

Chapter 9

ADDRESSING TMDLs IN THE SWMP

I. Introduction

The City of Santa Cruz storm drain system (MS4) discharges into four water bodies that are currently on the 303(d) list of impaired water bodies which are:

- ◆ San Lorenzo River
- ◆ Carbonera Creek
- ◆ Branciforte Creek
- ◆ San Lorenzo River Lagoon

The Federal Clean Water Act requires the development of Total Maximum Daily Loads (TMDLs) and implementation plans to bring impaired water bodies back into compliance with water quality objectives. Two TMDLs have been developed for the San Lorenzo River and its tributaries Branciforte and Carbonera Creeks within the City of Santa Cruz. Pathogens or more specifically fecal indicator bacteria (FIB) and sediments are the two pollutants that have been identified. In addition, the San Lorenzo River Lagoon is included in the TMDL for pathogens.

San Lorenzo River Sediment TMDL and Implementation Plan

On May 16, 2003, the RWQCB Central Coast Region adopted a TMDL (Total Maximum Daily Load) for sediment for the San Lorenzo River, Carbonera Creek, Lompico Creek and Shingle Mill Creek and incorporated the TMDL and the associated *Implementation Plan for the San Lorenzo River Sediment TMDL* (Implementation Plan) into the Basin Plan. In 2006, the State Board added additional water bodies that were on the 303(d) as impaired by sediment. Of these additions, Branciforte Creek is located within the City. Thus, the water bodies within the City included in the implementation plan are the San Lorenzo River, Carbonera Creek, and Branciforte Creek.

The Implementation Plan describes “trackable” implementation actions to address sources of erosion and sedimentation. Sediment load to the San Lorenzo River and associated creeks is derived from non-point sources and point sources. As such, the TMDL Implementation Plan is structured to rely on a three-tiered framework for non-point source control of sediment and existing and anticipated regulatory programs for storm water discharges.

For agencies identified as “Responsible Dischargers” in the Implementation Plan, sediment discharges derived from storm water are regulated under the NPDES Phase II Storm Water general permit. The Implementation Plan identifies the Cities of Santa Cruz and Scotts Valley, the County of Santa Cruz, and the owners and operators of construction sites of one acre and

greater as “Responsible Dischargers.” The Implementation Plan also lists the three trackable Implementation Actions below for agencies identified as “Responsible Dischargers.” Therefore, the City has and will continue to take the following implementation actions within its jurisdiction:

- a) Develop and implement the SWMP and Storm Water Pollution Plans (SWPPPs) consistent with NPDES Phase II Storm Water regulations.
- b) Identify the San Lorenzo River Watershed as a priority for site inspection and enforcement of control measures in the SWMP and SWPPPs.
- c) Incorporate sediment control programs/projects into the SWMP.

In addition, the City has already begun implementing BMPs and other measures as part of the *Implementation Plan for the San Lorenzo River Sediment TMDL*. These measures are identified and described in the first San Lorenzo River Sediment TMDL Tri-Annual Report which was submitted to the RWQCB in February 2007. The report also included a progress evaluation. The Tri-Annual Report is included in Attachment #31.

TMDL for Pathogens (Fecal Indicator Bacteria)

A TMDL for Pathogens (Fecal Indicator Bacteria) has been adopted for the San Lorenzo River, San Lorenzo River Lagoon, Branciforte Creek, and Carbonera Creek. The City will review and develop additional BMPs as necessary to address the pertinent issues raised in the RWQCB Final Report *TMDLs For Pathogens in the San Lorenzo River Watershed Waters (including San Lorenzo River estuary, San Lorenzo River, Branciforte Creek, Camp Evers Creek, Carbonera Creek, and Lompico Creek) Santa Cruz, California*, dated December 5, 2007, within the City of Santa Cruz. The City is currently implementing measures and BMPs (already in the SWMP) to address some of these issues.

This report mentions that, in general, the sources of pathogens in the San Lorenzo River watershed include: sanitary sewer spills, leaking sewer laterals, pet wastes, natural sources such as birds and rodents, dumpster leachate, and humans (including homeless campsites and illegal RV dumping).

In addition, at the Water Quality Assessment meeting held by RWQCB staff in Santa Cruz on May 16, 2008, the issue of transients and homeless encampments as one of the sources of pathogens in the San Lorenzo River Watershed was raised. The City would like to acknowledge this issue and will continue to address it through a complexity of social, political, legal, and environmental factors.

As one can see, there are many sources of pathogens including natural sources and uncontrollable sources. While the goal of the TMDL and associated Implementation Plans is to reduce pollutant loading from each source to levels that will allow water quality objectives to be met, research conducted by Santa Cruz County and others suggest that the current water quality objectives for Fecal Indicator Bacteria (FIB) cannot be met in urban areas. Nevertheless, the

BMPs included in the SWMP have been developed to reduce controllable sources of FIB that are conveyed by the storm drain system to the maximum extent practicable.

One of the purposes of this chapter is to identify BMPs and other measures that the City is or will be implementing to address the sources identified in the TMDL implementation plans and supporting documents. These supporting documents include the *Assessment of Sources of Bacterial Contamination at Santa Cruz County Beaches (SCCHSA, 2006)* and the *San Lorenzo River Watershed Management Plan Update (SCCHSA, 2001)*. The background material used in the development of the TMDLs included source identification and prioritization; BMP identification and prioritization; monitoring program development; and coordination with stakeholders. This work, in combination with the ongoing monitoring and evaluation of implementation success will meet the objectives and serve as the functional equivalent of Wasteload Allocation Attainment Plans.

A goal of the SWMP is to implement BMPs throughout the management area in order to reduce, to the maximum extent practicable, controllable sources of pollutants for which TMDLs have been adopted that are associated with the storm drain system. In addition, a long term goal is to achieve waste load allocations, as feasible, in watersheds where TMDLs have been adopted.

The specific BMPs that will address each pollutant of concern and provide for TMDL implementation are listed in Table 9 below.

II. Pollutants of Concern and Target Audience

As mentioned above, the Regional Water Quality Control Board has adopted TMDLs for sediment and fecal indicator bacteria in water bodies within the City's jurisdiction. Thus, the primary pollutants of concern are the following:

- ◆ Sediment and silt
- ◆ Fecal Indicator Bacteria (pathogens)

The target audiences are the general public including residents, commercial and industrial businesses, developers, architects, engineers, builders, contractors, consultants, and City staff.

III. Best Management Practices and Other Measures

Best Management Practices (BMPs) will be implemented by the City to directly reduce the discharge of pollutants that have been addressed by RWQCB adopted TMDLs and Implementation Plans.

As specified in Chapters 1-8 of the SWMP, the City has selected the most appropriate Best Management Practices (BMPs) in order to reduce the pollutants of concern to the maximum extent practicable. These BMPs intend to address all of the controllable sources of sediment and

FIB and the implementation plans adopted by the RWQCB. The applicable BMPs from Chapters 1-8 are included in Table 9-1 below.

Implementation Plan for the San Lorenzo River Sediment TMDL

As mentioned above, the City has already implemented or is currently implementing other BMPs and measures as part of the *Implementation Plan for the San Lorenzo River Sediment TMDL*. These measures are identified and described in the Triennial San Lorenzo River Sediment TMDL report which was submitted in February 2007. As mentioned above, this report is included in Attachment #31.

Additional BMPs addressing TMDLs

Develop Additional BMPs and Measures in Conjunction With Each Applicable TMDL

Due to the compressed time frame for submittal of the SWMP, the City has not had sufficient time to adequately evaluate other BMPs or measures that might be implemented to address the TMDL issues. However, the City will develop additional BMPs as necessary in conjunction with each applicable TMDL. The additional BMPs to address TMDLs are included in Table 9-1 below.

TMDL for Sediment

As mentioned above, the City will develop additional BMPs to reduce the potential for sediments to be discharged into the San Lorenzo River watershed. For example, the City may increase the number/frequency of site inspections for construction projects along the San Lorenzo River and Branciforte Creek. To this end, the City will first need to establish criteria or a policy in order to determine which types of construction projects need additional inspections. For example, criteria to be considered would include:

- Types of construction work (i.e. clearing & grading vs. electrical work)
- Proximity to the San Lorenzo River and Branciforte Creek
- Project Size (acreage/square footage)
- Property sloped or flat
- Project time of year, i.e. wet season vs. dry season

BMP #TMDL-1: Develop Additional BMPs as Necessary in Conjunction with the TMDL For Sediment

TMDL for Pathogens (Fecal Indicator Bacteria)

The City will review and develop additional BMPs to address the pertinent issues raised in the RWQCB Final Report *TMDLs For Pathogens in the San Lorenzo River Watershed Waters (including San Lorenzo River estuary, San Lorenzo River, Branciforte Creek, Camp Evers Creek, Carbonera Creek, and Lompico Creek) Santa Cruz, California*, dated December 5, 2007, within the City of Santa Cruz. The City is currently implementing measures and BMPs (already in the SWMP) to address some of these issues.

The City will assess the sources of pathogens listed below, as mentioned in the Pathogens TMDL Final Report, and determine which need to be further addressed by the implementation of additional BMPs or other measures. The City will then develop and implement additional BMPs and/or improve current programs as appropriate. The sources are as follows:

- Sanitary sewer spills
- Leaking private sewer laterals
- Pet waste
- Dumpster leakage
- Homeless encampments
- Illegal Recreational Vehicle (RV) Dumping
- Natural sources, i.e. birds

At the Water Quality Assessment meeting held by RWQCB staff in Santa Cruz on May 16, 2008, the issue of transients and homeless encampments as one of the sources of pathogens in the San Lorenzo River Watershed was raised. The City would like to acknowledge this issue and will continue to address it through a complexity of social, political, legal, and environmental factors. In addition, please see Chapter 1: Municipal Operations for a description of the City's current Illegal Campsite Clean-up Program, which is listed as BMP # MO-16 in both Chapter 1 and in Table 9-1 below.

BMP #TMDL-2: Develop Additional BMPs as Necessary in Conjunction with the TMDL For Pathogens

Wasteload Allocation Attainment Program(s)

The City will develop, submit, and implement a Wasteload Allocation Attainment Program(s) (WAAP) to address controllable sources associated with the storm water system for each impairing pollutant/TMDLs within the City's jurisdiction. The WAAP(s) may be watershed-specific or jurisdiction-wide. The WAAP(s) will include the following components:

- An implementation and assessment strategy;
- Source identification and prioritization;
- BMP identification, prioritization, implementation (including schedule), analysis, and assessment;
- Monitoring program development and implementation (including schedule);
- Reporting and evaluation of progress towards achieving wasteload allocations;
- Coordination with stakeholders; and
- Other pertinent factors.

BMP #TMDL-3: Develop, Submit, and Implement a Wasteload Allocation Attainment Program(s) (WAAP) to Address Controllable Sources Associated with the Storm Water System for Each Impairing Pollutant/TMDLs within the City's Jurisdiction.

Table 9-1

**BMPS THAT WILL BE IMPLEMENTED TO DIRECTLY REDUCE THE DISCHARGE OF
POLLUTANTS THAT ARE ADDRESSED BY WATER BOARD ADOPTED TMDLS IN THE CITY'S
JURISDICTION**

Including Measurable Goals and Implementation Schedule

BMP #	BMPs	Measurable Goals	Responsible Dept. or Division	Implementation Schedule
	BMPs and Other Measures In SWMP Chapters 1-8			
	CHAPTER 1			
MO-1	Sweep City Streets By Mechanical Sweepers	Target=Sediment & Bacteria 1. Sweep primary streets in downtown and main beach areas twice per week 2. Sweep primary streets in other commercial areas once per week 3. Sweep 75% of residential streets twice per month 4. Sweep streets upon special request	Public Works Streets	Year 1-5
MO-3	Sweep Public Parking Lots and Parking Garages Regularly	Target=Sediment & Bacteria Clean lots w/a mechanical sweeper either 2x or 6x per week depending upon which location	Public Works: Streets	Year 1-5
MO-4	Inspection, Cleaning, and Repair of City Catch Basins and Inlets	Target=Sediment & Bacteria 1. Clean 90% of catch basins and inlets located	Public Works: Wastewater Mains	Year 1-5

BMP #	BMPs	Measurable Goals	Responsible Dept. or Division	Implementation Schedule
		in the Downtown, Beach Flats, and lower Ocean Street areas annually in the Fall 2. Clean and repair 100% of storm drains or catch basins identified as clogged or non-functional annually in the fall or as soon as possible 3. After large storm events during the wet season, inspect 90% of catch basins in the Downtown, Beach Flats, and lower Ocean Street areas and re-clean them as needed. 4) Inspect 50% of the catch basins in the outlying areas of the City annually and clean as needed		
MO-5	Inspection of Branciforte Storm Water Conveyance Channel and Trash Removal As Needed	Target=Sediment 1. Annual inspection 2. Removal of 100% of large trash and debris items.	Public Works: Wastewater Mains	Year 1-5
MO-6	Clean Pump Stations Along the San Lorenzo River	Target=Sediment & Bacteria Clean twice per year (Spring and Fall) Additional cleanings, if needed, during wet season after large storm events	Public Works: Wastewater Mains	Year 1-5
MO-8	Conduct Inspections of Storm Drain Lines	Target=Bacteria & Sediments TV or visual inspect the inside of an average of 1000 feet of pipeline each year over a 5 year period	Public Works: Engineering & Wastewater Mains	Year 1-5
MO-10	Replace or Rehabilitate Sanitary Sewer Main	Target=Bacteria	Public Works: Engineering &	Year 1-5

BMP #	BMPs	Measurable Goals	Responsible Dept. or Division	Implementation Schedule
	Lines	Replace or rehabilitate an average of 3,000 feet of sewer main pipeline per year over the 5 year permit period	Wastewater Mains	
MO-11	Development and Implementation of a Lateral Inspection Program	Target=Bacteria 1. Outline of Program Details 2. Implementation of Program	Public Works: Engineering Public Works: Wastewater Mains	1. Year 3 2. Year 5
MO-12	Repair and Rehabilitation of Minor Storm Drain Lines	Target=Bacteria & Sediment Repair or rehabilitate an average of 100 feet of pipeline per year over the 5 year permit period	Public Works: Engineering	Year 1-5
MO-13	CBI Grant #1: Dry Weather Diversion of Storm Water from SLR Pump Stations 1, 2, and 1A to the Wastewater Treatment Facility (WWTF)	Target=Bacteria Divert SLR pump station water to WWTF 90 days per year	Public Works: Engineering	Year 1-5
MO-14	CBI Grant #2: After CBI Grant Project Completion, Dry Weather Diversion of Storm Water from SLR Pump Stations 1B and 3 to the Wastewater Treatment Facility	Target=Bacteria Divert SLR pump station water diverted to WWTF 90 days per year once project work is completed	Public Works: Engineering	Start date TBD
MO-16	Implement Illegal Campsite Clean-Up Program In City Parks and Open Spaces	Target=Bacteria Cleanup of illegal campsites at the appropriate locations on an annual basis	Parks and Recreation	Year 1-5

BMP #	BMPs	Measurable Goals	Responsible Dept. or Division	Implementation Schedule
MO-22	City-wide Watershed Issues Team Meetings to Discuss Watershed Issues Re TMDLS and Other Related Topics	Target=Sediment & Bacteria Meet semi-annually or more as needed	Public Works Planning Water Parks and Recreation City Manager's Office	Year 1-5
	CHAPTER 2			
ID-2	Conduct Spill and Illegal Discharge Response	Target=Sediment & Bacteria Respond to 100% complaints and reports of illegal discharges	Public Works: Environmental Compliance Public Works: Wastewater Mains	Year 1-5
ID-6	Develop and Implement A Public Storm Water Hotline Number	Target=Sediment & Bacteria 1. Plan for hotline number 2. Hotline number operational	Public Works: Engineering Public Works: Wastewater Mains Public Works: Environmental Compliance Planning: Building	1. Year 3 2. Year 4
	CHAPTER 4			
PE-1	Replace Worn Stencils or Apply New Stencils to Storm Drain Inlets	Target=Sediment & Bacteria 24 stencils replaced or newly applied annually	Public Works: Engineering Public Works: Streets	Year 1-5
PE-10	Co-sponsor Coastal Clean-Up Day	Target=Sediment & Bacteria	Public Works: Engineering	Year 1-5

BMP #	BMPs	Measurable Goals	Responsible Dept. or Division	Implementation Schedule
		Sponsorship of the event in Santa County at the Platinum level		
PE-14	Develop and Implement an Education Program Addressing the Restoration and Protection of Riparian and Wetland Areas	Target=Sediment 1. Complete development of program plan 2. Implementation of educational measures, i.e. hold workshops, distribute brochures	Planning Public Works: Engineering	Year 4 Year 5
	CHAPTER 5			
CON-1	Planning/Building Inspectors Will Inspect All Construction Sites Requiring a Grading Permit. Inspections Will Also Be Conducted Prior to Well-Forecasted Rain Events at High Priority Construction Projects. Inspectors Will Also Inspect 50% or More of the Open Sites After Major Rain Events or Storms.	Target=Sediment 1. During the grading process, 100% of small sites will be inspected 2 times and 100% of large sites will be inspected 3 times 2. Inspect 100% of high priority sites prior to forecasted rain events 3. After major rain events, 50% or more of “open” sites will be inspected	Planning: Building	Year 1-5
CON-2	PW Staff Will Inspect Installation of Post-construction Treatment Systems and Storm Water Retention Devices at Development Sites	Target=Sediment Inspect systems and devices at 100% of development sites greater than or equal to one acre	Public Works: Engineering	Year 1-5

BMP #	BMPs	Measurable Goals	Responsible Dept. or Division	Implementation Schedule
	Greater Than or Equal to One Acre			
CON-7	Provide Training to Planning/Building Inspectors, Public Works Inspectors, and Planning and Public Works Plan Reviewers on Construction Site BMP Requirements	Target=Sediment 1. Train 100% of Planning/Building Inspectors, Public Works Inspectors, and Planning and Public Works Plan Reviewers every two years. 2. Train new Inspectors and Plan Reviewers within 3 months of the beginning of employment. 3. Additional training on new or changed BMPS as needed	Planning: Planning and Building Public Works: Engineering	Year 1-5
	CHAPTER 6			
PC-1	Develop a Strategy to Require Development Projects <i>Within Public Lands</i> to Establish and Maintain A Minimum of 30 Foot Buffer Zone for Wetlands	Target=Sediment Formalize and implement strategy	Planning Public Works	Year 3
PC-2	Revise Mandatory Storm Water BMPs/ Design Standards Brochure	Target=Sediment and Bacteria 1. Revision to require more effective BMPs to treat parking lot runoff 2. Revision to clarify that all development projects per General Permit Attachment 4 will be subject to structural or treatment control BMP requirements 3. A process for project applicants to follow to	Public Works	1. Year 2 2. Year 2 3. Year 2

BMP #	BMPs	Measurable Goals	Responsible Dept. or Division	Implementation Schedule
		identify structural or treatment control BMPs that will effective in removing a development project's pollutants of concern. 4. Revise in accordance with new Hydromodification Control Standards		
PC-3	Derive Municipality-Specific Criteria for Controlling Hydromodification in New and Redevelopment Projects Using Water Board-Approved Methodology Developed through the Joint Effort	Hydromodification Control Criteria	Public Works Planning	Joint Effort Q8
PC-4	Select Applicability Thresholds for applying Hydromodification Control Criteria to New and Redevelopment Projects. Applicability Thresholds will be Consistent with Long-Term Watershed Protection.	Applicability Thresholds	Public Works Planning	Joint Effort Q8
PC-5	Develop and Enact A Strategy for Implementing LID and Hydromodification Control for New and Redevelopment Projects.	Implementation Strategy for LID and Hydromodification Control: <i>Guidance</i> 1. Develop, advertise and make available LID BMP Design Guidance suitable for all stakeholders		<i>Guidance</i> 1. Joint Effort Q4 2. Joint Effort Q8

BMP #	BMPs	Measurable Goals	Responsible Dept. or Division	Implementation Schedule
PC-11	Distribute BMP Brochure for Development and Remodeling Projects	Target=Sediment Distribute to 100% of discretionary project applicants	Planning Public Works: Engineering	Year 1-5
PC-14	Provide Training to Appropriate Planning & Public Works Staff	Target=Sediment 1. Train 100% of appropriate staff every two years. 2. Train new Inspectors and Plan Reviewers within 3 months of the beginning of employment. 3. Additional training on new or changed BMPS as needed	Planning Public Works: Engineering	Year 1-5
	ADDITIONAL BMPS THAT THE CITY WILL IMPLEMENT			
TMDL-1	Develop Additional BMPs as Necessary in Conjunction With The TMDL For Sediment	Target=Sediment Additional BMPs and measures	Public Works: Engineering	Year 3
TMDL-2	Develop Additional BMPs as Necessary in Conjunction With The TMDL For Pathogens	Target= Bacteria Additional BMPs and measures	Public Works: Engineering	Year 3
	Wasteload Allocation			

BMP #	BMPs	Measurable Goals	Responsible Dept. or Division	Implementation Schedule
	Attainment Program(s)			
TMDL-3	Develop, Submit, and Implement a Wasteload Allocation Attainment Program(s) (WAAP) to Address Controllable Sources Associated with the Storm Water System for Each Impairing Pollutant/TMDLs within the City's Jurisdiction.	Target=Sediment & Bacteria 1. Develop and submit WAAP(s) 2. Implement WAAP(s)	Public Works: Engineering	1. Year 4 2. Year 5

IV. Program Documentation and Reporting

The City will maintain records to document program implementation and annual progress. The City will report the results of the program in the annual SWMP report to the Regional Water Quality Control Board. The report will include information and a summary of the progress made relative to the measurable goals.