

ANNUAL REPORT AND PROGRAM EFFECTIVENESS ASSESSMENT MATRIX

CITY OF SANTA CRUZ STORM WATER PROGRAM

Due October 15, 2019

| New BMP (✓)  | Permit Section | New or Existing BMP #  | BMPs   | MEASURABLE GOALS | DPT          | DIV.        | General Permit Sched. (Permit Year) | Level of Implementation (None, Partial, Full)   | BMP Implementation Information   | Effectiveness (Low, Med, High) | CASQA Outcome Level (1-6) | Target Priority Pollutant(s) | Evaluation Method | Proposed Modification | Report #4: Storm Water Programs Modification Sixth Year Report |                               |                                   |  |  |   |
|--|----------------|--|--|------------------|--------------|-------------|-------------------------------------|---|--|--------------------------------|---------------------------|------------------------------|-------------------|-----------------------|--|-------------------------------|-----------------------------------|--|--|---|
|  |                |  |  |                  |              |             |                                     |   |  |                                |                           |                              |                   |                       | 1.a.Improvements to Underperforming BMPs                       | 1. b. Continue Effective BMPs | 1.c. Discontinue Ineffective BMPs | 2. Priority Areas for Program Improvements | 3. Modifications to shift priorities for more effective use of resources | 4. Time Schedule, Scope, and Frequency of BMP modifications |
| E.15 TOTAL MAXIMUM DAILY LOADS COMPLIANCE REQUIREMENTS |                |  |  |                  |              |             |                                     |   |  |                                |                           |                              |                   |                       |  |                               |                                   |  |  |   |
| E.15   | TMDL 1         | Develop Additional BMPs as Necessary in Conjunction With The TMDL For Sediment   | Target=Sediment - Additional BMPs and measures                                 | Public Works     | Engineering  | N/A         | FULL                                | Completed SWMP Task. Per the RWQCB, the WAAP revisions were due June 30, 2015, which the City complied in a county-wide WAAP submittal prepared jointly by the the County of Santa Cruz and the cities of Santa Cruz, Capitola, Scotts Valley, and Watsonville. This year, the cities and County collaborated to update the joint WAAP. The City currently reviews Building Permit plans for erosion and sediment control BMPs including for small residential projects. Project applications are required to include erosion and sediment control BMPs, as appropriate, and related standard notes are required on plan sheets.Open construction sites are inspected multiple times, especially during the rainy season, by various City staff including Building Inspectors, Green Building staff, PW Inspectors and PW Storm Water Staff. The City will consider enhanced street sweeping in certain areas and/or whether to implement a "no parking" policy during scheduled street sweeping days/time. Additional BMPs will be developed and implemented as needed upon review of further analyses of long-term sediment monitoring results by the County.   | N/A  | 1                              | Sediment                  | N/A                          |                   | Continue              |  |                               |                                   |  |  |   |
| E.15   | TMDL 2         | Develop Additional BMPs as Necessary in Conjunction With The TMDL For Pathogens  | Target=Bacteria - Additional BMPs and measures                                 | Public Works     | Engineering  | N/A         | FULL                                | Completed SWMP Task. Per the RWQCB, the WAAP revisions were due June 30, 2015, which the City complied in a county-wide WAAP submittal prepared jointly by the County of Santa Cruz, and the cities of Santa Cruz, Capitola, Scotts Valley, and Watsonville. This year, the cities and County collaborated to update the joint WAAP. The City implemented and/or partnered on additional BMPs/programs to address the TMDL for pathogens and reduce bacterial loadings as described below. 1) Per BMP MO#11, Development and Implementation of a Lateral Inspection Program this year new amendments to the Sewer Use Ordinance were adopted by the City Council on July 16, 2018. Effective dates are follows: Laterals spill requirements is August 1, 2018; Inspection of private sewer collection system effective date is Jan 1, 2019; Lateral inspection on sale of house effective July 1, 2019. Since the Sewer Use Ordinance adoption date of Jul 16, 2018 the City's Public Works department has issued over 300 sewer permits to repair or replace inadequate sewer laterals located within the City limits. 2) Again this year, the City collaborated with the Coastal Watershed Council (CWC) to develop new BMPs and strategies to reduce controllable loadings to the San Lorenzo River and tributaries. The City and CWC partnered on a pet waste campaign to educate pet owners to pick up pet waste in order to reduce bacteria loadings to the river. 3) The City also partnered with CWC on a new Neighborhood Outreach and Cleanup Program to increase resident awareness on water quality issues including: trash littering, pet waste, and illegal dumping in areas adjacent to the SLR. This year CWC led four neighborhood cleanups. | N/A  | 1                              | Pathogens                 | N/A                          |                   | Continue              |  |                               |                                   |  |  |   |
| E.15   | 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. | Implement WAAPs for pathogens and sediment                                     | Public Works     | Engineering  | N/A         | FULL                                | Completed SWMP Task. As required, a WAAP for Pathogens was submitted to the CCRWQCB in 2012 and revised/ resubmitted in June 2013. Also, a WAAP for Sediment was submitted in June 2013. The City had its first consultation with RWQCB staff on effectiveness assessment and monitoring on May 27, 2014, and a subsequent telephone meeting, including a discussion on TMDL monitoring and a revised WAAP, on September 2, 2014. The City, along with the County of Santa Cruz, and the cities of Capitola, Scotts Valley, and Watsonville, prepared and submitted joint WAAP for both pathogens and sediment, including effectiveness assessment, to the RWQCB in June 30, 2015. This year, the cities and County collaborated to update the joint WAAP.  | N/A  | 1                              | Sediment, Pathogens       | N/A                          |                   | Continue              |  |                               |                                   |  |  |   |
| ✓  | E.15           | NEW BMP  | Comply with the effectiveness assessment schedule and process included in WAAP |                  | Public Works | Engineering | 1                                   | FULL  | The City, along with the County of Santa Cruz, and the cities of Capitola, Scotts Valley, and Watsonville, prepared and submitted a joint WAAP to the RWQCB in June 30, 2015. This joint WAAP served as a revision to the WAAPs previously submitted by the City. This year, the agencies again collaborated to update the joint WAAP. Also, the City continues to collaborate with the San Lorenzo River Alliance, led by the Coastal Watershed Council, to develop new BMPs, outreach campaigns and strategies to reduce controllable loadings to the San Lorenzo River and tributaries. | N/A                            | 1                         | Sediment, Pathogens          | N/A               |                       | Continue   |                               |                                   |  |  |   |

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|--|----------------|-----------------------|---|---|--------------|--|-------------------------------------|---|---|--------------------------------|---------------------------|------------------------------|---|--|--|-------------------------------|-----------------------------------|--|--|---|
|  |                |                       |   |   |              |  |                                     |   |   |                                |                           |                              |   |  | 1.a.Improvements to Underperforming BMPs                       | 1. b. Continue Effective BMPs | 1.c. Discontinue Ineffective BMPs | 2. Priority Areas for Program Improvements   | 3. Modifications to shift priorities for more effective use of resources | 4. Time Schedule, Scope, and Frequency of BMP modifications |
| BMPs per City of Santa Cruz WAAP for Pathogens (Showing only BMPs not already identified in previous sections) |                |                       |   |   |              |  |                                     |   |   |                                |                           |                              |   |  |  |                               |                                   |  |  |   |
| ✓  | E.11.f, E.15   | NEW BMP               | Develop procedures to prioritize storm drain system maintenance   |   | Public Works | Wastewater Collection/Flood Control              | 2                                   | FULL  | Staff prioritizes efforts to maintain and clean storm drains/catch basins in areas with direct impact to the ocean or the San Lorenzo River. Staff also reviews the areas during the previous year which needed attention and adds these areas to the priority list.  | N/A                            | 1                         | Sediment, Trash, Pathogens   | Documentation   |  | Continue   |                               |                                   |  |  |   |
| ✓  | E.11.g, E.15   | NEW BMP               | Begin maintenance of all high priority storm drains on an on-going schedule according to procedures & priorities developed per E.11.f |   | Public Works | Wastewater Collection/Flood Control              | 3                                   | FULL  | PW WW Collection/Flood Control Division prioritizes efforts to maintain and clean storm drains/catch basins in areas with direct impact to the ocean or the San Lorenzo River. Maintenance of the river pump stations is also considered a high priority. The Division's CMMS database provides an on-going maintenance schedule, provides notices when maintenance is due, and tracks completed maintenance & repairs. Staff also reviews the areas which needed attention during the previous year and adds these areas to the priority list. | High                           | 5                         | Sediment, Trash, Pathogens   | Land-use-load estimation (TELRL)                          |  | Continue   |                               |                                   |  |  |   |
|  | E.11.g, E.15   | MO-4                  | Inspection, Cleaning, and Repair of City Catch Basins and Inlets  | 1. Clean 90% of catch basins and inlets located in the Downtown, Beach Flats, and lower Ocean Street areas annually in the Fall                                       | Public Works | Wastewater Collection/Flood Control              | N/A                                 | FULL  | In FY2018-19, 90% of catch basins and inlets were cleaned in Downtown, B. Flats, and lower Ocean Street areas in Fall 2018. Almost all drainage from these areas goes to the San Lorenzo River pump stations. A total of 13.5 cubic yards of debris was collected from both catch basins and storm drain lines during the Fall cleaning. Wastewater Collection Division staff made extensive efforts to accomplish this.  | High                           | 5                         | Sediment, Trash              | Direct load measurement, land use load estimation (TELRL) |  | Continue   |                               |                                   |  |  |   |
|  |                |                       |   | 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                          | Public Works | Wastewater Collection/Flood Control              | N/A                                 | FULL  | In FY2018-19, 100% of clogged or non-functional storm drains and catch basins were cleaned and repaired citywide. Priority and response is placed on any report from the public for non-functioning or plugged drains.  | High                           | 4                         | Sediment, Trash              | Documentation   |  | Continue   |                               |                                   |  |  |   |
|  |                |                       |   | 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 | Public Works | Wastewater Collection/Flood Control              |                                     | FULL  | In FY2018-19, 100% of clogged or non-functional storm drains and catch basins were cleaned and repaired citywide. Priority and response is placed on any report from the public for non-functioning or plugged drains.  | High                           | 5                         | Sediment, Trash              | Direct load measurement, land use load estimation (TELRL) | Proposed Measurable Goal Modification: 3. After large storm events during the wet season, inspect 50-75% or more of catch basins in the Downtown, Beach Flats, and lower Ocean Street areas and re-clean them as needed and time allows depending upon severity of storm, flooding incidents, complaints, and staffing levels. | Continue, see #3 Modification                                  |                               |                                   | Proposed Measurable Goal Modification: 3. After large storm events during the wet season, inspect 50-75% or more of catch basins in the Downtown, Beach Flats, and lower Ocean Street areas and re-clean them as needed and time allows depending upon severity of storm, flooding incidents, complaints, and staffing levels. | Next permit year   |   |
|  |                |                       |   | 4. Inspect 50% of the catch basins in the outlying areas of the City annually and clean as needed   | Public Works | Wastewater Collection/Flood Control              |                                     | Partial                                       | There are over 1,400 catch basins in the City. As mentioned above, City efforts focused on the high priority areas including the Beach, Downtown, and lower Ocean Street areas. The Downtown and Ocean Street areas flow via the City storm drain system, to the San Lorenzo River. Thus, due to the focus on higher priority areas, approximately 20% of the catch basins in outlying areas were inspected and then cleaned if necessary.  | Medium                         | 5                         | Sediment, Trash              | Direct load measurement, land use load estimation (TELRL) | Proposed Measurable Goal Modification: Inspect the catch basins in the outlying areas of the City annually and clean as needed as time allows after the high priority areas catch basins, the river pump stations and any complaints are addressed. (modify so efforts address high priority areas first).                     | Continue, see #3 Modification                                  |                               |                                   | Proposed Measurable Goal Modification: Inspect the catch basins in the outlying areas of the City annually and clean as needed as time allows after the high priority areas catch basins, the river pump stations and any complaints are addressed. (modify so efforts address high priority areas first).                     | Next permit year   |   |
|  | E.15           | MO-6                  | Clean Pump Stations Along the San Lorenzo River   | Target=Sediment & Bacteria Clean Twice Per Year ( Spring & Fall) Additional cleanings if needed during wet season and after large storm events                        | Public Works | Wastewater Collection/Flood Control              | N/A                                 | FULL  | Fall cleaning was conducted on 9/19/18 and again as needed due to heavy winter storms. Spring cleaning was completed by 7/1/19, with all stations, including Neary Lagoon Pump Station, cleaned CMMS WO # 74042 with 14 yards of debris removed. Each station is inspected daily during wet weather and any floating trash is removed. Of the two seasonal cleaning events, spring cleaning of the pump stations is the most important due to debris from winter runoff/storms.   | High                           | 5                         | Sediment, Trash              | Direct load measurement, land use load estimation (TELRL) |  | Continue   |                               |                                   |  |  |   |
|  | E.15           | MO-8 (same as ID-4)   | 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 Collection/Flood Control |                                     | FULL  | During the permit year, approximately 20,713 feet of storm drain lines were cleaned by WW Collection/Flood Control staff. In addition, approximately 500 feet of pipeline on Darwin Street, 100 feet on Windham Street, 100 feet on Prospect Ct. and 50 feet in the Costco parking lot were video inspected. Another 1,000 feet of storm drain pipe in various locations was video inspected in FY17-18.  | N/A                            | 1                         | Sediment, pathogens, trash   | Documentation   |  | Continue   |                               |                                   |  |  |   |
|  | E.15           | MO-10                 | Replace or Rehabilitate Sanitary Sewer Main Lines   | Target=Bacteria & Sediments Replace or rehabilitate sewer main pipeline as needed each year   | Public Works | Engineering, Wastewater Mains                    |                                     | FULL  |   |                                | 4                         | Pathogens                    | Tabulation (# sewer overflows)                            |  |  |                               |                                   |  |  |   |

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|             |                |                       |  |  |              |  |                                     |   |  |                                |                           |                              |   |  | 1.a.Improvements to Underperforming BMPs                       | 1. b. Continue Effective BMPs | 1.c. Discontinue Ineffective BMPs | 2. Priority Areas for Program Improvements | 3. Modifications to shift priorities for more effective use of resources | 4. Time Schedule, Scope, and Frequency of BMP modifications  |
| E.15        | MO-10          | MO-10                 | Replace or Rehabilitate Sanitary Sewer Main Lines  | Target=Bacteria & Sediments<br>Replace or rehabilitate sewer main pipeline as needed each year | Public Works | Engineering, Wastewater Mains                    |                                     | FULL  | The City lined, with cured in place pipe, deteriorated sanitary sewer pipelines approximately 4,000 feet of 6 inch sewer pipeline on Dahlia, Linden, Blackburn and Santa Cruz Streets. City also replaced 400 feet of 6 inch pipe on Chestnut Street and 500 feet of 8 inch on Chestnut/Elm Streets.   |                                | 4                         | Pathogens                    | Tabulation (# sewer overflows)                      |  | Continue   |                               |                                   |  |  |  |
| E.15        | MO-11          | MO-11                 | Development and Implementation of a Lateral Inspection Program   | Implementation of Program starting 2016  | Public Works | Engineering                                      | 3                                   | Partial                                       | New amendments to the Sewer Use Ordinance were adopted by the City Council on July 16, 2018. Effective dates are follows: Laterals spill requirements is August 1, 2018; Inspection of private sewer collection system effective date is Jan 1, 2019; Lateral inspection on sale of house effective July 1, 2019. Below is a brief description for each:<br><ul style="list-style-type: none"> <li>The owner of a property with a sewer spill is responsible for stopping the spill immediately and will be subject to fines and penalties if inspections and repairs are not completed within 14 days.</li> <li>Prior to the sale of a property, the property owner must have the sewer lateral inspected by an authorized inspector, make any needed repairs, and submit an inspection form to verify compliance. The property is exempted from inspection for newer laterals or laterals that have passed inspection within the past five years.</li> <li>Private sanitary sewer collection systems and pumps (at apartment buildings, homeowner associations and businesses) must pass inspection every 10 years. Their pipelines must be cleaned every two to five years depending on size. Privately-owned pump stations must pass inspection every one to five years depending on size. The City also has initiated a sewer lateral rebate program providing up to \$1,400 to customers that replace their laterals.</li> </ul> | N/A                            | 4                         | Pathogens                    | Tabulation (# lateral repairs, # lateral overflows) | Effective dates are follows: Laterals spill requirements is August 1, 2018; Inspection of private sewer collection system effective date is Jan 1, 2019; Lateral inspection on sale of house effective July 1, 2019. |  | Continue                      |                                   |  |  | Effective dates are follows: Laterals spill requirements is August 1, 2018; Inspection of private sewer collection system effective date is Jan 1, 2019; Lateral inspection on sale of house effective July 1, 2019. |
| E.15        | MO-13          | 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) | Divert the SLR pump station water to the WWTF during the dry season until the SLR shoals       | Public Works | Engineering, Wastewater Collection/Flood Control | Year 1-5                            | FULL  | During the dry season, water is diverted to the treatment plant until the River shoals, which is typically by August 1st. Water accumulates daily in the pump stations and is pumped out weekly to the treatment plant after testing. Total gallons diverted per pump station from June 30, 2018 to June 30, 2019: 4 pump stations reporting Pump Station 1, Pump Station 2, Pump Station 1A and Pump Station 1B for a total of 990,528 gallons<br>*Diversion not possible once river shoals. The diversion work (re equipment & piping) was completed at Pump Station # 1B by January 2008 and at Pump Station # 3 on May 27, 2008. Summer diversion stations are tested by City Environmental Compliance Division and must meet WWTF requirements prior to discharge into sanitary sewer. All summer diversion pumps are run until the wet well is dry. None of the main pumps are operated during dry weather unless river mouth closes and pumps are needed to relieve ground pressure.  | High                           | 4                         | Sediment, pathogens, trash   | Direct load /volume measurement                     |  | Continue   |                               |                                   |  |  |  |
| E.15        | MO-14          | MO-14                 | CBI Grant #2: After CBI Grant Project Completion, Dry Weather Diversion of Storm Water from SLR Pump Stations 1B & 3 to the WWTF   | Divert the SLR pump station water to the WWTF during the dry season until the SLR shoals       | Public Works | Engineering, Wastewater Collection/Flood Control | Year 1-5                            | FULL  | During the dry season, water is diverted to the treatment plant until the River shoals, which is typically by August 1st. Water accumulates daily in the pump stations and is pumped out weekly to the treatment plant after testing. Total gallons diverted per pump station from June 30, 2018 to June 30, 2019: 4 pump stations reporting Pump Station 1, Pump Station 2, Pump Station 1A and Pump Station 1B for a total of 990,528 gallons<br>*Diversion not possible once river shoals. The diversion work (re equipment & piping) was completed at Pump Station # 1B by January 2008 and at Pump Station # 3 on May 27, 2008. Summer diversion stations are tested by City Environmental Compliance Division and must meet WWTF requirements prior to discharge into sanitary sewer. All summer diversion pumps are run until the wet well is dry. None of the main pumps are operated during dry weather unless river mouth closes and pumps are needed to relieve ground pressure.  | High                           | 4                         | Sediment, pathogens, trash   | Direct load /volume measurement                     |  | Continue   |                               |                                   |  |  |  |
| E.15        | MO-16          | MO-16                 | Implement Illegal Campsite Clean-Up Program In City Parks and Open Spaces  | Cleanup of illegal campsites at the appropriate locations on an annual basis                   | Public Works | Parks-Rangers                                    | Year 1-5                            | FULL  | Illegal campsite cleanup is ongoing and conducted routinely. The City devotes considerable effort, staff time, and budget to this in order to protect waterways, riparian habitats, open spaces, and preserves. The general cleanup locations for the Parks and Recreation Rangers are the 5 City Open Spaces as follows: Pogonip, Neary Lagoon, DeLaveaga Park, Arana Gulch and Moore Creek Preserve. This permit year, there were a total of 314 illegal campsite contacts with the majority of them resulting in some level cleanup by City staff. Of the 314, approximately 112 campsites were near or adjacent to the San Lorenzo River. In addition, there were approximately 138 more campsites near or adjacent to other waterways in the City Open Spaces. Throughout the year, Parks and Recreation staff conducts additional "major" cleanups in these Open Spaces on an as needed bases. In fiscal year 2018-2019, there was a concerted effort targeting the cleanup of illegal camps near or adjacent to all City waterways.   | Not assessed                   | 4                         | Pathogens, trash             | Direct trash load measurement                       |  | Continue   |                               |                                   |  |  |  |

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|             |                     |                       |   |  |              |                          |                                     |   |   |                                |                           |                              |                               |                       | 1.a.Improvements to Underperforming BMPs                       | 1. b. Continue Effective BMPs | 1.c. Discontinue Ineffective BMPs | 2. Priority Areas for Program Improvements | 3. Modifications to shift priorities for more effective use of resources | 4. Time Schedule, Scope, and Frequency of BMP modifications |
|             | E.9.d, E.15         | ID-2                  | Conduct Spill and Illegal Discharge Response                      | Target-Sediment & Bacteria Respond to 100% complaints and reports of illegal discharges  | Public Works | Environmental Compliance | Year 1-5                            | FULL  | In the permit year, the Environmental Compliance Program responded to approximately 63 private lateral sewer discharges, 16 general storm water violations, 2 storm water violations from restaurants, 3 violation from a construction site, 1 violation from a septic hauler, 1 violation from a vehicle service facility and 13 violations from RVs where a hanger was deployed. In addition, there were 12 sanitary sewer overflows responded to by Wastewater Collection/Flood Control. All issues were resolved.   | High                           | 4                         | Trash, Pathogens             | Inspection                    |                       | Continue   |                               |                                   |  |  |   |
|             | E.7.a, E.11.g, E.15 | PE-1                  | Replace Worn Stencils or Apply New Stencils to Storm Drain Inlets | 24 stencils replaced or newly applied annually   | Public Works | Engineering              | 2                                   | FULL  | Again this year, the City funded Save Our Shores (SOS) to assess storm drain catch basins and apply new "No Dumping" markers to unmarked catch basins or those with worn stencils. In total, SOS applied markers to 83 catch basins and checked 122 drain inlets.   | Medium                         | 2                         | Trash                        | Public Awareness Survey       |                       |  |                               |                                   |  |  |   |
|             | E.8.c, E.15         | Added BMP             | Sponsor river and/or creek cleanups                               | Programs e.g.: Adopt-A-Levee (in partnership with Save Our Shores), River & Creek Cleanups (Save Our Shores)   | Public Works | Engineering              | Year 1-5                            | FULL  | This year, the City continued funding or contributed support for several river levee volunteer cleanup programs as follows: 1) San Lorenzo River Adopt-A-Levee Program-this is a volunteer group river levee cleanup program funded by the City and implemented by Save Our Shores. Each adopting group is asked to commit to doing 2 or more cleanups per year. This year, there were 3 AAL groups. These 3 groups conducted 7 cleanups with a combined total of more than 79 volunteers who removed 448 pounds of trash and 98 pounds of recycling from the SLR levee. 2) San Lorenzo River Community Volunteer River cleanups-this is a citizen volunteer river levee cleanup program funded by the City and implemented by Save Our Shores. This year, there were four seasonal river cleanups with a combined total of 50 volunteers who removed 773 pounds of trash and 60 pounds of recycling. The City also provides funding support for Annual Coastal Cleanup Day which includes several river levee sites.   | High                           | 4                         | Pathogens, trash             | Direct trash load measurement |                       | Continue   |                               |                                   |  |  |   |
|             | E.13.b, E.15        | Added BMP             | Bacteria Monitoring Pilot Program                                 | Bacteria monitoring in San Lorenzo River, Branciforte Creek, and Carbonera Creek, per specs in WAAP  | Public Works | Environmental Compliance |                                     | FULL  | The City continues to conduct a monitoring program for bacteria in the San Lorenzo River, Branciforte Creek, and Carbonera Creek re the TMDL for Pathogens. Sampling is done by Environmental Compliance staff & analyzed by the City Environmental Laboratory. Please see attached monitoring report for details on the monitoring program and sampling results. As reported last year, the City developed better quality analytical data that enable us to identify probable control points for bacteria associated with anthropogenic signatures within City limits. These signatures include: caffeine; molecular markers of Bacteroides (HF183 and/or HumM2) associated with high levels of fecal indicator bacteria. Preliminary analyses show promise that the TMDL goals are feasible if these analytical strategies are applied throughout the course of the river. In addition, the City is an active partner in the SLRA Working Group efforts coordinated by Coastal Watershed Council (CWC).   | N/A                            | 6                         | N/A                          | N/A                           |                       | Continue   |                               |                                   |  |  |   |
| ✓           | E.13.b, E.15        | NEW BMP               | TMDL Monitoring   | Comply with the monitoring requirements included in WAAP and/or consult w/ RWQCB to determine monitoring study design and monitoring implementation schedule | PW           | Environmental Compliance |                                     | FULL  | The City conducts a monitoring program for bacteria in the San Lorenzo River, Branciforte Creek, and Carbonera Creek re the TMDL for Pathogens. The program is associated with a comprehensive data driven effort to identify controllable sources of bacteria in the river while the bacteria levels remain higher than the REC-1 limits. The additional analytical work done with the bacteria sampling include molecular markers of Bacteroides bacteria-HF183 and HumM2- derived from human enteric sources; caffeine and where appropriate, fecal sterol ratios. All sampling is done by Environmental Compliance staff & analyses by scientists at the City Environmental Laboratory. Please see attached monitoring report for monitoring program details and sampling results. In addition, the City contributed funding to the San Lorenzo River Alliance (SLRA) Water Quality Working Group monitoring study, in previous years, for bacteria in the San Lorenzo River. The City is an active partner in the SLRA Working Group efforts led by Coastal Watershed Council (CWC). The City has since developed better quality data that enable us to identify probable control points for bacteria associated with anthropomorphic signatures within City limits. These signatures include: caffeine; molecular markers (HF183 and/or HumM2) associated with high levels of fecal indicator bacteria. Results tracked in db and on spreadsheet. | N/A                            | 6                         | N/A                          | N/A                           |                       | Continue   |                               |                                   |  |  |   |

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|  |                |                       |   |  |              |                      |                                     |   |   |                                |                           |                              |   |                       | 1.a.Improvements to Underperforming BMPs                       | 1. b. Continue Effective BMPs | 1.c. Discontinue Ineffective BMPs | 2. Priority Areas for Program Improvements | 3. Modifications to shift priorities for more effective use of resources | 4. Time Schedule, Scope, and Frequency of BMP modifications |
| <b>BMPs per City of Santa Cruz WAAP for Sediment</b> |                |                       |   |  |              |                      |                                     |   |   |                                |                           |                              |   |                       |  |                               |                                   |  |  |   |
|  | E.11, E.15     | MO-1                  | Sweep City Streets By Mechanical Sweepers   | 1. Sweep primary streets in downtown & main beach areas once to twice per week                                       | Public Works | Streets              | Year 1-5                            | FULL  | All sweeping requirements (#1-4) to meet our minimum goals equal 773 curb miles per month. In July 2018 through June 2019, a total of 12,254 curb miles were swept (or an average of 1021 curb miles swept per month) Total tonnage collected was 607 tons or an average of 65 tons per month. There are 40 curb miles of commercial streets including downtown, Soquel Ave, Mission & Beach area. This commercial area is our first priority and the minimum goal is to sweep twice each week or 320 miles per month. This year we exceeded our goal.  | High                           | 5                         | Sediment, trash              | Direct load measurement, land use load estimation (TELRL) |                       | Continue   |                               |                                   |  |  |   |
|  |                |                       |   | 2. Sweep primary streets in other commercial areas weekly to twice per month   | Public Works | Refuse               | Year 1-5                            | FULL  | All sweeping requirements (#1-4) to meet our minimum goals equal 773 curb miles per month. In July 2018 through June 2019, a total of 12,254 curb miles were swept (or an average of 1021 curb miles swept per month) Total tonnage collected was 607 tons or an average of 65 tons per month. There are 40 curb miles of commercial streets including downtown, Soquel Ave, Mission & Beach area. This commercial area is our first priority and the minimum goal is to sweep twice each week or 320 miles per month. This year we exceeded our goal.  | High                           | 5                         | Sediment, trash              | Direct load measurement, land use load estimation (TELRL) |                       | Continue   |                               |                                   |  |  |   |
|  |                |                       |   | 3. Sweep 75% of residential streets once to twice per month  | Public Works | Refuse               | Year 1-5                            | FULL  | All sweeping requirements (#1-4) to meet our minimum goals equal 773 curb miles per month. In July 2018 through June 2019, a total of 12,254 curb miles were swept (or an average of 1021 curb miles swept per month) Total tonnage collected was 607 tons or an average of 65 tons per month. Residential streets are swept twice per month or more frequently upon request or based on necessity. This year we exceeded our goal.   | High                           | 5                         | Sediment, trash              | Direct load measurement, land use load estimation (TELRL) |                       | Continue   |                               |                                   |  |  |   |
|  | E.11, E.15     | MO-3                  | Sweep Public Parking Lots and Parking Garages Regularly   | Target-Sediment & Bacteria. Clean lots w/a mechanical sweeper 2 or more times per week depending upon which location | Public Works | Traffic/Parking Prog | Year 1-5                            | FULL  | PW staff cleans 25 municipal parking lots 6x per week w/a mechanical sweeper. This includes four parking garages with 14 levels total. This permit year, over 1,872 yards of debris were collected.   | High                           | 5                         | Sediment, trash              | Direct load measurement, land use load estimation (TELRL) |                       | Continue   |                               |                                   |  |  |   |
| ✓  | E.10.a         | NEW BMP               | Maintain an inventory of all projects subject to the local construction site SW runoff control ordinance, incl. location of project with respect to waterbodies, threat to WQ, construction phase, required inspection frequency, date of erosion control plan approval |  | Public Works | Engineering          | 1                                   | FULL  | The City inventories all new discretionary approval applications and ministerial permits via its TRAKIT online database. TRAKIT keeps record of the permit type, location, application status, inspections, and LID requirements. All new permit applications that trigger a grading or building permit are subject to stormwater runoff control requirements. TRAKIT is queried to develop a report of all new permit applications subject to stormwater runoff control and the results are categorized by project type (commercial or residential), status (applied, approved, permit issued, finalized), and whether LID is required. The results are mapped using GIS to identify projects located within TMDL watersheds. Commercial/multifamily projects that create or replace over 5,000 sf of impervious surface are considered higher potential threat and are further tracked in an excel spreadsheet maintained by the PW Department - those projects are inspected by both Building and PW to ensure compliance with storm water BMPs. The PW tracking spreadsheet includes additional information, including: project area, SWPPP threat level as applicable, if it is adjacent to a creek, if it is in a TMDL watershed, project description and status, and PW inspections. | N/A                            | 1                         | Sediment                     | Documentation   | N/A                   | Continue   |                               |                                   |  |  |   |
| ✓  | E.10.b         | NEW BMP               | Develop/revise procedures to review and approve relevant construction plan documents.   | Require operator of construction activity to prepare and submit erosion and sediment control plan for review.        | PW, Planning | Engineering          | 1                                   | FULL  | Projects that increase the square footage of a building (including single-family dwellings) are required to meet CalGreen requirements, including providing an erosion and sediment control plan for review. Projects that do not include a building but disturb over 50 cy of soil are required to obtain a grading permit. The City revised Chapter 18.45, Excavation and Grading Regulations, of the Municipal Code to require that all projects subject to the grading permit provide a site plan showing the general vicinity of the proposed project, dimensions of grading cut and fill, the location of surrounding buildings or structures, and the location of construction Best Management Practices (BMP's) as required by the City's mandatory Storm Water BMP manual. The ordinance revision was approved by City Council on July 22, 2014 and published August 22, 2014.   | Not assessed                   | 2                         | Sediment                     | Documentation   | N/A                   | Continue   |                               |                                   |  |  |   |
|  |                |                       |   | Require rationale for BMPs used  | PW, Planning | Engineering          | 1                                   | FULL  | Additionally, Public Works revised the mandatory BMPs for Construction Projects to incorporate minimum requirements for the preparation of Erosion Control Plans, published on June 30, 2014. All construction projects that trigger a grading or building permit are required to abide by the mandatory construction BMPs.   | Not assessed                   | 3                         | Sediment                     | Documentation   | N/A                   | Continue   |                               |                                   |  |  |   |

ANNUAL REPORT AND PROGRAM EFFECTIVENESS ASSESSMENT MATRIX

CITY OF SANTA CRUZ STORM WATER PROGRAM

Due October 15, 2019

| New BMP (✓) | Permit Section | New or Existing BMP # | BMPs   | MEASURABLE GOALS   | DPT          | DIV.        | General Permit Sched. (Permit Year) | Level of Implementation (None, Partial, Full) | BMP Implementation Information   | Effectiveness (Low, Med, High) | CASQA Outcome Level (1-6) | Target Priority Pollutant(s) | Evaluation Method   | Proposed Modification | Report #4: Storm Water Programs Modification Sixth Year Report |                               |                                   |  |  |   |
|-------------|----------------|-----------------------|--|--|--------------|-------------|-------------------------------------|---|--|--------------------------------|---------------------------|------------------------------|---|-----------------------|--|-------------------------------|-----------------------------------|--|--|---|
|             |                |                       |  |  |              |             |                                     |   |  |                                |                           |                              |   |                       | 1.a.Improvements to Underperforming BMPs                       | 1. b. Continue Effective BMPs | 1.c. Discontinue Ineffective BMPs | 2. Priority Areas for Program Improvements | 3. Modifications to shift priorities for more effective use of resources | 4. Time Schedule, Scope, and Frequency of BMP modifications |
|             |                |                       |  | Require that erosion/sed control plan list applicable permits associated w/ grading activity (CGP, 401, 404, 1600 agreement)   | PW, Planning | Engineering | 1                                   | FULL  | All proposed projects that trigger a grading or building permit must abide by the mandatory construction BMPs published by Public Works and updated in June 2014. The BMPs include guidance on information that shall be included in erosion control plans. At a minimum, erosion control plans must include: site topography, nearby watercourses, proposed grading contours, location of utilities, location of proposed erosion control measures, location of proposed sediment control measures, location of construction waste control measures, stockpile and equipment staging areas, total area of disturbance, and a list of other required permits associated with grading such as State Construction General Permit, U.S. Army Corps of Engineers 404 permit, State Water Board 401 Water Quality Certification, California Department of Fish and Wildlife 1600 Agreement, as applicable.  | N/A                            | 1                         | N/A                          | Documentation   | N/A                   |  | Continue                      |                                   |  |  |   |
|             |                |                       |  | Document review using a checklist  | PW, Planning | Engineering | 1                                   | FULL  | The Public Works Department created a checklist, based on the revised construction BMPs, for review of erosion control plans for projects that create or replace over 5,000 sf of impervious surface area. Staff also requested that the third party QSD consultants reviewing ECPs use the checklist for project review. In addition, many checklist items have been incorporated into standard review notes/comments and also the spreadsheet used to track all development projects. Lastly, this permit year, one of the City's third party QSD consulting firms created a plan application guidance checklist for development project applicas and use by PW staff. The Green Building Program in the Building Department has its own Green Building Checklist it uses to document review of project plans.   | Not assessed                   | 2                         | Sediment                     | Documentation   | N/A                   |  | Continue                      |                                   |  |  |   |
|             |                |                       |  | SWPPP may substitute for erosion control plan where a SWPPP is developed   | PW, Planning | Engineering | 1                                   | FULL  | Typically, projects that are required to create a SWPPP first submit an erosion control plan for plan review purposes and then develop the SWPPP once most plan approvals are received. Once the project is approved, Public Works coordinates with the QSP to conduct a pre-construction meeting to go over the SWPPP, erosion control measures, and inspections.   | N/A                            | 1                         | Sediment                     | Documentation   | N/A                   |  | Continue                      |                                   |  |  |   |
| ✓           | E.10.c         | NEW BMP               | Use legal authority to implement procedures for inspecting public and private construction projects and conduct enforcement if necessary.  |  | Planning     | Building    | 1                                   | FULL  | Building Staff conducts BMP inspections at residential & commercial sites per CalGreen reqmnts. This year, there were 107 Green Building (GB) final inspections done plus miscellaneous GB inspections. Building staff also conducts inspections at active construction sites prior to major rain events and at 50% or more sites after rain events. During the permit year, 3 large sites were visited at least 10 times by Building Inspectors and Public Work staff due to a BMP failure ( 2 NOV Letters issued by Env. Comp.) and 84 (logged) BMP inspections were conducted at open sites. Building Code Enforcement also follows up on construction work without the required permit(s). PW storm water staff provides additional oversight and inspects medium and large commercial projects before, after, and/or during rain events. Follow-up inspections are conducted at sites with compliance issue. PW conducts a final inspection to ensure that all disturbed areas are stabilized. PW Storm Water and Env. Compliance staff also respond to complaints, and may issue verbal or written warnings or Notices of Violation (NOV). This year, two high priority sites were issued NOV letter by Env. Compliance. The RWQCB also issued a NOV to one high priority site. The NOV sites took prompt action and corrected their issues, and the other sites given verbal or email warnings were promptly brought into compliance. There were no stop work orders issued this year as verbal, email and written warnings were effective at prompting sites to correct issues in a timely manner. Regular inspections by multiple City staff were effective at prompting sites to maintain compliance with erosion control & construction BMP requirements. | Medium                         | 3                         | Sediment                     | Inspection (# sites fully implementing BMPs at 1st visit, 2nd visit, 3rd visit, add'l visits, observation of sediment leaving site) |                       | Continue   |                               |                                   |  |  |   |
|             | E.10.c.        | 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. | 1. During the grading process, 100% of small sites will be inspected 2 times and 100% of large sites will be inspected 3 times (Small sites are defined as generally less than 1/2 acre. Large sites are greater than 1/2 acre.) | Planning     | Building    | 1                                   | FULL  | This permit year, all small and large sites were inspected as required. Inspections were done prior to and also after rain events. In total, there were 51 Building permits for residential ADUs, 12 single family homes and 11 garages. There were numerous types of Building permits for commercial projects including 5 for multi-residential and 5 for amuse/rec. Public Work Storm Water staff inspected all sites that triggered special grading/erosion control inspections. In addition, there was 1 Grading Permit issued for a commercial site. Sites are inspected multiple times particularly if they are medium to large sites, or adjacent to sensitive waterbodies, or need followup after a detected problem or complaint. This permit year, 3 sites received a written warning letter from Public Works. Results indicate that regular inspections are critical to reminding sites to maintain compliance with erosion control BMP requirements.  | Medium                         | 3                         | Sediment                     | Inspection (# sites fully implementing BMPs at 1st visit, 2nd visit, 3rd visit, add'l visits)                                       |                       | Continue   |                               |                                   |  |  |   |

ANNUAL REPORT AND PROGRAM EFFECTIVENESS ASSESSMENT MATRIX

CITY OF SANTA CRUZ STORM WATER PROGRAM

Due October 15, 2019

| New BMP (✓)  | Permit Section | New or Existing BMP # | BMPs   | MEASURABLE GOALS  | DPT                    | DIV.        | General Permit Sched. (Permit Year) | Level of Implementation (None, Partial, Full) | BMP Implementation Information  | Effectiveness (Low, Med, High) | CASQA Outcome Level (1-6) | Target Priority Pollutant(s) | Evaluation Method   | Proposed Modification | Report #4: Storm Water Programs Modification Sixth Year Report |                               |                                   |  |  |   |
|--------------|----------------|-----------------------|--|---|------------------------|-------------|-------------------------------------|---|---|--------------------------------|---------------------------|------------------------------|---|-----------------------|--|-------------------------------|-----------------------------------|--|--|---|
|              |                |                       |  |   |                        |             |                                     |   |   |                                |                           |                              |   |                       | 1.a.Improvements to Underperforming BMPs                       | 1. b. Continue Effective BMPs | 1.c. Discontinue Ineffective BMPs | 2. Priority Areas for Program Improvements | 3. Modifications to shift priorities for more effective use of resources | 4. Time Schedule, Scope, and Frequency of BMP modifications |
|              |                |                       |  | 2. Inspect 100% of high priority sites prior to forecasted rain events  | Planning               | Building    | 1                                   | FULL  | This permit year, all small and large sites were inspected as required. Inspections were done prior to and also after rain events. In total, there were 51 Building permits for residential ADUs, 12 single family homes and 11 garages. There were numerous types of Building permits for commercial projects including 5 for multi-residential and 5 for amuse/rec. Public Works Storm Water staff inspected all sites that triggered special grading/erosion control inspections. In addition, there was 1 Grading Permit issued for a commercial site. Sites are inspected multiple times particularly if they are medium to large sites, or adjacent to sensitive waterbodies, or need followup after a detected problem or complaint. This permit year, 3 sites received a written warning letter from Public Works. Results indicate that regular inspections are critical to reminding sites to maintain compliance with erosion control BMP requirements.  | Medium                         | 4                         | Sediment                     | Inspection (# sites w/ wet weather BMPs fully in place at 1st visit, # sites receiving warning or NOV), photo doc |                       | Continue   |                               |                                   |  |  |   |
|              |                |                       |  | 3. After major rain events, 50% or more of "open" sites will be inspected   | Planning               | Building    | 1                                   | FULL  | Building Inspectors inspected at least 50%, if not all, of the open sites after major rain events. In addition, Building Inspectors conducted 16 (logged) BMP inspections at construction sites. Building Inspectors also conducted many more inspections at these sites including foundation inspections which check for BMP implementation especially during the wet season. Also, PW Staff conducted inspections during and/or after major rain events at large sites and sites with BMP failures. During the rainy season, staff also frequently inspected medium sites during the rainy season. Staff conducted follow-up inspections at all sites found with BMP inadequacies/failures to ensure that problems were corrected in a timely fashion. Inadequate BMPs or BMP failures were identified by PW staff at 5 high priority sites and 2 medium size sites. All sites received either verbal warnings and/or an email notice to immediately correct along with photos. One medium site was issued a Letter of Warning by PW Environmental Compliance. All BMP inadequacies or failures were rectified as a result of inspection and City request for correction. | Medium                         | 4                         | Sediment                     | Inspection (# sites w/ indication of BMP failure)   |                       | Continue   |                               |                                   |  |  |   |
| E.10.c, E.15 | CON-2          |                       | PW Staff Will Inspect Installation of Post-construction Treatment Systems and Storm Water Retention Devices at Development Sites Greater Than or Equal to One Acre   | Inspect systems and devices at 100% of development sites greater than or equal to one acre  | Public Works           | Engineering | Year 1-5                            | FULL  | PW Staff reviewed and inspected all projects that triggered Tier 2 or higher of the PCRs. During the permit year, projects equal to or greater than 1 acre were inspected as follows:<br>1) Delaware Avenue: a phased development inspected at least 1x.<br>2) Dubois: new self storage building inspected 13x times.<br>3) Mission Street: new hotel inspected at least 2x times.<br>4) Ocean Street: new affordable housing building inspected 13x times.<br>5) Panetta: phased development bldg. inspected 2x times.<br>6) Riverside Avenue: new hotel inspected 17x times.<br>7) Second Street: new hotel inspected 2x.<br>8) Swift Street: phased development bldg. inspected 4x times.<br>9) Water Street: addition to apartment complex inspected 1x time.<br>10) Water Street: new affordable apartment building inspected 2x times.  | High                           | 5                         | Sediment, Pathogens, Trash   | Inspection, Land-use-load estimation (RAM/TELRL)  |                       | Continue   |                               |                                   |  |  |   |
| E.12.k, E.15 | PC-5           |                       | Develop & Enact A Strategy for Implementing LID & Hydromodification Control For New and Redevelopment Projects   | Develop, advertise and make available LID BMP Design Guidance suitable for all stakeholders; Specific guidance on how to achieve and demonstrate compliance with the hydromodification control criteria and LID requirements made available to new and redevelopment project applicants | Public Works Planning  | Engineering | 1                                   | FULL  | Completed in Permit Year 1  | Not assessed                   | 2                         | Sediment, Pathogens, Trash   | Documentation, tabulation (page hits), public awareness survey  |                       | Completed/Continue   |                               |                                   |  |  |   |
| E.12.j       | PC-10          |                       | Develop and/or Modify Enforceable Mechanisms That Will Effectively Implement Hydromodification Controls and LID. Enforceable Mechanisms May Include Municipal Codes, Regulations, Standards, and Specifications. | 1. An analysis of all applicable codes, regulations, standards, and/or specifications that identifies modifications and/or additions necessary to effectively implement hydromodification controls and LID (Joint Effort Q2)  | Public Works Planning  | Engineering |                                     |   |   | N/A                            | 1                         | No                           | Documentation   |                       |  |                               |                                   |  |  |   |
| E.12.j       | PC-10          |                       | Develop and/or Modify Enforceable Mechanisms That Will Effectively Implement Hydromodification Controls and LID. Enforceable Mechanisms May Include Municipal Codes, Regulations, Standards, and Specifications. | Approved new and/or modified enforceable mechanisms that effectively resolve regulatory conflicts and implement hydromodification controls and LID in new and redevelopment projects  | Public Works, Planning | Engineering | 1                                   | FULL  | There were no significant gaps. Staff worked on minor revisions to the parking ordinance to help facilitate LID implementation during a prior permit year. Additionally, the assessment found that the City's mandatory "Storm Water BMPs for Development and Remodel Projects," which are codified by the Municipal Code/Storm Water Ordinance, are currently the best method to implement the new requirements. All development projects were routed through one Public Works development project plan reviewer that ensures that proposed projects meet the revised mandatory BMPs. Beginning in March 2017, 2 outside engineering consulting firms with QSI certified staff were hired to review project plans for PCR compliance.  | N/A                            | 1                         | No                           | Documentation   |                       | Completed/Continue   |                               |                                   |  |  |   |

| New BMP (✓)                          | Permit Section | New or Existing BMP # | BMPs   | MEASURABLE GOALS  | DPT                    | DIV.                     | General Permit Sched. (Permit Year) | Level of Implementation (None, Partial, Full) | BMP Implementation Information  | Effectiveness (Low, Med, High) | CASQA Outcome Level (1-6) | Target Priority Pollutant(s) | Evaluation Method                                   | Proposed Modification | Report #4: Storm Water Programs Modification Sixth Year Report |                               |                                   |  |  |   |
|--------------------------------------|----------------|-----------------------|--|---|------------------------|--------------------------|-------------------------------------|---|---|--------------------------------|---------------------------|------------------------------|---|-----------------------|--|-------------------------------|-----------------------------------|--|--|---|
|                                      |                |                       |  |   |                        |                          |                                     |   |   |                                |                           |                              |   |                       | 1.a.Improvements to Underperforming BMPs                       | 1. b. Continue Effective BMPs | 1.c. Discontinue Ineffective BMPs | 2. Priority Areas for Program Improvements | 3. Modifications to shift priorities for more effective use of resources | 4. Time Schedule, Scope, and Frequency of BMP modifications |
|                                      | E.12.j         | PC-10                 | Develop and/or Modify Enforceable Mechanisms That Will Effectively Implement Hydromodification Controls and LID. Enforceable Mechanisms May Include Municipal Codes, Regulations, Standards, and Specifications. | Apply new and/or modified enforceable mechanisms to all applicable new and redevelopment projects.  | Public Works, Planning | Engineering              | 1                                   | FULL  | The City began enforcing the new Post-Construction Requirements on March 6, 2014. The City has mandatory BMPs for Development and Remodeling Projects which include the PCR requirements. This year, there were (3) commercial projects subject to the PCRs that were finalized for occupancy. Including (2) Tier 2 projects and (1) Tier 4 project. This year, in total, there were (16) commercial projects with building permit applications, with (14) of them subject to the PCRs and (1) projects whose design permit was approved prior to the PCRs and one (1)* project that was exempt because it was less than 2500 sq. feet (however this project implemented disconnected downspouts to landscaping. Of the (14) PCR regulated projects, (2) were Tier 1, (4) were Tier 2, (3) Tier 3 and (5) were Tier 4. Also, the City requires LID site design on all residential development and remodeling projects, including projects below the Tier 1 threshold. This year, there were (64) residential building permit application that triggered LID requirements review. (49) residential projects were below the PCR trigger and (15) residential projects triggered Tier 1. This year, there were (6) Tier 1 residential projects subject to the PCRs that received certificates of occupancy ("finalized") and (15) residential projects below Tier 1 with LID requirements that were ("finalized"). | N/A                            | 3                         | No                           | Documentation                                       |                       | Continue   |                               |                                   |  |  |   |
|                                      | E.12.k, E.15   | PC-8                  | Implement Program to Ensure Long-term BMP Inspection and Maintenance. Spot Inspections Will Be Conducted.  | Enforce the proof of annual BMP inspection and maintenance requirement at 100% of sites   | Public Works           | Engineering              | Year 1-5                            | FULL  | The City requires that a BMP Maintenance Agreement be signed by the property owner/developer for all applicable projects with structural control measures per the City's mandatory BMPs for Public and Private Development Projects (Chapter 6B). The maintenance agreements are recorded into the City's permitting database (TRAKIT). Also, a scanned copy is saved. Currently, the City has 80 signed maintenance agreements. In order to ensure that maintenance is conducted, the City sends reminder letters to all the parties responsible for BMP maintenance during the Fall. A Reminder Letter was sent to these sites on September 24, 2018 although some sites were still under construction or in the final permit process. All completed projects signed and returned their logs by April 2019. Spot inspections were conducted at 8 of these sites. Again this year, staff spent time educating site contacts and managers due to facility staff changes or because staff at the newly built sites are unfamiliar with the requirements.   | High                           | 5                         | Sediment, Pathogens, Trash   | Documentation, Land-use-load estimation (RAM/TELRL) |                       | Continue   |                               |                                   |  |  |   |
|                                      |                |                       |  | Implement a spot inspection program at 10% of sites annually  | Public Works           | Engineering              | Year 1-5                            | FULL  | This permit year, storm water staff conducted spot inspections at 8 sites (> 10%). The BMPs were clean and functioning properly.  | Medium                         | 5                         | Sediment, Pathogens, Trash   | Inspection, Land-use-load estimation (RAM/TELRL)    |                       | Continue   |                               |                                   |  |  |   |
| ✓                                    | E.13.b, E.15   | NEW BMP               | TMDL Monitoring  | Comply with the monitoring requirements included in WAAP and/or consult w/RWQCB to determine monitoring study design and monitoring implementation schedule | Public Works           | Environmental Compliance |                                     | FULL  | The City, along with the County of Santa Cruz and the cities of Capitola, Scotts Valley, and Watsonville, prepared and submitted a joint WAAP to the RWQCB in June 30, 2015. This joint WAAP served as a revision to the WAAPs previously submitted by the City. This year, the cities and County collaborated to update the joint WAAP. In addition, during the permit year, the City continued to implement its monitoring program for bacteria and sediment in the San Lorenzo River, and Branciforte and Carbonera Creeks. Sampling for all relevant indices is done by Environmental Compliance staff & samples are analyzed by the City Environmental Laboratory. Please see the attached monitoring report for monitoring program details and sampling results. The City also conducts dry weather outfall monitoring, which included sampling and analyses for turbidity at flowing Branciforte Creek outfalls and flowing SLR outfalls.  | N/A                            | 6                         | N/A                          | N/A   |                       | Continue   |                               |                                   |  |  |   |
| <b>E.16 ANNUAL REPORTING PROGRAM</b> |                |                       |  |   |                        |                          |                                     |   |   |                                |                           |                              |   |                       |  |                               |                                   |  |  |   |
| ✓                                    | E.16.a         | NEW BMP               | Use SMARTS to report and certify   |   | Public Works           | Engineering              | Year 1-5                            | FULL  | The Annual Report will be entered into SMARTS by October 15th annually  | N/A                            | 1                         | N/A                          | N/A   | N/A                   | Continue   |                               |                                   |  |  |   |
|                                      | E.16.b         |                       | Complete and retain annual reports and make available to RWQCB during working hours  |   | Public Works           | Engineering              | Year 1-5                            | FULL  | Annual reports are available for download on the City website and will be provided to the RWQCB upon request  | N/A                            | 1                         | N/A                          | N/A   | N/A                   | Continue   |                               |                                   |  |  |   |
| ✓                                    | E.16.c         | NEW BMP               | Submit detailed written or oral report to RWQCB if directed.   |   | Public Works           | Engineering              | Year 1-5                            | FULL  | The City will submit reports to the RWQCB as directed   | N/A                            | 1                         | N/A                          | N/A   | N/A                   | Continue   |                               |                                   |  |  |   |
| ✓                                    | E.16.d         | NEW BMP               | May coordinate reporting if regional programs  |   | Public Works           | Engineering              | Year 1-5                            | N/A   | N/A   | N/A                            | 1                         | N/A                          | N/A   | N/A                   | N/A  |                               |                                   |  |  |   |



## City of Santa Cruz TMDL Update-FY2018-2019

*San Lorenzo River, Branciforte Creek and Carbonera Creek*

### City of Santa Cruz Improved/New BMPs for Next Permit Year(s):

#### TMDL for Pathogens

##### *1. Existing BMP #MO-11 (City's SWMP/Guidance Document): Development and Implementation of a Lateral Inspection Program:*

In the City of Santa Cruz, the maintenance of the 16,000 private sewer laterals, which carry wastewater from toilets, sinks and drains to City's public sewer pipelines, is the responsibility of each property owner. As private sewer laterals age they can develop leaks, become clogged by fats, oils and grease, and become cracked by roots. Cracked and damaged sewer laterals can cause sewer spills and backups which threaten public health and the environment.

Thus in order to improve private sewer infrastructure and protect the environment and local waterways from bacteria-laden human waste coming from undetected sewer leaks or sanitary sewer spills, the City Council adopted changes to the Sanitary Sewer System Ordinance on June 26, 2018. Prior to the preparation and adoption of these amendments, Staff conducted an extensive outreach program to local realtors, plumbers and other stakeholders.

The new amendments to the City Sewer Use Ordinance regarding private sewer laterals are three-fold:

- The owner of a property with a sewer spill is responsible for stopping the spill immediately and will be subject to fines and penalties if inspections and repairs are not completed within 14 days.
- Prior to the sale of a property, the property owner must have the sewer lateral inspected by an authorized inspector, make any needed repairs, and submit an inspection form to verify compliance. The property is exempted from inspection for newer laterals or laterals that have passed inspection within the past five years.
- Private sanitary sewer collection systems and pumps (at apartment buildings, homeowner associations and businesses) must pass inspection every 10 years. Their pipelines must be cleaned every two to five years depending on size. Privately-owned pump stations must pass inspection every one to five years depending on size.

Effective dates for these new amendments are follows: Laterals spill requirements is August 1, 2018; Inspection of private sewer collection system effective date is Jan 1, 2019; Lateral inspection on sale of house effective July 1, 2019. We offer an incentive program to help offset fees related to the ordinance changes.

<https://www.cityofsantacruz.com/government/city-departments/public-works/wastewater-treatment-facility/wastewater-and-storm-water-collections/sanitary-sewer-system/proposed-changes-to-the-city-s-sanitary-sewer-system-ordinance>

Since the Sewer Use Ordinance adoption date of July 16, 2018 the City's Public Works department has issued over 300 sewer permits to repair or replace inadequate sewer laterals located within the City limits.

## *2. New Pilot BMP- Pet Waste Campaign:*

Beginning in FY16-17, the City and Coastal Watershed Council (CWC) have partnered on pilot pet waste campaign with the goal of educating pet owners to pick up pet waste in order to reduce bacteria loadings to the SLR and tributaries. The Campaign uses volunteers and CWC staff to help conduct outreach to dog owners in areas that drain to the San Lorenzo River, and also to conduct before and after surveys. City and CWC staff did the initial research, planned the campaign and CWC ordered colorful doggie waste bags that are given out to dog owners. An informational tag was developed and printed to be attached to the doggie waste bags.



CWC staff also began outreach to local vets, pet shampoo services, and local pet shelters. The campaign logo is based on the "There is no Poop Fairy" signage above used by City Parks and Recreation along the San Lorenzo River and West Cliff Drive.

In FY17-18, the campaign continued including conducting "before" surveys along the San Lorenzo River levee. On November 1 and 22, 2017, CWC staff and volunteers surveyed pet waste along the Santa Cruz Riverwalk, a recreational path adjacent to the San Lorenzo River. Over 100 droppings were tallied near the levee. The surveys identified hot spots for pet waste and the best locations for additional "Poop Fairy" signs (there are currently two "Poop Fairy" pet waste educational signs on the levee). As a result of these efforts, the City Parks & Recreation Department is planning to install additional "Poop Fairy" signage (up to new 10 signs) along the Santa Cruz Riverwalk.

Also in FY17-18, CWC worked with BirchBark Foundation, with WoofPack, a hiking camp that leads monthly dog walks along the San Lorenzo River, and with the Santa Cruz SPCA to distribute 350 doggie bag holders with water quality information cards to Santa Cruz dogs and their parents.

Lastly, in June 2017 CWC conducted a pilot volunteer neighborhood cleanup in an area adjacent to the San Lorenzo River. The area is dubbed the "Oceans 11" neighborhood and residents that participated in the cleanup each received a doggie waste bag.

In FY18-19, CWC collaborated with Santa Cruz County Animal Shelter, BirchBark Foundation and WoofPac 831 (dog walking service) to host four (4) Paws in the Park dog walking and pet waste education events that were attended by 60 people. Event dates: 7/15/2018, 8/19/2018, 9/16/2018 and 6/23/2019.

In FY18-19, the City and CWC distributed approximately 300-400 doggie bag holders along with water quality information cards at various community events (Earth Day, Cleanups, etc.) This year, CWC's pet waste social media posts and newsletter articles had 1,001 unique views.

### *3. New Pilot Neighborhood Outreach and Cleanup Program:*

In FY 18-19, the Coastal Watershed Council (CWC) and the City coordinated efforts to increase neighborhood awareness regarding trash/littering, pet waste, illegal dumping and water quality issues in order to improve water quality in the San Lorenzo River. On June 23, 2018, CWC led the first pilot neighborhood volunteer cleanup in an area adjacent to the San Lorenzo River dubbed the “Oceans 11” neighborhood. Residents along primarily Felker and Pryce Streets participated in the cleanup. As part of the project, volunteers kept track of the trash items collected, such as: cigarette butts, dog poop, plastic bottles, cans, wrappers, etc. Each participant also received a doggie waste bag, with an educational message (see Pet Waste Campaign below), as a thank you.



In FY18-19, CWC led four neighborhood cleanups in riverside communities within the City of Santa Cruz to reduce the amount of trash and debris entering the storm drain system and educate residents about storm water and storm drain infrastructure. Three cleanups were held in the Beach Flats community on September 15, 2018, January 21, 2019 and April 13, 2019. One cleanup was hosted in the Ocean's 11 community on October 6, 2018. All neighborhood cleanups were planned and implemented with the help of local residents. In total, 95 city residents were engaged in reducing trash levels and learning about storm water systems and actions they can take to help keep storm drains clean. CWC will also create pre- and post-surveys, in conjunction with City staff, to assess trash levels and measure increases in storm water knowledge among clean-up participants.

Also, City staff and CWC collaborated on an educational post-card that was mailed to residents in these two neighborhoods.

### *4. Storm Drain Neighborhood Murals*

The City in collaboration with Coastal Watershed Council (CWC), local artists and residents, completed its first neighborhood storm drain mural at Pryce Street on June 9, 2019. The artist led 21 community members of all ages in painting the mural. Over the past year CWC, with support from the City of Santa Cruz, has engaged residents in neighborhood trash clean-ups, pollution prevention outreach and community meetings to develop designs for storm drain



murals in their neighborhoods. Each mural was designed with input from neighborhood residents and local artists were selected for each one through a RFP process. The purpose of the storm drain murals is to increase awareness of how pollutants on city streets can flow to or reach the San Lorenzo River and Monterey Bay in a new, creative effort to prevent pollution and engage City residents in pollution prevention. Two more neighborhood storm drain murals are planned for FY19-20.

### *5. Additional Source Investigations re Branciforte Creek*

Monitoring results have shown that Branciforte Creek has the highest percentage of fecal coliform exceedances compared to the other TMDL waterbodies in the City of Santa Cruz. The City intends to investigate potential contamination sources including sewer main lines, septic systems and sewer lateral lines.

### **TMDL for Sediment**

The City currently reviews Building Permit plans for erosion and sediment control BMPs including for small residential projects. Project applications are required to include erosion and sediment control BMPs, as appropriate, and related standard notes are required on plan sheets. Open construction sites are inspected multiple times, especially during the rainy season, by various City staff including Building Inspectors, Green Building staff, PW Inspectors and PW Storm Water Staff.

The City also conducts extensive street sweeping as detailed in storm water program's suite of Municipal Operations BMPs. However, the City will consider options such as enhanced street sweeping in certain areas and/or whether to implement a "no parking" policy during scheduled street sweeping days/time. Additional BMPs will be developed and implemented as needed upon review of further analyses of long-term sediment monitoring results by the County and City.

### **TMDL Wasteload Allocations and Milestones:**

### **TMDL for Pathogens**

#### **Wasteload Allocation:**

The City of Santa Cruz, County of Santa Cruz and the City of Scotts Valley are assigned the following concentration based wasteload allocation for fecal coliform: Based on a minimum of not less than five samples for any 30-day period, fecal coliform shall not exceed a log mean of 200 MPN per 100 mL, nor shall more than 10 percent of samples collected during any 30-day period exceed 400 MPN per 100 mL.

*Effective date is June 8, 2011*

*Allocations shall be achieved no later than June 8, 2024.*

Permit Year 5 Milestone Date: December 2017

Next Milestone Date: December 2020

Milestone Goal: Discernable, sustained trends showing a reduction in the number of samples exceeding the wasteload allocation (see above) in the San Lorenzo River (SLR), Branciforte Creek and Carbonera Creek.

Summary: In general, City monitoring results show that the fecal coliform levels in the SLR watershed did not decrease in any appreciable trend in spite of the continued implementation of BMPs. Also, monitoring has shown that the fecal coliform exceedances trend less frequently at the upstream SLR locations than the downstream SLR locations; which reflects the more urbanized setting of the downstream SLR. Of the three waterbodies, Branciforte Creek was found to have the highest average percentage levels of fecal coliform exceedances. Levels in the San Lorenzo River were, in general, lower than Branciforte Creek but higher than Carbonera Creek which had the lowest percentage number of exceedances.

## **TMDL for Sediment**

### **Wasteload Allocation:**

The County of Santa Cruz, City of Santa Cruz, and City of Scotts Valley are assigned the following wasteload allocations: sediment discharges from public roads to the San Lorenzo River shall be reduced by 27%, sediment discharges from public roads to Lompico Creek shall be reduced by 24%, sediment discharges from public roads to Carbonera Creek shall be reduced by 27%, sediment discharges from public roads to Shingle Mill Creek shall be reduced by 27%.

*Effective date is December 18, 2003*

*Allocations shall be achieved by December 18, 2028.*

Permit Year 5 Milestone Date: December 2017

Next Milestone Date: December 2020

Milestone Reductions/Improvements Goal: Discernable, sustained improvement (a reduction) in sediment loads at the various monitoring stations within the City.

Summary: The City data for sediments is not yet sufficient to present a year-to-year analysis of trends in SLR, Branciforte Creek and Carbonera Creek within the city. However, monitoring data indicates that sediment loading to the waterbodies is affected by the frequency and intensity of storm events. Please see the County of Santa Cruz (County) October 2018 “TMDL Report for the San Lorenzo River, Soquel Creek, and Aptos Creek Watersheds” for additional information as the County has conducted long-term monitoring for sediment in the SLR watershed including sites within the City.

The City will continue to collaborate with the County of Santa Cruz and City of Scotts Valley to ensure a comprehensive monitoring program and further analyses regarding the input and transport of sediments through the SLR watershed. This will allow us to further and more effectively evaluate results and, in turn, modify existing BMPs or implement additional BMPs.

In summary, the City will continue to collaborate with the County of Santa Cruz and the City of Scotts Valley in a comprehensive approach to address the TDMLs in the San Lorenzo River

watershed and achieve TMDL goals. In addition, the City will continue to coordinate and implement programs with local NGOs such as the Coastal Water Council, the San Lorenzo River Alliance, and Save Our Shores, and other interested parties in order to reduce pollutant sources and improve water quality in the SLR watershed.