date. Where possible, the implementing parties may collaboratively develop and implement a joint monitoring plan. Implementing parties shall provide monitoring data (e.g., FIB, MST, or other relevant data) to the Water Board to determine if their implementation actions have resulted in achieving their respective LAs or WLAs.

[6] Tier 4 of the OWTS Policy applies to systems that are in need of corrective actions; therefore, it applies to all the systems in Category 3 and those in Category 2 that are in need of corrective actions.

The CAF permittees are still required to comply with the monitoring requirements of the Water Board's CAF Order. However, ~~I~~in lieu of the TMDL FIB water quality monitoring, CAFs and grazing operations may demonstrate attainment of their LAs through sampling of other indicator parameters (e.g., ammonia) or by demonstrating they have implemented all required implementation measures for addressing bacteria discharges from their respective source categories and are in full compliance with their respective WDRs. However, if these entities are found to be noncompliant with their orders, the Water Board may also require them to develop and implement a water quality monitoring program as described above.

For the OWTS source category, the Water Board will track and use proof of required corrective actions taken by the property owners as evidence that they have achieved the LA. No additional water quality monitoring is required for this source category to demonstrate attainment of the LA.

The Water Board will collect water quality data to evaluate whether TMDL targets are attained throughout the Petaluma River watershed. Sampling will occur after significant implementation actions have been taken in the watershed. Specifically, it will collect data every five years, starting after the effective date of the TMDL. Sampling stations will be identified at a number of major tributaries and along the river's main stem at locations associated with particular sources and locations where previous water quality data were collected to identify water quality trends.

7.8.5.9 Agricultural Water Quality Control Program Costs

The implementation measures or grazing lands and dairies constitute an agricultural water quality control program and, therefore, consistent with California Water Code section 13141 requirements, the cost of the program is estimated herein. The total program implementation cost for this agricultural source category is estimated to range between $131,000 and $209, 000 per year over the next 10 years. The estimated cost will be shared by approximately 190 grazing lands operators within the Petaluma River watershed. This estimate includes the costs of implanting animal waste control and grazing management measures and is based on costs associated with technical assistance and evaluation, installation of water troughs, and cattle control fencing along streams. The program cost estimate may be high as it does not account for implementation measures that ranchers have already implemented. Further, besides fencing, other acceptable methods of managing livestock access to streams are not included in this cost estimate due to variability in costs and site-specific applicability. Potential financing sources to implement this program include federal and state water quality grants and federal agricultural grants such as those provided by the Nonpoint Source Implementation Grants (319 Program) and United States Department of Agriculture Natural Resources Conservation Service.

Table 7.8.5-3. Implementation Actions and Schedule for Ellis Creek Wastewater Treatment Plant			
Task No.	**Implementation Actions**	**Implementing Parties**	**Schedule**
1	Comply with the NPDES permit for wastewater discharge	City of Petaluma	Ongoing

NPDES National Pollutant Discharge Elimination System

Table 7.8.5-4. Implementation Actions and Schedule for Sanitary Sewer Collection Systems			
Task No.	**Implementation Actions**	**Implementing Parties**	**Schedule**
1	Comply with Statewide General Waste Discharge Requirements for sanitary sewer systems	City of Petaluma; Penngrove Sanitation Zone	Ongoing
2	Phase I-Submit an updated Sewer System Management Plan, acceptable to the Executive Officer, that prioritizes sewer system inspections and repairs in areas within 1000 feet of the river and its major[1] tributaries. Include a diagram of prioritized infrastructure, a time schedule for implementing short- and long-term actions, and, as necessary, a schedule for developing the funds needed for the capital improvement plan	City of Petaluma; Penngrove Sanitation Zone	Within one year of the effective date of the TMDL
3	Complete inspections and repairs identified in Phase I	City of Petaluma; Penngrove Sanitation Zone	Within five years of the effective date of the TMDL

Table 7.8.5-4. Implementation Actions and Schedule for Sanitary Sewer Collection Systems			
Task No.	**Implementation Actions**	**Implementing Parties**	**Schedule**
4	Phase II-If load allocations are not met, submit an updated Sewer System Management Plan, acceptable to the Executive Officer, that prioritizes sewer system inspections and repairs in areas within 2000 feet of the river and its major tributaries. Include a diagram of prioritized infrastructure, a time schedule for implementing short- and long-term actions, and, as necessary, a schedule for developing the funds needed for the capital improvement plan	City of Petaluma; Penngrove Sanitation Zone	Within six years of the effective date of the TMDL
5	Complete inspections and repairs identified in Phase II	City of Petaluma; Penngrove Sanitation Zone	Within 10 years of the effective date of the TMDL
6	Report results of implementation activities to the Water Board	City of Petaluma; Penngrove Sanitation Zone	Annually, beginning on the second year after the effective date of the TMDL

TMDL Total maximum daily load

1. "Major tributaries" are defined as any National Hydrography Dataset medium resolution (1:100,000 scale) mapped stream in the Petaluma River watershed.

Table 7.8.5-5. Implementation Actions and Schedule for Existing, New, And Replacement Onsite Wastewater Treatment Systems			
Task No.	**Implementation Actions**	**Implementing Parties**	**Schedule**
1	Comply with local codes and ordinances pertaining to OWTS	Owners and operators of Existing, New, and Replacement OWTS within the Advanced Protection Management Plan boundary	Upon effective date of the TMDL

Table 7.8.5-5. Implementation Actions and Schedule for Existing, New, And Replacement Onsite Wastewater Treatment Systems			
Task No.	**Implementation Actions**	**Implementing Parties**	**Schedule**
2	Maintain OWTS in good working condition, including inspecting the OWTS and pumping of solids as necessary, or as required by local ordinances, to maintain proper functioning and assure adequate wastewater treatment and disposal	Owners and operators of Existing, New, and Replacement OWTS within the Advanced Protection Management Plan boundary	Ongoing
3	Obtain the required basic operational inspection report and submit results and any other required information to the Water Board and local agency	Owners and operators of Existing, New, and Replacement OWTS within the Advanced Protection Management Plan boundary	Within ~~18 months~~ three years of the TMDL effective date, and every ~~five~~ ten years, thereafter
4	Notify the local agency if OWTS has pooling effluent, discharges wastewater to the ground surface, or has wastewater backed up into plumbing fixtures	Owners and operators of Existing, New, and Replacement OWTS within the Advanced Protection Management Plan boundary	Immediately upon discovery
5	Notify the local agency if OWTS septic tank has failed such that wastewater is leaking from the tank or groundwater is infiltrating the tank	Owners and operators of Existing, New, and Replacement OWTS within the Advanced Protection Management Plan boundary	Immediately upon discovery

Table 7.8.5-5. Implementation Actions and Schedule for Existing, New, And Replacement Onsite Wastewater Treatment Systems			
Task No.	**Implementation Actions**	**Implementing Parties**	**Schedule**
6	Obtain an appropriate local agency permit for the repair or replacement of an OWTS deemed by the Water Board or local agency to be in need of corrective action, and complete all appropriate OWTS repairs or replacement	Owners and operators of Existing, New, and Replacement OWTS within the Advanced Protection Management Plan boundary	Timeline to complete repairs or replacement will be specified by the local agency or the Water Board, at a duration not greater than ~~10~~12 years from the effective date of the TMDL
7	Comply with the OWTS Policy and any approved Local Agency Management Program	County of Sonoma; County of Marin	Ongoing
8	Provide all available records pertaining to OWTS located within the APMP boundary to the Water Board, including permitting, maintenance, complaint, or enforcement records	County of Sonoma; County of Marin	Within three months after the effective date of the TMDL
9	Consistent with the OWTS Policy requirements, incorporate the APMP requirements of this TMDL Implementation Plan into the Local Agency Management Program, including the APMP boundary. Include a map and list of included OWTS	County of Sonoma; County of Marin	Within one year of the effective date of the TMDL
10	If notified by the Water Board, OWTS owners, or any other entities of failing OWTS in Category 3 (in need of major repairs), initiate corrective action process as required by the local agency codes and regulations, use local enforcement authorities, if necessary	County of Sonoma; County of Marin	Ongoing

Table 7.8.5-5. Implementation Actions and Schedule for Existing, New, And Replacement Onsite Wastewater Treatment Systems			
Task No.	**Implementation Actions**	**Implementing Parties**	**Schedule**
11	Track and report the compliance status of identified failing systems and results of any/all other implementation activities to the Water Board	County of Sonoma; County of Marin	Quarterly, for Category 1 systems, on March 31, June 30, September 30, and December 31; and annually, for Category 2 systems, on February 1, beginning the year after the effective date of the TMDL

APMP Advanced protection management program
OWTS Onsite wastewater treatment systems
TMDL Total maximum daily load

Table 7.8.5-6. Implementation Actions and Schedule for Vessel Marinas			
Task No.	**Implementation Actions**	**Implementing Parties**	**Schedule**
1	Begin or boost “no dumping” education efforts to vessel owners	Marina owners or operators	Within six months of the effective date of the TMDL

Table 7.8.5-6. Implementation Actions and Schedule for Vessel Marinas			
Task No.	**Implementation Actions**	**Implementing Parties**	**Schedule**
2	Submit a plan and implementation schedule, acceptable to the Executive Officer, for: 1) Evaluating and ensuring adequacy and proper performance of sewage collection systems (sewage dump stations, sewage pumpout stations, sewer lines, etc.) for vessel marinas; and 2) Installing, as needed, an adequate number of sewage pumpout and dump stations. If no new sewage pumpout and dump stations are needed, provide justification as to why they are not needed	Marina owners or operators	Within one year of the effective date of the TMDL
3	Complete implementation of the above plan	Marina owners or operators	Within five years of the effective date of the TMDL
4	Report results of implementation activities to the Water Board	Marina owners or operators	Annually, beginning on the second year after the effective date of the TMDL

TMDL Total maximum daily load

Table 7.8.5-7. Implementation Actions and Schedule for Confined Animal Facilities			
Task No.	**Implementation Actions**	**Implementing Parties**	**Schedule**
1	Obtain coverage and comply with the Water Board's General Waste Discharge Requirements Order No. R2-2016-0031 for Confined Animal Facilities (CAF), as may be amended (CAF Order)	Owners or operators of CAFs	As soon as possible; Comply with Order requirements per timeline specified in the CAF Order

Table 7.8.5-7. Implementation Actions and Schedule for Confined Animal Facilities			
Task No.	**Implementation Actions**	**Implementing Parties**	**Schedule**
2	Implement BMPs and other actions specified in the CAF Order's ranch water quality control plan	Owners or operators of CAFs	According to schedule in the ranch water quality control plan and monitoring plans

CAF Confined animal facility
CAFs Confined animal facilities

Table 7.8.5-8. Implementation Actions and Schedule for Grazing Lands/ Operations			
Task No.	**Implementation Actions**	**Implementing Parties**	**Schedule**
1	Obtain coverage and comply with applicable general waste discharge requirements order (Grazing Order) or waiver thereof for grazing lands/operations in the Petaluma River watershed	Owners or operators of grazing lands/operations	Obtain coverage no later than 120 days from Grazing Order or waiver adoption by the Regional Water Board; Comply with Order or waiver requirements per timelines specified therein
2	Produce a ranch or other plan required by the Grazing Order or waiver	Owners or operators of grazing lands/operations	Per timeline specified in applicable Grazing Order or waiver
3	Implement BMPs and management actions specified in the ranch or other plan, if required	Owners or operators of grazing lands/operations	Per timeline specified in applicable Grazing Order or waiver

Table 7.8.5-9. Implementation Actions and Schedule for Municipal Stormwater Runoff			
Task No.	**Implementation Actions**	**Implementing Parties**	**Schedule**
1	Submit an Initial Report to the Water Board describing current actions being implemented to prevent or reduce discharges of bacteria to storm sewer systems. The report shall also include schedule, timeline, or frequency of implementation activities for all actions, as appropriate	City of Petaluma, County of Sonoma, County of Marin, City of Novato	Within three months of the effective date of the TMDL

2	**Category I Actions:**
	• Effectively prohibit and prevent potential illicit discharges into the storm sewer system from:
	  ○ Human waste from homeless encampments. Develop an effective approach based on the size of the homeless population; and
	  ○ Sanitary sewer collection system. Ensure at least 20% of the stormwater system is evaluated and addressed for illicit connections each year. If this work has already been performed under past permits, submit results of that evaluation, and corresponding repairs, in the Initial Report
	• Address potential pet waste discharges into the storm sewer system through the following actions:
	  ○ Develop and implement a visual inspection program to identify high pet waste accumulation areas and develop a cleanup plan for these areas, including specific actions before winter rains;
	  ○ Install new or additional dog waste cleanup signs, waste bag dispensers, and trash bins in high dog waste accumulation areas;
	  ○ Evaluate and improve the service frequency of dog waste bins, as needed; and
	  ○ Develop and implement a comprehensive pet waste public outreach and education campaign
		City of Petaluma, County of Sonoma, County of Marin, City of Novato	Within five years of the effective date of the TMDL

Table 7.8.5-9. Implementation Actions and Schedule for Municipal Stormwater Runoff			
Task No.	**Implementation Actions**	**Implementing Parties**	**Schedule**
3	**Category II Actions:** • If the implementation of the above Category I actions are insufficient to meet the wasteload allocations five years after the TMDL effective date, implement the actions listed below or justify why they are not appropriate: • Inspect existing or future local parks, dog parks, and outdoor pet kennel facilities to ensure compliance with applicable codes and ordinances, and take corrective or enforcement actions as needed • Divert runoff to the sanitary sewer system • Develop and implement a coordination and spill response plan to prevent sanitary sewer overflows from reaching the storm sewer system • Regulatory controls such as: o Develop and enforce pet or domestic animals waste disposal ordinances; o Better enforcement of existing litter ordinances; o Enforce ordinances for commercial, industrial, and multi-family garbage control, including requirements to cover trash enclosures; o Develop and enforce guidelines for portable toilets and recreational vehicle dumping	City of Petaluma, County of Sonoma, County of Marin, City of Novato	Within five years of the effective date of the TMDL
4	If wasteload allocations are not met, submit an enhanced plan, acceptable to the Executive Officer, describing actions being implemented and additional actions that will be implemented to reduce discharges of bacteria to the river and its tributaries. The plan shall include an implementation schedule and milestones for compliance.	City of Petaluma, County of Sonoma, County of Marin, City of Novato	Within six years of the effective date of the TMDL
5	Complete implementation of the enhanced stormwater actions	City of Petaluma, County of Sonoma, County of Marin, City of Novato	Within 10 years of the effective date of the TMDL

Table 7.8.5-9. Implementation Actions and Schedule for Municipal Stormwater Runoff			
Task No.	**Implementation Actions**	**Implementing Parties**	**Schedule**
6	Provide a report on the status of the implementation activities. The report shall cover all the actions implemented in the previous year as well as a listing, timeline, and discussion of the actions scheduled for implementation during the upcoming year	City of Petaluma, County of Sonoma, County of Marin, City of Novato	Annually, beginning on the second year after the effective date of the TMDL

BMPs Best management practices
TMDL Total maximum daily load

Table 7.8.5-10. Implementation Actions and Schedule for Homeless Encampments			
Task No.	**Implementation Actions**	**Implementing Parties**	**Schedule**
1	Submit a plan and schedule, acceptable to the Executive Officer, that includes appropriate measures to prevent human waste discharges into storm sewer systems from homeless encampments on City of Petaluma and Caltrans properties within the Petaluma River watershed	City of Petaluma; Caltrans	Within one year of the effective date of the TMDL
2	Implement the plan for addressing human waste discharges from the homeless encampment areas	City of Petaluma; Caltrans	Commence activities within 18 months of the effective date of the TMDL
3	Report results of implementation activities to the Water Board	City of Petaluma; Caltrans	Annually, beginning on the second year after the effective date of the TMDL

TMDL Total maximum daily load

Table 7.8.5-11. Implementation Actions and Schedule for Water Quality Monitoring			
Task No.	**Implementation Actions**	**Implementing Parties**	**Schedule**
1	Pursuant to the provisions of California Water Code Section 13225 or 13267, submit a representative bacteria water quality monitoring plan for the Petaluma River and its tributaries, acceptable to the Executive officer, to: 1) better characterize FIB contributions from respective sources/jurisdictions, 2) assess BMP effectiveness, and 3) assess progress towards attainment of respective load and wasteload allocations. To the extent possible, the implementing parties within each County (e.g., City of Petaluma and County of Sonoma; City of Novato and County of Marin) should collaborate on a single cooperative plan. The monitoring plan shall be designed to demonstrate implementing parties are not causing or contributing to the impairment of the river and its tributaries, and it shall be acceptable to the Executive Officer	City of Petaluma, County of Sonoma, City of Novato, County of Marin	Within one year of the effective date of the TMDL
2	Implement the water quality monitoring plan	City of Petaluma, County of Sonoma, City of Novato, County of Marin	Within two years of the effective date of the TMDL, and every other year, thereafter
~~2~~3	Submit a report on the status of all water quality monitoring activities Include an assessment of water quality monitoring data and any newly developed, enhanced, or implemented water quality monitoring actions	City of Petaluma, County of Sonoma, City of Novato, County of Marin	Every other year, starting one year after the commencement of the water quality monitoring program

BMP Best management practice

FIB Fecal indicator bacteria

TMDL Total maximum daily load