



CITY OF MORRO BAY PUBLIC WORKS ADVISORY BOARD MEETING AGENDA

The City of Morro Bay is dedicated to the preservation and enhancement of the quality of life. The City shall be committed to this purpose and will provide a level of municipal service and safety consistent with and responsive to the needs of the public.

**Thursday, September 24, 2015
Morro Bay Community Center Studio Room - 6:00 P.M.
1001 Kennedy Way, Morro Bay, CA**

Stephen Shively, Vice-Chair	Marlys McPherson, Chair	
Janith Goldman	Christopher Parker	Deborah Owen
	David Sozinho	Stewart Skiff

ESTABLISH QUORUM AND CALL TO ORDER
MOMENT OF SILENCE/PLEDGE OF ALLEGIANCE
ANNOUNCEMENTS
PRESENTATIONS – None

PUBLIC COMMENT PERIOD

Members of the audience wishing to address the Board on City business matters other than scheduled items may do so at this time. To increase the effectiveness of the Public Comment Period, the following rules shall be followed:

- When recognized by the Chair, please come forward to the podium and state your name and address for the record. Board meetings are audio and video recorded and this information is voluntary and desired for the preparation of minutes.
- Comments are to be limited to three minutes.
- All remarks shall be addressed to the Board, as a whole, and not to any individual member thereof.
- The Board respectfully requests that you refrain from making slanderous, profane or personal remarks against any elected official, commission and/or staff.
- Please refrain from public displays or outbursts such as unsolicited applause, comments or cheering.
- Any disruptive activities that substantially interfere with the ability of the Board to carry out its meeting will not be permitted and offenders will be requested to leave the meeting.
- Your participation in Board meetings is welcome and your courtesy will be appreciated.

In compliance with the Americans with Disabilities Act, if you need special assistance to participate in this meeting, please contact the Public Works Department at (805) 772-6262. Notification 24 hours prior to the meeting will enable the City to make reasonable arrangements to ensure accessibility to this meeting.

A. CONSENT CALENDAR

- A-1 Approval of Minutes of July 15, 2015 Meeting
Recommendation: Approve minutes.

B. OLD BUSINESS - None

C. NEW BUSINESS

- C-1 Discussion of Unwarranted Traffic Control Devices, the Rescission of Resolution No. 38-15 Regarding Placement of Stop Sign at the Intersection of Pacific and Main Streets and Consideration of Alternative Traffic Calming Measures
Recommendation: Provide recommendation to City Council to rescind Resolution No. 38-15 and provide input on traffic calming alternatives.
- C-2 Consideration of Proposed Increase to Solid Waste Rates and Garbage, Recycling & Green Waste Agreement Amendment Related to Organic Waste Diversion
Recommendation: Consider the staff report and recommend the City Council:
1. Adopt a resolution increasing solid waste rates on January 1, 2016 by 3.22%, provided there is not a majority protest against such an increase,
 2. Begin implementing an expanded organics diversion program that includes food waste and ends the use of green waste as alternative daily cover at Cold Canyon Landfill as outlined in the staff report, and
 3. Approve a contract amendment with Morro Bay Garbage Service extending the term of the existing franchise agreement through 2037 as outlined in the staff report.
- C-3 Wasteload Allocation Attainment Plan (WAAP) Update
Recommendation: Review plan and provide comments to staff as necessary.

D. ADJOURNMENT

Adjourn to the Public Works Advisory Board meeting at the Veteran's Memorial Building, 209 Surf Street, on Wednesday, October 21, 2015 at 6:00 p.m.

This agenda is subject to amendment up to 72 hours prior to the date and time set for the meeting. Please refer to the agenda posted at the Public Works Department, 955 Shasta Avenue, for any revisions or call the department at 772-6262 for further information.

Materials related to an item on this Agenda are available for public inspection during normal business hours in the Public Works Department, at Mill's/ASAP, 495 Morro Bay Boulevard, or the Morro Bay Library, 695 Harbor, Morro Bay, CA 93442.

This agenda may be found on the Internet at: www.morro-bay.ca.us/pwab or you can subscribe to Notify Me for email notification when the Agenda is posted on the City's website. To subscribe, go to www.morro-bay.ca.us/notifyme and follow the instructions.

Materials related to an item on this agenda submitted to the Board after publication of the agenda packet are available for inspection at the Public Works Department during normal business hours or at the scheduled meeting.

MINUTES - PUBLIC WORKS ADVISORY BOARD (PWAB)
SPECIAL MEETING – JULY 15, 2015
VETERAN'S MEMORIAL HALL – 5:30 P.M.

PRESENT:	Marlys McPherson	Chair
	Steve Shively	Vice-Chair
	Janith Goldman	Board Member
	Stu Skiff	Board Member
	Chris Parker	Board Member
	David Sozinho	Board Member
	Deborah Owen	Board Member
STAFF:	Dave Buckinham	City Manager
	Rob Livick	Public Works Director
	Kay Merrill	Administrative Utilities Technician

ESTABLISH QUORUM AND CALL TO ORDER
MOMENT OF SILENCE

The meeting was called to order at 5:34p.m., and a quorum was present.

ANNOUNCEMENTS - None

PRESENTATIONS - None

PUBLIC COMMENT

<https://youtu.be/FgLMW-tMz4E?t=1m53s>

The public comment period was opened.

Bill Fritch requested the Board have complete rejection of privatization of the water system in Morro Bay.

Lynda Merrill expressed concern regarding signs being tacked on cyclone fencing and buildings around town.

Betty Winholtz spoke on behalf of Morro Bay Beautiful. The Morro Bay Tree Committee has contributed to the adoption of the Morro Bay Urban Forest Management Plan which has an official tree list and cactus is not on the list and has noticed somebody has planted cactus in City tree wells around town. She would like to know who paid for these cactuses, who did the work and do we really want cactus on our City streets. Morro Bay Beautiful would like the City to talk with the person or groups that planted the cactus and have them remove them now.

The public comment period closed.

A. CONSENT AGENDA

A-1 APPROVAL OF MINUTES FROM THE PWAB MEETING OF JUNE 18, 2015

<https://youtu.be/FgLMW-tMz4E?t=7m55s>

Marlys McPherson stated she wanted to speak up for the old guys in town. She did this at the last meeting and was questioning the new structure for meeting minutes and was told this is the new way they are

MINUTES – MORRO BAY PUBLIC WORKS ADVISORY BAORD – JULY 15, 2015

going to be done and to go to the Youtube videos. She stated that it is contrary to the stated goal of encouraging more citizen participation, awareness and information especially taking into consideration people who are not quite as tech savvy as others. Marlys tried to use it and looked at the last meeting and she wanted to go to one discussion and ended up having to listen to the whole meeting. There may be a way but she wants this in the minutes. She stated maybe there could be a training session and not sure if that is customer focused.

MOTION:

Steve Shively moved to approve Item A-1. The motion was seconded by Janith Goldman and carried unanimously, 7-0.

B. OLD BUSINESS

B-1 Automated Metering and Contract Customer Service (Continued from June 18, 2015)
<https://youtu.be/FgLMW-tMz4E?t=9m20s>

Rob Livick presented the staff report and Jason Bethke who is with Fathom, gave a presentation on Automated Metering and Contract Customer Service.

The public comment period was opened.

The following spoke in favor of a negative recommendation to City Council on Item B-1:

Rigmor Samuelson, Phil Kispersky, Ric Deschler, Bill Martony, Janice House, Nancy Bast, Lynda Merrill, Homer Alexander, Casey Caldwell, Ted De Mont, Betty Winholtz, Barbara Doerr, Bob Doerr, Larry Knapp and Dede Alexander.

The public comment period closed.

MOTION:

Steve Shively moved to send a negative recommendation to City Council for Item B-1 and Marlys McPherson requested to add: Direct staff to explore some other alternatives and bring it back to City Council with more information about other alternatives to accomplish the goals. Shively agreed to the requested addition. The motion was seconded by Chris Parker and carried, 6-1, with Deborah Owen opposing.

B-2 Consideration of Forming Public Works Subcommittees (Continued from June 18, 2015)
<https://youtu.be/FgLMW-tMz4E?t=2h39m34s>

The public comment period was opened.

Barbara Doerr asked if subcommittees are subject to the Brown Act and are meetings open to the public. She stated there are Ad Hoc subcommittees and there are standing subcommittees and recommends standing subcommittees. Meetings should be noticed, there should be an agenda and material from staff would benefit the community. She asked if the information provided to the subcommittees is subject to the Public Records Act. Standing subcommittees should be subject to the Brown Act with the public invited.

The public comment period closed.

MOTION:

Marlys McPherson moved to create a subcommittee as needed versus having a standing subcommittee and increase the number of meetings to 10 times a year (excluding July and December). The motion was seconded by Janith Goldman and carried, 7-0.

ADJOURNMENT

The meeting adjourned at 8:47p.m.



AGENDA NO: C-1

MEETING DATE: September 24, 2015

Staff Report

TO: Public Works Advisory Board DATE: September 18, 2015

FROM: Rob Livick, PE/PLS – Public Works Director/City Engineer

SUBJECT: Discussion of Unwarranted Traffic Control Devices, Rescission of Resolution No. 38-15 Regarding Placement of Stop Sign at the Intersection of Pacific and Main Streets and Consideration of Alternative Traffic Calming Measures

RECOMMENDATION

1. Review the previous decision regarding the installation of an unwarranted traffic control device, *i.e.*, an All-Way Stop at the intersection of Pacific and Main Streets and recommend that the City Council rescind Resolution 38-15.
2. Staff recommends the City Council establish a policy against the installation of unwarranted traffic control devices.
3. Provide any recommendations regarding alternatives to the installation of such devices, including traffic enforcement, and other traffic calming devices such as bulb-outs, mini round-a-bouts or other appropriate measures.

ALTERNATIVE

Balance the potential of financial risk by approving the design and installation of unwarranted traffic control devices at Pacific and Main with the benefits to the community of installing those devices and retain Resolution 38-15 as-is.

FISCAL IMPACT

The installation of an unwarranted traffic control device can subject the City to financial liability if there is a collision at the intersection as a result of that device and the City is unable to convince a court the affirmative defense of design immunity applies. Such installation could also encourage other concerned citizens to seek installation of unwarranted traffic control devices in other areas of the City, which if approved, would result in expenditures for that installation and potential similar liability issues.

BACKGROUND/DISCUSSION

City Staff had received requests for the installation of an all way stop at the intersection of Pacific and Main Streets. On February 14, 2014, staff completed an intersection analysis to determine whether the installation of additional stop signs met the guidance (warrants) specified in the California Manual of

Prepared By: RL

Dept Review: RL

Uniform Traffic Control Devices (MUTCD). The results of the study show:

- All eight of the warrants are not met at the intersection of Main and Pacific Streets.
- The vehicular and pedestrian volumes in the area, while high for Morro Bay, are too low to meet the requirements given in the MUTCD for the first four warrants, regarding vehicular and pedestrian volumes.
- Low collision history and absence of local schools and traffic control signals, the warrants for those issues are not met.
- The warrant for roadway network coordination is not applicable either, due to low volumes.

Based on the Engineering analysis, the intersection failed to meet typical standards for the installation of additional stop signs on Main Street. Notwithstanding the results of the foregoing analysis used by professional engineers in assisting communities with the determination of whether to install traffic control devices, a member of the public continued to request an all-way stop and petitioned the members of the community and visitors as an attempt to show that additional stop signs were needed.

The petition, along with the engineering analysis and an update to the accident history, was presented to the City Council at their regular meeting on April 28, 2015. Due to compelling public testimony and a petition with 160 unverified signatures, the City Council directed staff to return with a resolution directing the installation of additional stop signs on Main Street.

On June 9, 2015, staff presented the City Council with Resolution 38-15 “A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MORRO BAY, CALIFORNIA, AUTHORIZING AND DIRECTING THE INSTALLATION OF ALL WAY STOP SIGNS ON MAIN STREET AT PACIFIC STREET” on the consent agenda. The item was pulled for discussion (see <http://www.morro-bay.ca.us/ArchiveCenter/ViewFile/Item/2500> and https://youtu.be/fLOvdeh_5-k?t=51m27s). Based on the petition, testimony from the public and discussion at the dais, the Resolution was passed 3-2 (Irons/Headding dissenting).

While staff was preparing for the installation of the additional stop signs as directed by Resolution 38-15, the City’s insurance provider and risk manager the California Joint Powers Insurance Authority (CJPIA) held their annual training for Public Works Officers at the Public Works Academy. The Academy was attended by several public works staff including the Director. Topics at the academy included: Risk Management, Workers Compensation, Investigating Claims and Preserving Evidence, Risk Review and Transfer and **“The Little Mistakes that are Costing a Lot - Unwarranted Traffic Control Devices.”** That class was taught by Scott J. Grossberg, Esq. of Cihigoyenette, Grossberg and Clouse.

Mr. Grossberg’s section covered several topics including: Tort Liability Issues, Dangerous conditions on Public Property, Immunities available to Public Agencies, Traffic Control Objectives, Requirements; and Justifications, Adverse impacts to neighborhood Traffic, Increased exposure to lawsuits, risks associated with speed humps and arbitrary speed limits. Additionally, the class discussed the ineffectiveness of stop signs in controlling speeds along with the difficulties of convincing the public stop signs do not reduce overall speeds even though there are studies from the 1930’s to present day that show speed reduction is not a resultant of stop sign installation.

The major point Mr. Grossberg stressed was the use of “design immunity” in defense of City’s where a collision results in a significant claim. The California Government Code Section 830.6 states:

Neither a public entity nor a public employee is liable under this chapter for an injury caused by the plan or design of a construction of, or an improvement to, public property where such plan or design has been approved in advance of the construction or improvement by the legislative body of the public entity or by some other body or employee exercising discretionary authority to give such approval or where such plan or design is prepared in conformity with standards previously so approved, if the trial or appellate court determines that there is any substantial evidence upon the basis of which (a) a reasonable public employee could have adopted the plan or design or the standards therefor or (b) a reasonable legislative body or other body or employee could have approved the plan or design or the standards therefor. Notwithstanding notice that constructed or improved public property may no longer be in conformity with a plan or design or a standard which reasonably could be approved by the legislative body or other body or employee, the immunity provided by this section shall continue for a reasonable period of time sufficient to permit the public entity to obtain funds for and carry out remedial work necessary to allow such public property to be in conformity with a plan or design approved by the legislative body of the public entity or other body or employee, or with a plan or design in conformity with a standard previously approved by such legislative body or other body or employee. In the event that the public entity is unable to remedy such public property because of practical impossibility or lack of sufficient funds, the immunity provided by this section shall remain so long as such public entity shall reasonably attempt to provide adequate warnings of the existence of the condition not conforming to the approved plan or design or to the approved standard. However, where a person fails to heed such warning or occupies public property despite such warning, such failure or occupation shall not in itself constitute an assumption of the risk of the danger indicated by the warning.

The major factor for successfully using 830.6 as a defense is there is substantial evidence supporting the reasonableness of the plan or design. (*Cornette v Department of Transportation (2001)* *Alvarez v. State (1999)* *Dole Citrus v. State (1997)*). Paramount in that argument is, if a claim goes to court, a city needs to be able to show the design relied upon generally accepted standards and there is substantial reasonableness of the plan or design. With that evidence a judge would likely grant a summary judgment and find grounds for dismissal. If the immunity does not apply, then the alternative is to have a jury make a determination regarding the factual issues of a claim. The best way to show the reasonableness of design is reliance on accepted, professional standards, such as the MUTCD.

Alternatives to Stop Signs to “Calm” Traffic

There are solutions to achieve the public desire to “calm” i.e slow down traffic that are more effective than the installation of a stop sign. Studies show that stop signs do not slow traffic, and the MUTCD warns against using stop signs for the control of speeds as being ineffective and causing other problems. The following traffic calming measures from the Institute of Transportation Engineers (ITE) tool box of traffic calming measures may be appropriate for the intersection of Pacific and Main Streets:

Neighborhood Traffic Circle

Description:

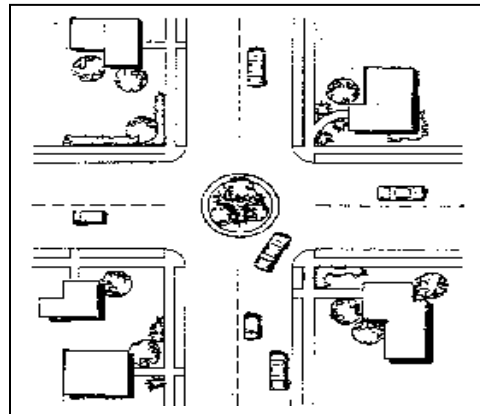
- raised islands, placed in intersections, around which traffic circulates
- motorists yield to motorists already in the intersection
- require drivers to slow to a speed that allows them to comfortably maneuver around them
- sometimes called intersection islands
- different from roundabouts

Applications:

- intersections of local or collector streets
- one lane each direction entering intersection
- not typically used at intersections with high volume of large trucks and buses turning left

Design/Installation Issues:

- typically circular in shape, though not always
- usually landscaped in their center islands, though not always
- often controlled by YIELD signs on all approaches, but many different signage approaches have been used
- key design features are the offset distance (distance between projection of street curb and center island), lane width for circling the circle, the circle diameter, and height of mountable outer ring for large vehicles such as school buses and trash trucks



Potential Impacts:

- no effect on access
- reduction in midblock speed of about 10 percent; area of influence tends to be a couple hundred feet upstream and downstream of intersection
- only minimal diversion of traffic
- intersection collisions have been reduced on average by 70 percent and overall collisions by 28 percent
- can result in bicycle/auto conflicts at intersections because of narrowed travel lane

Emergency Response Issues:

- emergency vehicles typically slow to approximately 13 mph; approximate delay of between 5 and 8 seconds per circle for fire trucks
- fire trucks can maneuver around traffic circles at slow speeds provided vehicles are not parked near the circle

Other/Special Considerations:

- large vehicles may need to turn left in front of the circle (which could be unsafe at higher volumes); legislation may be required to legally permit this movement
- quality of landscaping and its maintenance are key issues
- landscaping needs to be designed to allow adequate sight distance
- care must be taken to avoid routing vehicles through unmarked crosswalks on side-street approach

Typical Cost:

Average installation cost \$16,000 (2015 dollars)¹

Choker/Bulbouts

Description:

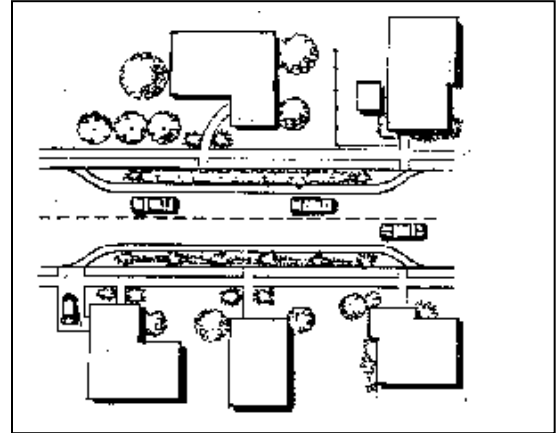
- curb extensions at midblock or intersection corners that narrow a street by extending the sidewalk or widening the planting strip

¹ Cost estimates are approximate and are typical national costs and are only meant for relative comparison and to get a sense of the typical installation. Costs do not include engineering, survey, storm drain modifications or site specific conditions.

- can leave the cross section with two narrow lanes or with a single lane
- at midblock, sometimes called parallel chokers, angled chokers, twisted chokers, angle points, pinch points, or midblock narrowing
- at intersections, sometimes called neckdowns, bulbouts, knuckles, or corner bulges
- if marked as a crosswalk, they are also called safe crosses

Applications:

- local and collector streets
- pedestrian crossings
- main roads through small communities
- work well with speed humps, speed tables, raised intersections, textured crosswalks, curb radius reductions, and raised median islands

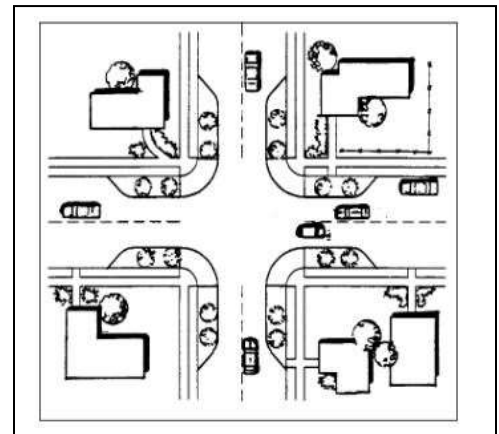


Design/Installation Issues:

- some applications use an island which allows drainage and bicyclists to continue between the choker and the original curb line
- typically designed to narrow road to 20 feet for two-way traffic; typically avoid the use of widths between 13 and 17 feet
- adequate drainage is a key consideration
- provides opportunity for landscaping

Potential Impacts:

- can impact parking and driveway access
- reduces pedestrian crossing width and increases visibility of pedestrian
- speeds have typically been reduced on average by 4 percent for two-lane chokers and 14 percent for one lane chokers
- minor decrease in traffic for two-lane and 20 percent reduction for one-lane chokers
- collision data not available
- bicyclists prefer not to have the travelway narrowed into path of motor vehicles



Emergency Response Issues:

- preferred by many fire department/emergency response agencies to most other traffic calming measures

Typical Cost:

Average installation cost \$15,000 (2015 dollars)

Raised Intersection

Description:

- flat raised areas covering entire intersections, with ramps on all approaches and often with brick or other textured materials on the flat section and ramps
- sometimes called raised junctions, intersection humps, or plateaus

Applications:

- work well with curb extensions and textured crosswalks
- often part of an area wide traffic calming scheme involving both intersecting streets
- in densely developed urban areas where loss of parking would be unacceptable

Design/Installation Issues:

- typically rise to sidewalk level
- may require bollards to define edge of roadway
- Canadian installations typically have gentle 1:40 slopes on ramps
- storm drainage modifications are necessary

Potential Impacts:

- reduction in through movement speeds at intersection
- reduction in midblock speeds typically less than 10 percent
- no effect on access
- make entire intersections more pedestrian-friendly
- no data available on volume or safety impacts

Emergency Response Issues:

- slows emergency vehicles to approximately 15 miles per hour

Typical Cost:

Average installation cost \$57,000 (2015 dollars)

Intersection Mural

Though not included in the ITE tool box, but has seen some success calming traffic in many urban Cities, is the intersection mural. The intersection mural is permanent mural that's painted on the pavement at an intersection. It's used as a community building tool. The murals are generally designed by the neighborhood, and represent local community. Experience from other cities shows that intersection mural can help calm traffic, and foster a sense of community identity (these murals can be found in multiple cities, including Seattle, WA, Portland, OR and Ft. Lauderdale, FL).



Intersection murals have many benefits, including:

- Bringing neighbors together to create a sense of community
- Can be traffic-calming
- Place-making—murals can represent the communities that surround them
- Perhaps making streets more enjoyable

Typical Cost:

Average installation cost \$2,500 (2015 dollars)

CONCLUSION

The installation of traffic control devices is an important decision for the community. Properly installed, they can add to the quality of life through the safe and consistent movement of traffic for commerce, recreation and the daily commute. At best, when improperly installed they can become an annoyance and, at worst, can cause an unsafe condition and result in increased liability to the City. Additionally, the installation or construction of anything within the public realm needs to be based on a reasonable design. Conformance to approved standards goes a long way to show reasonableness of design. In the immutable words of the CJPIA expert, Mr. Grossberg; “When should you install an unwarranted traffic control device? ... *Never!* Will it be the end of the world; no, but is the risk worth it?”

Since installing an unwarranted traffic control device is not a recommend option, what can be done to satisfy the request from the public to slow traffic down? We can borrow from the law enforcement field and use the concept of Crime Prevention through Environmental Design or CEP-TED. Using the concept of CEP-TED, staff recommends using a “traffic calming” measure to change the street geometry which should result in reduced vehicular speeds. These traffic calming measures are not without their disadvantages, one being a reduction in emergency response speed through the traffic calming zone the other being initial cost. This cost must be weighed against the low cost of the installation of an unwarranted traffic control device against the typically astronomical cost of defending a claim due to a collision where an unwarranted traffic control device has been installed.



AGENDA NO: C-2

MEETING DATE: September 24, 2015

Staff Report

TO: Public Works Advisory Board **DATE: September 16, 2015**
FROM: Janeen Burlingame - Management Analyst
SUBJECT: Consideration of Proposed Increase to Solid Waste Rates and Garbage, Recycling & Green Waste Agreement Amendment Related to Organic Waste Diversion

RECOMMENDATION

Staff recommends the Public Works Advisory Board (PWAB) recommend the City Council conduct a public hearing, consider all evidence and testimony presented and do the following:

1. Adopt a resolution increasing solid waste rates on January 1, 2016, by 3.22 % as noted in the attached 218 Notice, provided there is not a majority protest against such increase,
2. Begin implementing an expanded organics diversion program that includes food waste as outlined in the staff report and ends the use of green waste as alternative daily cover at Cold Canyon Landfill; and
3. Approve a contract amendment with Morro Bay Garbage Service (MBGS) extending the term of the existing franchise agreement through 2037 as outlined in the staff report.

ALTERNATIVES

The alternative to the Staff Recommendation would be to request the MBGS return to the City Council with other alternatives for organics recycling. Since it has taken many years of research to find the best long-term solution for the entire Waste Connections service area, which includes Morro Bay, the mandatory requirement for commercial food waste recycling, and the changing regulations for composting operations, this would not be a preferred alternative and therefore not recommended.

FISCAL IMPACT

Attached is the 218 notice that includes the proposed new rates effective January 1, 2016 with the 3.22% increase. The increases in rates will be borne by individual customers, and there will be a negligible increase to franchise fee revenue.

BACKBACKGROUND & DISCUSSION

Waste Connections is the parent company of MBGS (as well as others such as South County Sanitary and San Luis Garbage) and owns Cold Canyon Landfill. Their entire service area is from San Simeon to Nipomo.

Organics Diversion Program

With the closure of the green waste composting facility at Cold Canyon Landfill in late 2010, green waste has either been used as alternative daily cover at the landfill or transported to Engle and Gray in Santa Maria for composting.

Prepared By: JB

Dept Review: RL

Since 2010, there have been several new developments related to the management of organics.

- In 2014, AB 1826 and AB 1594 were enacted. AB 1826 established a mandatory organics management program which will require businesses to recycle all organics including food waste. This requirement phases in with the first deadline being April 2016 for businesses that generate 8 cubic yards or more per week of organics. AB 1594 eliminates the diversion credit for using green waste as alternative daily cover.
- CalRecycle and the State Water Resources Control Board both issued new compost regulations in August 2015.
- The Intergovernmental Panel on Climate Change now estimates the greenhouse gas potential of methane is 34 times greater than CO₂.
- Governor Brown on April 29, 2015 set the goal of reducing greenhouse gas to 40% below 1990 levels by 2030.
- The Air Resources Board in a concept paper issued on May 7, 2015 set an initial goal of diverting 75% of organics from landfills by 2020 and diverting 90% of organics from landfills by 2025.

In early spring 2015, SLO Integrated Waste Management Authority (IWMA) staff presented to its Board a progress report on the management of organics in SLO county and identified 3 potential providers that could manage both green and food waste: Engle and Gray, Mid State Solid Waste and Hitachi Zosen Inova (HZI). Recognizing the need for a comprehensive long term organics management plan, Waste Connections issued a Request for Proposals and requested the 3 potential providers submit proposals structured to reflect the tonnages and needs of the entire service area. Engle and Gray and HZI submitted responsive proposals, while Mid State Waste failed to provide a responsive proposal.

At the May 13, 2015 IWMA Board Meeting, Waste Connections presented their plan for the long term management of all organic waste, including food waste. The plan would incorporate Waste Connections' entire service area from San Simeon to Nipomo and cover a 22 year period beginning in January 2016 through the end of 2037. The plan has two phases as described below.

Interim Phase (January 2016 to mid-2017)

Beginning in January 2016, Waste Connections would expand in each of its service areas the existing residential green waste collection program to include food waste. Each home would be provided with a small kitchen pail to collect food waste. The food waste in the pail would then be dumped into the existing green waste collection container. At the same time, the organics collection programs for commercial customers would start to be expanded with first priority being to start with businesses that are required to divert organics by April 2016.

The organic waste collected from residential and commercial customers would be taken to Cold Canyon Landfill and transferred into large semi-tractor trailers (transfer trucks) that would then take the organics to Engle and Gray's composting facility in Santa Maria which is permitted to compost both yard and food waste.

Permanent Phase (mid-2017 to end of 2037)

After evaluating proposals, Waste Connections selected HZI to provide a Kompogas Anaerobic Digestion Plant. HZI is a world-wide leader in the production of energy from waste. The group has annual revenues of \$3 billion, 8,000 employees and 80 years of experience.

The first Kompogas Anaerobic Digestion Plant was built in 1991 in Switzerland and is still in operation. Currently there are 75 plants operating throughout the world. Anaerobic digestion is

different than composting in that the process of decomposition occurs in an oxygen free environment. Unlike composting, this process produces energy in the form of biogas and minimizes the need for water. Among other things, the biogas can be used to generate electricity via a turbine or be processed as biogas fuel which is a clean energy source. In addition all activities are inside a vessel and/or building, thus minimizing odors, storm water runoff and litter.

The Kompogas Facility would be located at Waste Connection's existing yard on Old Santa Fe Road in San Luis Obispo. This industrial site is ideally located in that it is in the center of the service area, is the location where Waste Connections' trucks start and end each day and has an existing building that can be used for the organics receiving area.

Waste Connections would enter into a long-term agreement with HZI, where HZI will build a Kompogas plant at the Waste Connection's yard using the existing building and agree to deliver organics to the plant through 2037. In return, HZI would design, finance, build, own and operate a Kompogas plant through 2037 for a negotiated fee, subject to cost of living increases and adjustments for the sale price of electricity and/or compost/compost tea and other uncontrollable costs.

To implement the new comprehensive organics diversion program, Waste Connections will need a one-time fee increase from each of its service areas for the expanded organics diversion program. As such for Morro Bay, MBGS has requested a one-time initial fee increase of 3.22% for the expanded organics diversion program. This fee increase will cover the cost of both the Interim and Permanent phases of the organics diversion program. The Permanent phase is based on some assumptions, such as receiving a grant from CalRecycle to pay for a portion of the capital costs.

In addition, to implement the Permanent Phase, Waste Connections must enter into an agreement with HZI that guarantees delivery of organics through 2037 (20 years after the plant is up and running). This guarantee is necessary for HZI to obtain the financing to build a plant that will cost more than \$12 million. As such, the City's Garbage, Recycling & Green Waste Agreement would need to be extended an additional 14 years, through 2037, and is conditioned on a Kompogas plant being built (the current agreement runs through December 2023). A similar commitment would be needed from the other cities in Waste Connection's service area. In August 2015, the City Council for the City of San Luis Obispo approved the expanded organics program and rate increase for its customers and is in the process of extending their agreement. The other jurisdictions will be considering this matter at their respective Councils' meetings in October.

If the plant is not built, then the City's franchise agreement term would not be extended, the current termination date through 2023 would remain, and the Interim Phase of transporting organic waste to Santa Maria for processing would continue past mid-2017 until a new long term solution could be developed and implemented.

Proposition 218 Noticing

Although there is no explicit legal requirement to do so, the City continues to elect to follow Proposition 218 noticing and hearing requirements for the proposed solid waste rate increases to ensure there is no question as to the legal validity of those rates. Per the Proposition 218 notification requirements, notices were mailed at least 45 days in advance of the public hearing to both property owners and customers. The protest must be submitted in writing and received by the City Clerk before the close of the City Council public hearing on October 13, 2015. The person signing the protest must either be the property owner or the customer of record. In the event that a protest is submitted by the owner and also by the tenant responsible for payment of the bill, one valid protest is counted for the parcel.

If valid written protests are filed by a majority (50%+1), the applicable proposed rate may not be imposed. As of September 15, 2015, a total of 1 written protest was received by the Office of the City Clerk.

CONCURRENCES

The IWMA concurs with the recommendations in this report.

CONCLUSION

Staff is supportive of the comprehensive organics diversion program plan developed by Waste Connections in response to changes in composting regulations, the Governor's goals for reducing greenhouse gas, and new State legislation enacted in 2014 related to organics management and recommends the PWAB recommend the City Council conduct a public hearing, consider all evidence and testimony presented and do the following:

1. Adopt a resolution increasing solid waste rates on January 1, 2016, by 3.22 % as noted in the attached 218 Notice, provided there is not a majority protest against such increase,
2. Begin implementing an expanded organics diversion program that includes food waste as outlined in the staff report and ends the use of green waste as alternative daily cover at Cold Canyon Landfill; and
3. Approve a contract amendment with Morro Bay Garbage Service (MBGS) extending the term of the existing franchise agreement through 2037 as outlined in the staff report.

**CITY OF MORRO BAY
NOTICE OF PUBLIC HEARING REGARDING
PROPOSED SOLID WASTE RATE INCREASE**

Dear Property Owners and Tenants-Customers:

This notice is intended to inform you the City of Morro Bay (“the City”) will hold a public hearing regarding solid waste disposal rate increases (the “Proposed Rate Increase”) proposed by Morro Bay Garbage Service, Inc. (“the Garbage Company”) for properties and customers receiving solid waste services within the City. The Proposed Rate Increase will be considered by the Morro Bay City Council at the date, time and location specified below. Consistent with the requirements of Proposition 218, this notice also provides you with the following information:

- Date, Time and Place of the Public Hearing
- Majority Protest Procedures
- Reason for the Proposed Rate Increase
- Basis Upon Which the Proposed Rate Increase is Calculated
- Proposed Rate Increase Amounts

NOTICE OF PUBLIC HEARING

A Public Hearing for the Proposed Solid Waste Rate Increases within the City limits will be held on:

Date: October 13, 2015

Time: 6:00 pm

Place: Morro Bay City Council Chambers, Veterans Memorial Building 209 Surf Street, Morro Bay, CA

At the Public Hearing, the Morro Bay City Council will consider all public comment in support of and opposition to the Proposed Rate Increase and whether or not a Majority Protest exists pursuant to the California Constitution (see below). If approved, then the Proposed Rate Increase would become effective January 1, 2016.

MAJORITY PROTEST PROCEDURES

Pursuant to Section 6 of Article XIII D of the California Constitution, the following persons may submit a written protest against the Proposed Rate Increase to the City Clerk before the close of the Public Hearing referenced above.

- An owner(s) of property (parcel(s)) receiving solid waste service within the city limits. If the person(s) signing the protest, as an owner, is not shown on the last equalized assessment roll as the owner of the parcel(s) then the protest must contain or be accompanied by written evidence such person signing the protest is the owner of the parcel(s) receiving solid waste services; or
- A Tenant(s) whose name appears on the Garbage Company’s records as the customer of record for the corresponding parcel receiving solid waste service within the city limits (tenant-customer).

A valid written protest must contain a statement you protest the increase in solid waste rates, the address OR Assessor’s Parcel Number (APN) of the parcel or parcels which receive solid waste service and must be signed by either the owner or the tenant-customer of the parcel or parcels. One written protest per parcel shall be counted in calculating a majority protest to the proposed solid waste rate increase subject to the requirements of Section 6 of Article XIII D of the California Constitution. Written protests will not be accepted by e-mail or by facsimile. Although oral comments at the public hearing will not qualify as formal protests, unless accompanied by a written protest, the Mayor and City Council welcome input from the community during the public hearing. To be counted, a protest must be received in writing by the City Clerk before the close of the Public Hearing referenced above.

Written protests regarding the solid waste rate increase may be mailed to:

**City of Morro Bay
Attn: City Clerk
595 Harbor Street
Morro Bay, CA 93442**

Written protests may also be personally delivered to the City Clerk at Morro Bay City Hall located at 595 Harbor Street, Morro Bay, California.

If valid written protests are presented by a majority of owners and/or tenants-customers of parcels receiving solid waste service within the City's limits, then the City will not adjust/increase the solid waste disposal rates. Only one protest per parcel will be counted in determining whether or not a majority protest exists.

REASON FOR THE PROPOSED RATE INCREASES

The Proposed Rate Increase (amounting to an average increase of approximately 3.22% for each category of service) is being requested by the Garbage Company due to increasing operational costs associated with the implementation of an Organics Program as mandated by California AB 1826, which requires local jurisdictions across the state to develop a recycling program to divert organic waste from landfills to an authorized composting facility. Organic waste means food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed in with food waste.

BASIS UPON WHICH THE PROPOSED RATE INCREASE IS CALCULATED

The Proposed Rate Increase of 3.22% for each category of service is based on the increase in operational costs associated with implementation of an expanded Organics Program to comply with California Assembly Bills 1826 and 1594 that were enacted in 2014. The current annual disposal costs for the existing Organics Program, which consists of greenwaste collection, is \$56,630. The annual cost for disposal and new containers for the expanded Organics Program, which will consist of food waste and greenwaste collection, is \$116,577. This is an increase in cost of \$59,947.

A copy of the Organics Program Costs, which provides additional information on the proposed rate increase, is available at the City Clerk's office located at 595 Harbor Street, Morro Bay, CA

PROPOSED RATE INCREASE AMOUNTS

The following charts provide a summary of the current solid waste rates and the Proposed Rate Increases:

Morro Bay Garbage

SERVICE DESCRIPTION	PICK UPS PER WEEK	CURRENT MONTHLY RATE EFFECTIVE 1/1/2015	7/8/14 APPROVED RATE ADJUSTMENT % EFFECTIVE 1/1/16	7/8/14 APPROVED MONTHLY RATE EFFECTIVE 1/1/16	PROPOSED RATE ADJUSTMENT %	NEW MONTHLY RATE EFFECTIVE 1/1/2016
SINGLE-FAMILY AND MULTI-UNIT RESIDENTIAL (4 UNITS OR LESS)						
Price per month for specified waste-wheeler container collected once each week. One Greenwaste and one recycling service are included at no additional charge once each week.						
MINI-CAN SERVICE						
One 19 gallon waste wheeler container	1	\$9.86	1.21%	\$9.98	3.22%	\$10.30
ECONOMY RATE						
One 32 gallon waste wheeler container	1	\$15.79	1.21%	\$15.98	3.22%	\$16.49
STANDARD RATE						
One 64 gallon waste wheeler container	1	\$31.57	1.21%	\$31.95	3.22%	\$32.98
PREMIUM RATE						
One 96 gallon waste wheeler container	1	\$47.36	1.21%	\$47.93	3.22%	\$49.47
SERVICE AWAY FROM THE STREET CURB						
Additional per month per can or container charge		\$8.60	1.21%	\$8.70	3.22%	\$8.98
Polystyrene (Styrofoam, Plastic #6) is no longer collected for recycling and should be thrown away as trash. Recycling and greenwaste containers should be placed near/next to your garbage bin for collection.						
COMMERCIAL WASTE WHEELERS SERVICE PER MONTH						
One 32 Gallon Waste Wheeler	1	\$32.59	1.21%	\$32.98	3.22%	\$34.04
One 32 Gallon Waste Wheeler	2	\$63.62	1.21%	\$64.39	3.22%	\$66.46
One 32 Gallon Waste Wheeler	3	\$83.21	1.21%	\$84.22	3.22%	\$86.93
One 32 Gallon Waste Wheeler	4	\$102.82	1.21%	\$104.06	3.22%	\$107.41
One 32 Gallon Waste Wheeler	5	\$133.85	1.21%	\$135.47	3.22%	\$139.83
One 32 Gallon Waste Wheeler	6	\$164.88	1.21%	\$166.88	3.22%	\$172.25
One 32 Gallon Waste Wheeler	7	\$196.52	1.21%	\$198.90	3.22%	\$205.30
One 64 Gallon Waste Wheeler	1	\$47.30	1.21%	\$47.87	3.22%	\$49.41
One 64 Gallon Waste Wheeler	2	\$83.21	1.21%	\$84.22	3.22%	\$86.93

One 64 Gallon Waste Wheeler	3	\$120.78	1.21%	\$122.24	3.22%	\$126.18
One 64 Gallon Waste Wheeler	4	\$163.22	1.21%	\$165.19	3.22%	\$170.51
One 64 Gallon Waste Wheeler	5	\$204.07	1.21%	\$206.54	3.22%	\$213.19
One 64 Gallon Waste Wheeler	6	\$238.36	1.21%	\$241.24	3.22%	\$249.01
One 64 Gallon Waste Wheeler	7	\$280.72	1.21%	\$284.12	3.22%	\$293.27
One 96 Gallon Waste Wheeler	1	\$63.62	1.21%	\$64.39	3.22%	\$66.46
One 96 Gallon Waste Wheeler	2	\$110.95	1.21%	\$112.29	3.22%	\$115.91
One 96 Gallon Waste Wheeler	3	\$163.22	1.21%	\$165.19	3.22%	\$170.51
One 96 Gallon Waste Wheeler	4	\$217.12	1.21%	\$219.75	3.22%	\$226.83
One 96 Gallon Waste Wheeler	5	\$264.49	1.21%	\$267.69	3.22%	\$276.31
One 96 Gallon Waste Wheeler	6	\$323.26	1.21%	\$327.17	3.22%	\$337.70
One 96 Gallon Waste Wheeler	7	\$390.05	1.21%	\$394.77	3.22%	\$407.48
COMMERCIAL DUMPSTER CONTAINER SERVICE - In cubic yards						
1 Yd Dumpster	1	\$80.26	1.21%	\$81.23	3.22%	\$83.85
1 Yd Dumpster	2	\$124.35	1.21%	\$125.85	3.22%	\$129.90
1 Yd Dumpster	3	\$160.27	1.21%	\$162.21	3.22%	\$167.43
1 Yd Dumpster	4	\$201.09	1.21%	\$203.52	3.22%	\$210.07
1 Yd Dumpster	5	\$232.14	1.21%	\$234.95	3.22%	\$242.52
1 Yd Dumpster	6	\$289.27	1.21%	\$292.77	3.22%	\$302.20
1 Yd Dumpster	7	\$437.03	1.21%	\$442.32	3.22%	\$456.56
1.5 Yd Dumpster	1	\$98.22	1.21%	\$99.41	3.22%	\$102.61
1.5 Yd Dumpster	2	\$161.93	1.21%	\$163.89	3.22%	\$169.17
1.5 Yd Dumpster	3	\$217.46	1.21%	\$220.09	3.22%	\$227.18
1.5 Yd Dumpster	4	\$276.24	1.21%	\$279.58	3.22%	\$288.58
1.5 Yd Dumpster	5	\$331.77	1.21%	\$335.78	3.22%	\$346.59
1.5 Yd Dumpster	6	\$395.45	1.21%	\$400.23	3.22%	\$413.12
1.5 Yd Dumpster	7	\$580.14	1.21%	\$587.16	3.22%	\$606.07
2 Yd Dumpster	1	\$117.83	1.21%	\$119.26	3.22%	\$123.10
2 Yd Dumpster	2	\$206.00	1.21%	\$208.49	3.22%	\$215.20
2 Yd Dumpster	3	\$276.24	1.21%	\$279.58	3.22%	\$288.58
2 Yd Dumpster	4	\$351.36	1.21%	\$355.61	3.22%	\$367.06
2 Yd Dumpster	5	\$429.75	1.21%	\$434.95	3.22%	\$448.96
2 Yd Dumpster	6	\$508.13	1.21%	\$514.28	3.22%	\$530.84
2 Yd Dumpster	7	\$729.73	1.21%	\$738.56	3.22%	\$762.34

3 Yd Dumpster	1	\$152.15	1.21%	\$153.99	3.22%	\$158.95
3 Yd Dumpster	2	\$276.24	1.21%	\$279.58	3.22%	\$288.58
3 Yd Dumpster	3	\$388.93	1.21%	\$393.64	3.22%	\$406.32
3 Yd Dumpster	4	\$493.43	1.21%	\$499.40	3.22%	\$515.48
3 Yd Dumpster	5	\$638.78	1.21%	\$646.51	3.22%	\$667.33
3 Yd Dumpster	6	\$736.75	1.21%	\$745.66	3.22%	\$769.67
3 Yd Dumpster	7	\$995.33	1.21%	\$1,007.37	3.22%	\$1,039.81
4 Yd Dumpster	1	\$201.09	1.21%	\$203.52	3.22%	\$210.07
4 Yd Dumpster	2	\$374.21	1.21%	\$378.74	3.22%	\$390.94
4 Yd Dumpster	3	\$519.54	1.21%	\$525.83	3.22%	\$542.76
4 Yd Dumpster	4	\$694.31	1.21%	\$702.71	3.22%	\$725.34
4 Yd Dumpster	5	\$869.03	1.21%	\$879.55	3.22%	\$907.87
4 Yd Dumpster	6	\$983.34	1.21%	\$995.24	3.22%	\$1,027.29
4 Yd Dumpster	7	\$1,278.85	1.21%	\$1,294.32	3.22%	\$1,336.00
6 Yd Dumpster	1	\$301.24	1.21%	\$304.89	3.22%	\$314.71
6 Yd Dumpster	2	\$546.95	1.21%	\$553.57		\$571.39
6 Yd Dumpster	3	\$770.07	1.21%	\$779.39		
6 Yd Dumpster	4	\$976.98	1.21%	\$988.80	3.22%	\$1,020.64
6 Yd Dumpster	5	\$1,264.79	1.21%	\$1,280.09	3.22%	\$1,321.31
6 Yd Dumpster	6	\$1,458.76	1.21%	\$1,476.41	3.22%	\$1,523.95
6 Yd Dumpster	7	\$1,970.74	1.21%	\$1,994.59	3.22%	\$2,058.82
8 Yd Dumpster	1	\$398.16	1.21%	\$402.98	3.22%	\$415.96
8 Yd Dumpster	2	\$740.93	1.21%	\$749.90	3.22%	\$774.05
8 Yd Dumpster	3	\$1,028.69	1.21%	\$1,041.14	3.22%	\$1,074.66
8 Yd Dumpster	4	\$1,374.75	1.21%	\$1,391.38	3.22%	\$1,436.18
8 Yd Dumpster	5	\$1,720.69	1.21%	\$1,741.51	3.22%	\$1,797.59
8 Yd Dumpster	6	\$1,947.02	1.21%	\$1,970.58	3.22%	\$2,034.03
8 Yd Dumpster	7	\$2,532.12	1.21%	\$2,562.76	3.22%	\$2,645.28
Sunday Service *		\$60.75	1.21%	\$61.49	3.22%	\$63.47

The rates shown above include the monthly container rental fee and are the same for bins and garwoods, when volume is identical. (Bins and garwoods are types of containers)

Any additional recycling services are charged out at 25% of the garbage rate.

FURTHER INFORMATION

If you have any questions about the Proposed Rate Increase, then please contact the Garbage Company at 543-0875.



AGENDA NO: C-3

MEETING DATE: September 24, 2015

Staff Report

TO: Public Works Advisory Board DATE: September 16, 2015

FROM: Damaris Hanson – Engineering Technician IV

SUBJECT: Wasteload Allocation Attainment Plan – Update

RECOMMENDATION

Review the City's Wasteload Allocation Attainment Plan (WAAP) and provide comments as necessary.

FISCAL IMPACT

The cost of updating the WAAP is approximately \$35, 000. The cost of staff time and monitoring is approximately \$1100 each sample time.

BACKGROUND & DISCUSSION

The Central Coast Regional Water Quality Control Board (Regional Board) requires that a Wasteload Allocation Attainment Plan (WAAP) be developed as part of the implementation activities for the Morro Bay Total Maximum Daily Load (TMDL) for Pathogens (Resolution R3-2002- 0117), which became effective November 19, 2003. The City of Morro Bay is also named as a permittee in the newly adopted Phase II Small Municipal Separate Storm Sewer System (MS4) Permit (Order No. 2013-0001-DWQ; NPDES Permit No. CAS0004; "Phase II Stormwater Permit"). The Phase II Stormwater Permit sites region specific TMDL requirements for the City and requires the development of a WAAP for every approved TMDL for which the City is assigned a wasteload allocation, including any future TMDL implementation plan adopted by the Central Coast Water Board. The City has developed a Stormwater Management Guidance Document (SWMGD) to provide a strategy for complying with the new Phase II Permit, and which supersedes the City's previous Stormwater Management Plan (SWMP). The WAAP was developed to address the approved *Morro Bay Total Maximum Daily Load for Pathogens (2002)* (Attachment 1).

Consistent with Regional Board WAAP requirements, this WAAP contains all of the elements required by Attachment G (Attachment 2) of the Phase II Stormwater Permit. This WAAP has been designed to reduce bacteria loading from the City's MS4 and harbor activities to support attainment of the TMDL's numeric targets and receiving water concentration-based wasteload allocation (WLA), as feasible, recognizing that the City's MS4 is a very small contributor to the overall loading in Morro Bay. Of the 75 square mile, Morro Bay watershed, the City only occupies approximately 3 square miles of this watershed and of that 3 square miles only 0.012 square miles, or 0.016% of the total watershed is urbanized. The TMDL also identifies specific Trackable Implementation Actions (TIAs) for the City and other responsible agencies.

Prepared By: DH Dept Review: RL

City Manager Review: _____

City Attorney Review: _____

The objective of the Pathogens TMDL is to address the impairment of Morro Bay, where elevated levels of fecal coliform present a potential health threat to aquatic animal that live in the Bay, and people who utilize the Bay for recreational purposes and consume shellfish cultivated in the Bay. The TMDL lists Morro Bay as the primary water body listed on the USEPA's 303(d) list; however, Chorro and Los Osos Creeks are proximal to the Morro Bay Estuary and are also impaired by pathogens. These two creeks are evaluated in conjunction to Morro Bay as sources of Morro Bay's impairment.

Morro Bay has been listed with numerous beneficial uses by the State Water Board. However, shellfish harvesting (SHELL), water contact recreation (REC-1), and pathogenic impacts to marine animals have been adversely impacted by pathogens. The impairment of these uses constitutes a serious water quality problem.

The final wasteload allocations from the TMDL are below:

Waterbody	Parameter	(MPN/100 mL)
Morro Bay	Fecal Coliform	Geometric Mean: 14 Maximum: 43
Chorro Creek Los Osos Creek	Fecal Coliform	Geometric Mean: 200 Maximum: 400

The City first developed a WAAP in 2011 and this WAAP was revised to meet the current requirements in the newly adopted Phase II MS4 permit, attachment G. Some of the required updates include:

- A quantifiable numeric analysis for the BMPs selected
- An updated monitoring plan with interim targets
- A detailed description of how the City will assess BMP and program effectiveness
- A strategy for assessing BMP effectiveness.

Sources of Pathogens

In order to develop a plan to attain the wasteload allocation, the sources of pathogens needs to be evaluated and prioritized. Various studies have been conducted to identify the major sources of indicator bacteria in the Morro Bay Watershed. These are identified in the TMDL Project Reports as (from highest to lowest):

- (1) Background sources, which include birds, wild animals and sea mammals;
- (2) Non-point sources, which include humans, septic systems, agricultural runoff, cattle and other farm animals, and domestic pets; and
- (3) Point sources, which include MS4s and sanitary sewer overflows from the City of Morro Bay or the California Men's Colony (CMC) wastewater treatment plants (not currently considered contributing point sources) and stormwater.

Each of these contributions was evaluated in the WAAP to determine if the City of Morro Bay is contributing to the pathogen loading. The BMPs identified in the WAAP address the controllable sources of fecal coliform within the City's jurisdiction.

The BMPs included in the WAAP are currently implemented by the City based on the City's previous Stormwater Management Plan, the previous WAAP, and the updated 2014 Stormwater Management Guidance Document. Updated BMPs represent the next phase improvements that will occur during the implementation of the updated WAAP. These are the BMPs that will be phased in as required by the City's 2013 Phase II Stormwater Permit. Enhanced BMPs will be implemented as needed, based upon the effectiveness assessments and quantitative numeric analyses that will be conducted to measure progress toward attaining the interim milestones and wasteload allocation.

The TMDL states that the primary measures of success for implementation of the TMDL is attainment of the numeric targets, however, due to the small contributing area that the City occupies in the watershed (0.012 square feet of urbanized area) even eliminating all bacteria in the City's storm drain system, would still not achieve the TMDL wasteload allocation in Morro Bay. Therefore the WAAP is proposing two types of monitoring:

- 1.) Water quality monitoring indicating numeric target attainment, and
- 2.) Monitoring of implementation (BMP) of actions

The water quality monitoring proposed is at three locations along Morro Bay. These locations were selected based on their proximity to MS4 discharge locations and the fact that they are locations not currently monitored for the TMDL. The three sampling locations were chosen to provide a good representation of contributing land uses within the City limits. WAAP1 represents runoff from a waterfront commercial and industrial area, WAAP2 is representative of runoff from a downtown commercial/business area, and WAAP3 primarily represents runoff from a residential area. The monitoring at these sites is proposed to be once per year during the dry conditions and twice per year during the wet conditions, when the storm drains are flowing.

The monitoring of the implementation actions of the BMPs in the WAAP and the entire Stormwater program are less quantifiable than water quality monitoring. The majority of these BMPs are *Source Control BMPs*. These types of BMP are activities, prohibited practices, maintenance procedures, managerial practices or operational practices that aim to prevent stormwater pollution by reducing the potential for contamination at the source of pollution.

The strategy for assessing the effectiveness of City's stormwater management program will be evaluated using a guidance document developed by the California Stormwater Quality Association's (CASQA) Municipal Stormwater Program Effectiveness Assessment Guide. This document outlines a Program Effectiveness Assessment (PEA) strategy addressing both programmatic goals (e.g., raising awareness, changing behavior) and environmental goals (e.g., reducing pollutant discharges, improving environmental conditions).

CONCLUSION

The updated WAAP has been prepared according to the requirements in Attachment G of the Phase II small Municipal Separate Storm Sewer System (MS4) Permit.

ATTACHMENTS

1. WAAP
2. Attachment G

S E P T E M B E R 2 0 1 5

C I T Y O F M O R R O B A Y

Wasteload Allocation Attainment Plan for the Morro Bay TMDL for Pathogens

submitted to:

C E N T R A L C O A S T R E G I O N

C A L I F O R N I A R E G I O N A L W A T E R Q U A L I T Y C O N T R O L
B O A R D

prepared by:

L A R R Y W A L K E R A S S O C I A T E S

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1. Introduction

The Central Coast Regional Water Quality Control Board (Regional Board) requires that a Wasteload Allocation Attainment Plan (WAAP) be developed as part of the implementation activities for the Morro Bay TMDL for Pathogens (Resolution R3-2002- 0117), which became effective November 19, 2003. The City of Morro Bay (City) is also named as a permittee in the newly adopted Phase II Small Municipal Separate Storm Sewer System (MS4) Permit (Order No. 2013-0001-DWQ; NPDES Permit No. CAS0004; “Phase II Stormwater Permit”). The Phase II Stormwater Permit sites region specific TMDL requirements for the City and requires the development of a WAAP for every approved TMDL for which the City is assigned a wasteload allocation, including any future TMDL implementation plan adopted by the Central Coast Water Board. The City has developed a Stormwater Management Guidance Document (SWMGD) to provide a strategy for complying with the new Phase II Permit, and which supersedes the City’s previous Stormwater Management Plan (SWMP). The WAAP is contained herein and addresses the approved *Morro Bay Total Maximum Daily Load for Pathogens (2002)*.

Consistent with Regional Board WAAP requirements, this WAAP contains all of the elements required by Attachment G of the Phase II Stormwater Permit (**Table 1**). This WAAP has been designed to reduce bacteria loading from the City’s MS4 and harbor activities to support attainment of the TMDL’s numeric targets and receiving water concentration-based wasteload allocation (WLA), as feasible, recognizing that the City’s MS4 is a very small contributor to the overall loading in Morro Bay. The TMDL also identifies specific Trackable Implementation Actions (TIAs) for the City and other responsible agencies. The City has been implementing these actions, as described in a March 2011 report to the Regional Board (City of Morro Bay, 2011).

The WAAP requirements specified by the Phase II Stormwater Permit are shown in **Table 1**.

Table 1. Phase II Stormwater Permit TMDL Requirements for the WAAP

Permit Attachment G Items	Element
1	Strategy for Selecting Best Management Practices (BMPs)
2	Identify Sources of Bacteria Impairment
3	Strategy to Prioritize Sources
4	Identify Potentially Applicable BMPs to Address Sources
5	Strategy for Prioritizing BMPs
6	BMP Implementation Schedule
7	Quantifiable Numeric Analysis
8	Monitoring Program
9	Strategy for Assessing BMP Effectiveness
10	BMP Adaptive Management Plan
11	Progress Report Plan
12	Outreach Plan
13	Other items from other TMDL reports/documents.

2. Pathogens TMDL

On March 16, 2003, the California Regional Water Quality Control Board Central Coast Region (Regional Water Board) adopted the *Total Maximum Daily Load and Implementation Plan for Pathogens for Morro Bay and Chorro and Los Osos Creek* (the Pathogens TMDL or the TMDL). The TMDL was approved by the State Water Resources Control Board (State Water Board) on September 16, 2003,¹ the California Office of Administrative Law (OAL) on November 19, 2003,² and the United States Environmental Protection Agency (USEPA) on January 20, 2004. The Pathogens TMDL became effective upon OAL approval. The relevant approvals are further detailed on the Regional Board's Website³.

The objective of the Pathogens TMDL is to address the impairment of Morro Bay, where elevated levels of fecal coliform present a potential health threat to aquatic animal that live in the Bay, and people who utilize the Bay for recreational purposes and consume shellfish cultivated in the Bay. The TMDL lists Morro Bay as the primary water body listed on the USEPA's 303(d) list, however, Chorro and Los Osos Creeks are proximal to the Morro Bay Estuary and are also impaired by pathogens. These two creeks are evaluated in conjunction to Morro Bay as sources of Morro Bay's impairment.

Morro Bay has been listed with numerous beneficial uses by the State Water Board. However, shellfish harvesting (SHELL), water contact recreation (REC-1), and pathogenic impacts to marine animals have been adversely impacted by pathogens. The impairment of these uses constitutes a serious water quality problem.

¹ Resolution No. 2006-0060

² OAL File No. 03-1006-01S

³ Central Coast Regional Water Quality Control Board. "Morro Bay Pathogen TMDL"
http://www.waterboards.ca.gov/centralcoast/water_issues/programs/tmdl/docs/morro/pathogen/index.shtml

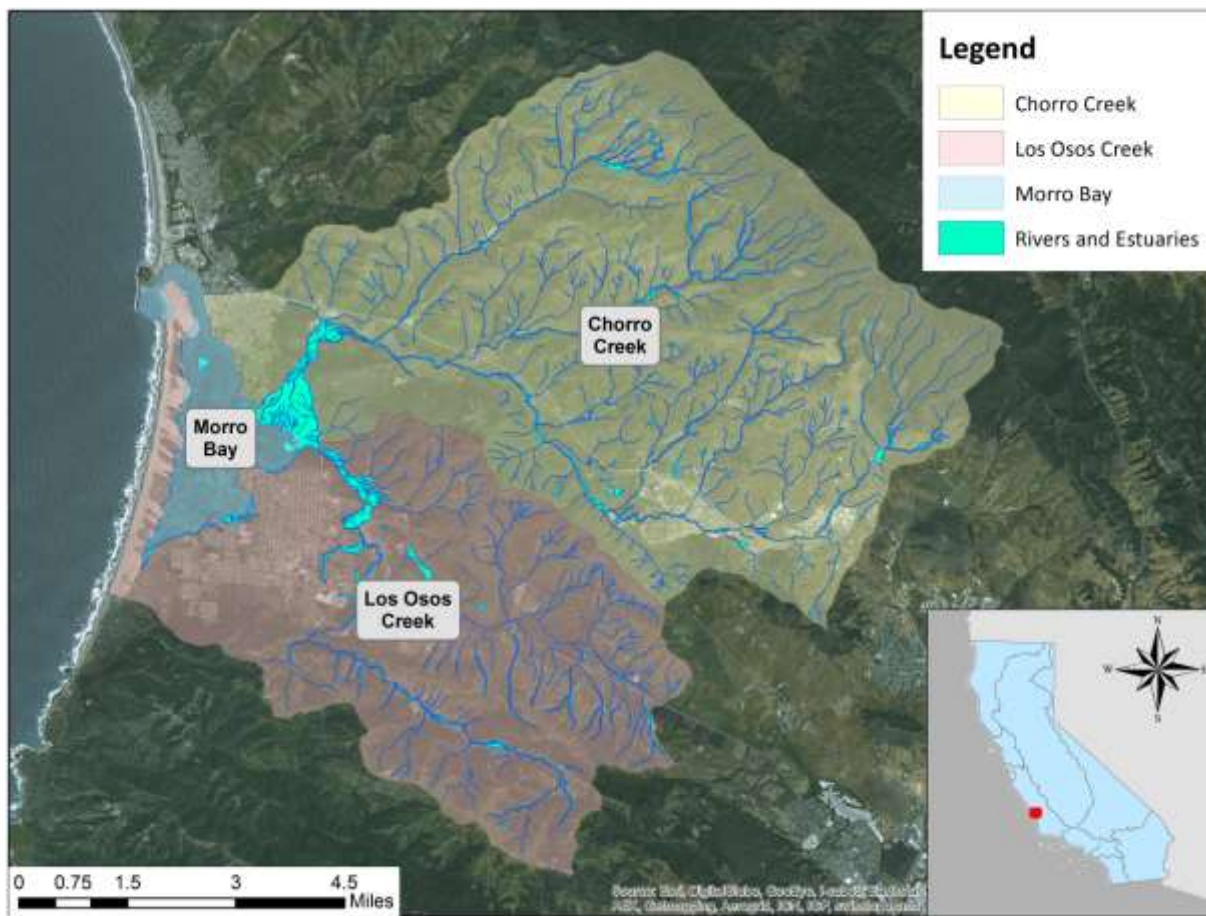


Figure 1. Major drainage basins in the Bacteria TMDL Project Area.

The TMDL Project Area (**Figure 1**) consists of Morro Bay, a natural embayment located on the central coast of California, 60 miles north of Point Conception and 100 miles south of Monterey Bay. The entire Morro Bay Watershed is estimated to be 20,200 acres. Chorro Creek drains 65% of the watershed, while Los Osos Creek drains the remaining 35% of the watershed. Within the Morro Bay watershed, the City represents **approximately 4% of the contributing area**, and is located adjacent to the northern part of the Bay, north of the mouth of Chorro Creek. The City is not responsible for waters flowing from the County of San Luis Obispo or the non-traditional MS4s such as San Luis Coastal Unified School District and the State of California (Park and Transportation) which are outside the jurisdiction of the City of Morro Bay and are subject to their own controls. As a result, the WAAP implementation and assessment strategy is aimed solely at measures within the City's limits and control.

Urban runoff from the City of Morro Bay was assigned Fecal Coliform Wasteload Allocations (WLAs) for Morro Bay, and for the tributaries, Chorro and Los Osos Creeks. **The urban area of the City represents approximately 0.016% of the contributing area.** The final wasteload allocations (WLAs) from the TMDL are shown in **Table 2**.

Table 2. Final Fecal Coliform Wasteload Allocations for the City of Morro Bay

Waterbody	Parameter	WLA (MPN/100 mL)
Morro Bay	Fecal Coliform	Geometric Mean: 14 Maximum: 43
Chorro Creek Los Osos Creek	Fecal Coliform	Geometric Mean: 200 Maximum: 400

2.1 CITY OF MORRO BAY WATERSHEDS

The City of Morro Bay occupies approximately 10.3 square miles, however, only 3.1 square miles of the City's jurisdiction falls within the approximately 75 square mile Morro Bay Watershed TMDL Project area, and much of this is an uninhabited, inaccessible, non-urban sand spit area. The Project area is shown in **Figure 2**.

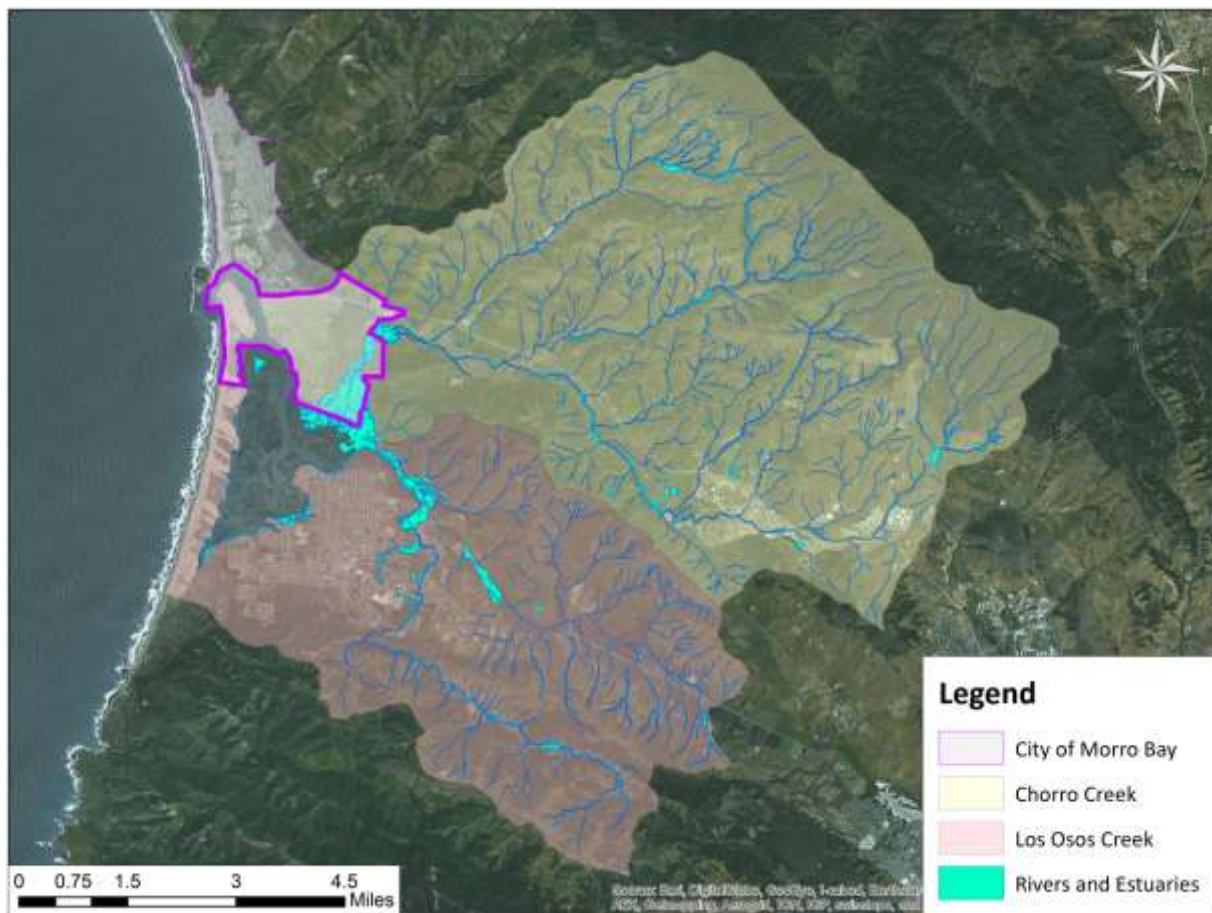


Figure 2. City of Morro Bay portion of the TMDL Project Area

Figure 2, is divided into three subwatershed systems, Chorro Creek, Los Osos Creek, and the Morro Bay Salt Marsh and Estuary. The City itself is comprised of two of the subwatersheds, Chorro and Los Osos Creeks. The thick purple outline indicates the overlap between the City’s jurisdiction and the watershed. Although the City is subject to WLAs developed for each of these subwatersheds, only 4% of the total watershed area of the impacted water bodies is located within the City limits (**Table 3**). **The majority (96%) of the land areas contributing to water quality in the impaired waters of the TMDL lie outside of the City’s jurisdiction.** Land use throughout the watershed is generally characterized with approximately 60% ranchland, 19% brushland, 7% urban areas (including the City of Morro Bay, Los Osos, and Baywood), 7% agricultural crops, and 7% woodland (US EPA, 2013).

Table 3. Impaired Subwatersheds within the City of Morro Bay

Subwatersheds within the City of Morro Bay	Watershed Area for each Subwatershed including Area within and Outside of City Boundaries (square miles)
Chorro Creek	46.72
Los Osos Creek	28.02
Total Impaired Watershed Area	74.74
Total Watershed Area within City Boundaries	3.12 (4% of total watershed area)
Total Urban Land Use within City Boundaries	0.012 (0.016% of total watershed area)

3. Wasteload Allocation Attainment Plan

In addition to addressing the stipulated Permit requirements, this WAAP incorporates adaptive management to allow the City to make adjustments as new information becomes available and assessments of the effectiveness of control measures are initiated. Key elements in adaptively managing efforts to meet the pathogens wasteload allocation will be quantitative numeric analysis and program effectiveness assessments.

3.1 PRELIMINARY STRATEGY FOR SELECTING BMPs

The selection of BMPs has been developed in consideration of the new Phase II Stormwater Permit requirements, existing TMDL requirements, the City's previous SWMP and the City's current Stormwater Management Guidance Plan document. BMP selection and implementation will follow a multi-step approach, as outlined in **Figure 3**. Progressive improvements and enhancements in BMPs will be guided by the effectiveness assessments and quantitative numeric analysis that will measure progress toward attaining the interim milestones and the wasteload allocation.

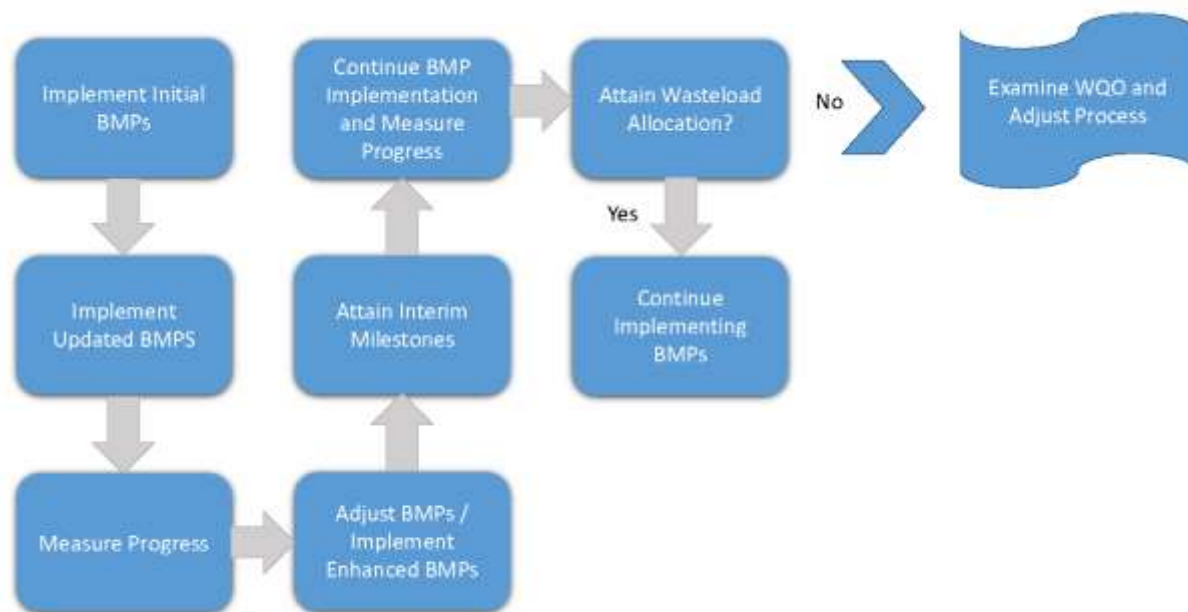


Figure 3. Schematic of BMP Selection and Implementation Approach

Initial BMPs represent the baseline conditions during which the initial TMDL project was conducted. These are the BMPs currently implemented by the City based on the City's previous Stormwater Management Plan, the previous WAAP, and the updated 2014 Stormwater Management Guidance Document. Updated BMPs represent the next phase improvements that will occur during the implementation of the updated WAAP. These are the BMPs that will be phased in as required by the City's 2013 Phase II Stormwater Permit. Enhanced BMPs will be implemented as needed based upon the effectiveness assessments and quantitative numeric analyses that will be conducted to measure progress toward attaining the interim milestones and wasteload allocation.

3.1.1 Initial BMPs

Initial BMPs are the BMPs currently utilized by the City, based on the requirements of the City's Phase II Stormwater Permit and identified in the City's 2014 SWMGD. The City has identified various BMPs which pertain directly to the reduction of bacteria. **Table 4** summarizes the types of BMPs currently employed by the City that address sources of bacteria, in addition to other pollutants of concern. It is the strategy of this WAAP to leverage those BMPs identified in the SWMGD to control bacteria loading to Morro Bay and Chorro Creek to the maximum extent practicable. A detailed description of each BMP is included in the SWMGD.

Table 4. Existing Bacteria BMPs from the City's 2010 SWMP and 2014 SWMGD

Minimum Control Measures	Applicable BMP	Contained in:			
		2010 SWMP	2010 BMP ID	2014 SWMGD	2014 BMP ID/Permit Section
Public Education and Outreach	Use of collaborative regional partnerships to leverage shared resources for public education and outreach	x	PE1	x	PE1
	Distribution of stormwater brochures and other printed materials targeting residential audiences	x	PE2	x	PE2
	Distribution of stormwater information targeting tourists	x	PE3	x	PE3
	Establishment of stormwater educational materials at the local library	x	PE4	-	-
	Stormwater pollution prevention telephone information and reporting line	x	PE5	x	PE4
	Implementation of a special pet waste management and responsible pet ownership public education and outreach campaign	x	PE6	x	PE5
	PSAs provided on public access channel 20 educating residents about stormwater pollution prevention	x	PE7	-	-
	Evaluation of community-based social marketing strategies; Begin implementing strategies into BMPs	x	PE8	x	PE8
	Distribute Stormwater Pollution Prevention educational materials using the City's Stormwater Pollution Prevention Website	x	PE6	x	PE6
	Community Based Social Marketing pilot project to educate the public about the need to pick up pet waste	-	-	x	E.7
	Develop and implement a comprehensive education and outreach program	-	-	x	E.7.a.ii
	Develop and convey a specific stormwater message	-	-	x	E.7.a.iii
Public Participation and Involvement	Holding of public involvement stakeholder meetings and workshops; Develop program with input of the public and implement	x	PP2	x	E.8
	Storm drain marking program	x	PP4	x	PP2

	Promotion and support of watershed stewardship programs	x	PP5	-	-
Illicit Discharge Detection and Elimination	Adoption of illicit discharge ordinance, including enforcement provisions	x	IL1	-	-
	Mapping of the City's storm drain conveyance system using GIS	x	IL2	x	E.9.a
	Implementation of procedures for illicit connections/discharge inspections and dry weather screening for the storm drain system	x	IL3	x	IL1
	Adoption and enforcement of a pet waste management ordinance to be incorporated within the illicit discharge ordinance	x	IL4	x	IL2
	Maintenance of the pump-out stations free of charge at various locations throughout the Bay	x	IL5	x	IL3
	Create an inventory of industrial/commercial facilities that could discharge pollutants in stormwater	-	-	x	E.9.b
	Sample any flowing outfalls to detect illicit discharges.	-	-	x	E.9.c
	Develop procedures for illicit discharge detection and elimination source investigations and corrective actions	-	-	x	E.9.d
	Develop a spill response plan	-	-	x	E.9.e
Post-Construction Stormwater Management	Continuation of enforcement of Morro Bay's current zoning ordinance with appropriate buffer zones	x	PC1	x	PC1
	Revision of the CEQA initial study checklist to include urban runoff quantity and quality and post-construction management considerations	x	PC2	-	-
	Continuation of review of post-construction stormwater management in the development review process	x	PC3	x	PC2
	Implementation of a post-construction stormwater management maintenance inspection program	x	PC4	x	PC3
	Inclusion of the importance of post-construction stormwater management in the revised Conservation and Open Space element of the General Plan	x	PC5	x	PC4
	Commitment to long-term watershed planning	x	PC6	x	PC5
	Development and/or modification of enforceable mechanisms that will effectively implement hydromodification controls and LID	x	PC7	x	PC6
	Development and enactment of a strategy for implementing LID and hydromodification controls for new and redevelopment projects	x	PC8	x	PC7
	Adopt the CCWRCB Post-Construction Stormwater Management requirements	-	-	x	E.12.k
	Implement source control measures for regulated projects	-	-	x	E.12.d

Good Housekeeping for Municipal Operations	Implementation of an employee training program for municipal operations employees	x	MO1	x	E.7.b.3
	Implementation of a City street sweeping program	x	MO2	x	MO1
	Implementation of storm drain inspection and maintenance procedures and schedules	x	MO3	x	MO2
	Implementation of SWPPPs and Self-Inspection Checklists for Public Works Corporation Yard	x	MO4	x	E.11.d
	Implementation of City road maintenance procedures to prevent the discharge of pollutants during maintenance operations	x	MO5	x	E.11.h
	Conduct City facility stormwater pollution prevention inspections	x	MO6	x	E.11.e
	Maintenance of the Clean Marina Program	x	MO10	-	-
	Implementation of City landscaping and lawn care stormwater pollution prevention procedures for City facilities	x	MO11	x	E.11.j

3.2 REVIEW OF CITY SOURCES OF PATHOGENS

Many agencies have been involved in the determination of bacterial sources for Morro Bay. As a result of various source studies, the major sources of indicator bacteria in the Morro Bay watershed are identified in the TMDL Project Report as (from highest source to lowest):

- (1) Background sources, which include birds, wild animals and sea mammals;
- (2) Non-point sources, which include humans, septic systems, agricultural runoff, cattle and other farm animals, and domestic pets; and
- (3) Point sources, which include MS4s and sanitary sewer overflows from the City of Morro Bay¹ or the California Men's Colony (CMC) wastewater treatment plants (not currently considered contributing point sources) and stormwater.

The TMDL also discerns dry versus wet weather sources, noting that direct urban runoff discharges to Morro Bay (such as from the City and the community of Los Osos) represent a significant fraction of bacteria loading to Morro Bay during wet weather only, although a greater portion of this source load was estimated to come from the south Bay areas (TetraTech, 1999).

3.2.1 Natural Background Sources

Though many agencies and other groups have partnered during the last several years in identifying sources of bacteria in Morro Bay, the task has been difficult. This is due in part to the inability of the indicator, fecal coliform, to differentiate between sources of bacteria. As part of the TMDL source analysis, a DNA fingerprinting study was conducted in order to further differentiate between the fecal coliform sources. DNA fingerprinting of *E. coli* (a subset of fecal coliform) was conducted by California Polytechnic State University (Cal Poly) and University of Washington researchers from 1999 through 2001 (Cal Poly, 2002). When results of all samples (Bay waters, sediment,

oysters, seeps, and creeks) were summed for both wet and dry periods, the largest fractions of *E. coli* came from four sources:

- Bird (22%)
- Human (17%) the seeps in the Los Osos are have the highest proportion of *E. coli* from human sources.
- Bovine (14%)
- Dog (9%)

The contributions of each source differed between water sample locations, but not between seasons. Birds were the largest source of *E. coli* in the Morro Bay water samples, while bovine sources contributed the majority of *E. coli* in Chorro Creek. When results were compared seasonally (i.e. between wet and dry periods), source contributions remained the same.

Oyster tissue samples were also tested for natural background conditions of pathogens, since the basis for the TMDL is the Morro Bay SHELL beneficial use impairment. When compared to other matrices, the human fraction of pathogens was very small (5%). At other DNA fingerprinting sampling sites around Morro Bay, the human contribution to pathogens was relatively small (11%). Many other sources contributed to the pathogens detected in the study; birds (28%), cows and horses (22%), pets (10%), wild terrestrial mammals (6%), marine mammals (3%), and unknown (21%) sources all constituted a greater fraction of pathogens contributions than human sources.

Ten years of fecal coliform data were collected through the National Monitoring Program (1993-2001) and the California Polytechnic State University at San Luis Obispo (Cal Poly, 2002). Results indicate that portions of Chorro Creek and Los Osos Creek, which both drain to Morro Bay, have fecal coliform concentrations above the single sample body contact recreation (REC-1) objective of 400 MPN/100 ml at least half the time, with the greatest concentrations observed during wet weather. Morro Bay fecal coliform values were found to regularly exceed the California Department of Public Health (CDPH) monthly geometric mean shellfish harvesting (SHELL) standard of 14 MPN/100 ml as well as the CDPH 90th percentile SHELL standard of 43 MPN/100 ml, as referenced in the TMDL numeric targets. While this may be in part due to the contributions of Chorro and Los Osos Creeks, recent analyses by Southern California Coastal Water Research Project (SCCWRP) researchers (SCCWRP, 2009) have shown that frequent SHELL standard exceedances are not uncommon for coastal waters throughout California, even at reference beach sites at the outlet of undisturbed watersheds, given the very low SHELL standard value relative to natural coastal bacteria levels, particularly in enclosed estuarine water bodies. Consequently, the State Water Resources Control Board is currently reviewing these CDPH standards to consider incorporating reference waterbody provisions, such as those that are implemented for other Southern California REC-based bacteria TMDLs. The federal REC water quality criteria was revised by the USEPA in 2012 in acknowledgement of the weakness of the current indicator bacteria standards (i.e., they have been found to be poor indicators of human illness risk, particularly at beaches impacted by urban runoff only

In addition to Chorro and Los Osos Creeks, groundwater seeps on the Morro Bay shoreline of Los Osos are another constant input to the bay. Water quality samples from these seeps indicate that concentrations of fecal coliform often exceed REC-1 objectives during periods of both wet and dry weather. These samples were also found to have a relatively high human contribution (Cal

Poly, 2002). However, the groundwater seep sites are neither within the jurisdiction nor control of the City of Morro Bay.

Although the TMDL Project Report source assessment does acknowledge the significance of natural sources consistent with findings from other recent reference watershed studies (e.g., SCCWRP, 2008), the TMDL WLAs do not account for natural sources in the form of allowed exceedance days (or concentrations/loads above the REC-1 or SHELL water quality objectives) based on reference watershed conditions. The reason for this omission is because human fecal sources are believed to be a much more significant source of illness risk than natural background fecal sources such as birds (Soller et. al., 2010; WERF, 2011). Illness risks from human fecal sources are the basis for the SHELL and REC water quality objectives that are used for the TMDL WLAs.

3.2.2 Non-point Sources

There are many potential controllable non-point sources of fecal coliform throughout the TMDL project area, however few of these non-point sources may be controlled within the City's jurisdiction. Of these fecal sources, the City may only contribute human and pet bacterial loads to Morro Bay. And since human fecal sources are expected to contribute the greatest illness risk, these potential sources (such as from boats, sanitary sewer overflows, illicit connections, etc.) should be assigned the highest priority for control.

3.2.2.1 Human Input

Fecal input from humans increases fecal coliform and pathogenic concentrations into the water. According to the studies conducted throughout the project area, human *E. coli* constitutes the second highest source of *E. coli* in Morro Bay. Human fecal contaminated waters create the potential for detrimental exposures to a number of pathogens, and should be controlled to the maximum extent possible.

There are several known source locations of human fecal input that will be explored in more detail:

- Illegally moored boats with inadequate waste disposal capabilities
- Live-aboard boaters in Morro Bay
- Failing/overloaded septic systems in Los Osos and other locations throughout the watershed
- Trailer Parks
- Homeless people
- Agricultural workers not provided with adequate facilities

Illegally moored boats with inadequate waste disposal capabilities

Illegally moored boats may be a source of human-input fecal coliform to Morro Bay. As illegally moored boats are not abiding by boat laws that protect Morro Bay, it is possible that they are not following the rules for proper waste disposal either. Illegally moored boards are not observed to be moving to pump-out stations with the same frequency as those that are legally moored. In the mid 2000's, the Harbor Department provided substantial levels of support to California Fish and Game in their efforts to remove the illegally moored vessels in the back bay. This support consisted of assisting in identifying boats and boat owners, transport to the vessels for notification and enforcement, removal of vessels, and pursuing liens and eventual demolition of vessels that had no known owners or owners that abandoned them.

Live-aboard boaters in the Bay

Boats moored legally may also be a source of human-input fecal coliform to Morro Bay. Though these boats have obtained necessary permits for operation from the City, these boats may still contribute human waste. It is difficult to know their exact contribution to the fecal coliform concentrations found in the Bay due to the lack of resources for constant surveillance of these boaters. Over the past five years the Harbor Department has greatly stepped-up its live-aboard enforcement, including the issuance of citations to chronic offenders and bringing cases to court for adjudication. While this is always a work in progress, live-aboard permit compliance is estimated to be at an all-time high. The Harbor Department continues to aggressively pursue vessels going into dereliction and seizing them for lien sale and eventual demolition via generous grants from Boating and Waterways, versus letting them continue to be occupied by semi-homeless and illegal live-aboards.

Failing or overloaded septic systems in Los Osos and other locations throughout the watershed

Based on the results from the DNA study conducted throughout Morro Bay, it is clear that faulty or overloaded septic systems are contributing to the pathogen load in the Bay. In particular, these septic systems are likely to be located in Los Osos, where the groundwater seeps were sampled for fecal coliform. Morro Bay Municipal Code 13.12.230 prohibits the installation of septic systems within the City Limits. While there is no current municipal system for inspecting and maintaining the septic systems, this potential source of pathogens falls outside of the jurisdiction of the City.

Trailer Parks

It is very unlikely that trailer parks are a contributing source of human-input fecal coliform to Morro Bay. Previous studies performed by the City found that all of the trailer parks in the City have hook up and sewer laterals, rather than a dumping station. Therefore, it is unlikely that there is any illegal dumping taking place.

Homeless people

Homeless people are a possible source of human-input fecal material entering the creeks and Morro Bay. Based on visual observations of homeless encampments, no facilities exist for disposing of human waste.

Agricultural workers not provided with adequate facilities

In the past, human fecal matter has been found in the creek beds close to agricultural areas. Agricultural workers not provided with adequate waste disposal options may use the creek beds. However, this potential source of fecal coliform to Morro Bay is not likely to be a factor. . Though some agricultural fields are located in the City's limits, these fields are in the Morro Creek watershed. The agricultural fields in the Chorro Creek watershed are not within the city's jurisdiction (**Figure 4**). Additionally, new food safety regulations adopted and implemented since 2013 mandate the use of portable toilets in all fields growing crops for human consumption

3.2.2.2 Livestock

According to the DNA study conducted throughout the project area, fecal input from livestock was the third highest source contribution to Morro Bay. The mechanism for pathogen contamination appears to be direct deposition or transport of fecal material to the stream by overland flow. Preventing livestock from entering the stream would be an effective way of reducing potential

contamination from livestock. However, controlling fecal input from livestock falls outside of the jurisdiction of the City of Morro Bay. There is no rangeland containing livestock within the City limits (**Figure 4**).

3.2.2.3 Domestic Animals

Feral and domesticated cats and dogs are a direct source of pathogenic input into Morro Bay, based on analyses obtained from the DNA study. Wastes from these animals can occur near a storm drain or creek, and if it is not cleaned up, can increase the likelihood that their fecal material may be transported to the Bay. Waste from these animals may also carry pathogens that cause human or marine animal health problems. It is possible for the City of Morro Bay to address pathogenic concerns from domestic animals by addressing urban runoff.

3.2.3 Point Sources

Several potential point sources are examined in the TMDL Project Report. While all point sources are considered in the source analysis, it appears that the primary point source contribution of pathogens is from stormwater discharge.

3.2.3.1 Stormwater

The City of Morro Bay is responsible for the stormwater within the City limits, and the Los Osos Community Services District is responsible for stormwater within their community limits. Though water enters the City's stormdrain system from non-point sources, the stormdrain system becomes a point source when the water is funneled into a storm drain and concentrated into pipes. Based on existing literature, Regional Water Board Sampling, and a study by TetraTech, the TMDL Project Report staff has concluded that stormwater contributes a high concentration of bacteria to Morro Bay.

3.2.3.2 Wastewater Treatment Plants (not currently considered contributing point sources)

Morro Bay / Cayucos Wastewater Treatment Plant

The Morro Bay / Cayucos wastewater treatment plant is located north of the City of Morro Bay (outside of the project area), and discharges advanced primary treated effluent into the ocean. The discharge point is north of Morro Bay, outside of the mouth (See **Figure 4**). Though the WWTP has a history of concern regarding bacterial contamination and contribution of pathogens to Morro Bay, more recent studies have found consistently low numbers of fecal coliform at the mouth of the Bay. As a result of these studies, the Morro Bay / Cayucos wastewater treatment plant is not a source of pathogens in the Bay⁴. In addition, the collections system has an adopted Sewer System Management Plan that includes proactive maintenance programs, a system of redundant equipment at the lift stations, and good housekeeping plans and policies, all of which suggest that the collection system is not considered a suspected source of pathogens. As of July 2015 the Morro Bay / Cayucos wastewater treatment plant enrolled in the NPDES industrial general permit for

⁴ The TMDL Support Document (2003), citing studies by Anthony (1986) and Cal Poly San Luis Obispo (2002), concluded that the Morro Bay Wastewater Treatment Plant, which has been disinfecting its effluent since 1986, is not likely a source of elevated bacteria levels in the Bay. This includes the plant's collection systems, which are operated under an aggressive maintenance plan to prevent emergency failures and spills.

stormwater. With this permit a Stormwater Pollution Prevention Plan was developed containing many BMPs that will be followed along with rain event monitoring.

California Men's Colony Wastewater Treatment Plant

The California Men's Colony (CMC) water treatment plant is located within the Morro Bay watershed and discharges tertiary treated effluent into Chorro Creek (See **Figure 4**). CMC has had a past history of spills but in more recent times has upgraded the plant and made changes to their operations. CMC monitors the concentration of total coliform from the effluent five days per week and also uses UV disinfection. Based on the monitoring and the CMC Annual Reports, the CMC does not appear to be affecting the concentration of coliform in the creek. The TMDL Project Report does not consider the CMC as a source of pathogens.

Monarch Grove – Wastewater Treatment Plant

Monarch Grove is a small wastewater treatment plant located in Los Osos. They have a Waste Discharge Requirement as they reclaim water from a small housing development and use that water to irrigate a golf course. Treated water has low-to-nondetectable amounts of total coliform and is not viewed as a source of pathogenic input into Morro Bay.

Los Osos Water Reclamation Facility

The Los Osos Water Reclamation Facility is a new, small wastewater recycling facility located in Los Osos and owned by the County of San Luis Obispo. The facility has a Waste Discharge /Recycled Water Requirements permit authorizing the discharge of tertiary treated municipal wastewater to leach fields, urban landscape irrigation, and agricultural irrigation. The requirements at this facility do not specify targets for pathogens.

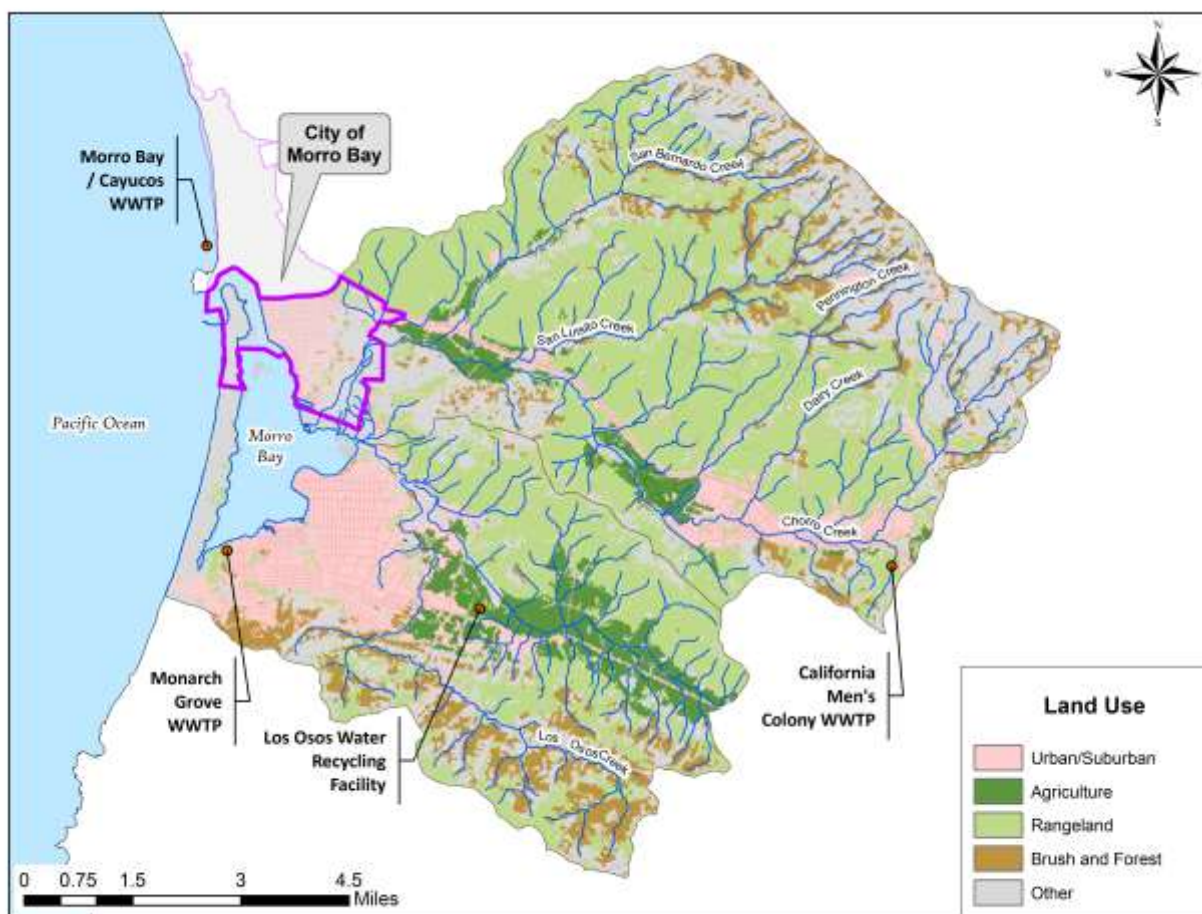


Figure 4. Land use map of the Morro Bay Watershed

3.3 STRATEGY TO PRIORITIZE SOURCES

Based upon the sources identified in Section 3.2, it is necessary to prioritize these sources to ensure the largest, or most controllable, sources are addressed first. When conducting this prioritization, the fundamental goal was to address the largest beneficial use impairments in the TMDL Project Area applicable to the City.

In general, primary contributing bacteria sources to Morro Bay waters – including Chorro Creek, faulty septic systems (which are an acknowledged issue in the Los Osos area that is being addressed by the new Los Osos Treatment Plant), and natural sources such as birds, wildlife and marine mammals – are not under the City’s jurisdiction. The primary contributing sources of bacteria within the City’s jurisdiction are expected to be urban stormwater runoff and human input sources, such as illicit discharges from boats in the harbor. In the TMDL, the Regional Water Board concluded that stormwater from point (i.e., MS4s) and non-point (e.g., agriculture, parks) sources contributes a significant fraction of bacteria loading to the Bay during wet weather, and may be one of the primary vehicles by which human, bird, and pet wastes are transported. The

City will therefore prioritize BMPs that address these fecal sources, particularly in areas of the MS4 that discharge directly to Morro Bay.

Only a small portion of the drainage to Chorro Creek falls within the City's MS4; approximately 14 acres of residential, 1 acre of commercial/industrial and two mobile home parks. As stated above, these drainage areas are considered a lower priority in comparison to those that drain directly to Morro Bay.

In conjunction with requirements for the Stormwater Management Plan, City-specific source identification monitoring and investigation will be utilized to support both BMP implementation planning efforts and regulatory strategies.

3.3.1 Potentially Applicable BMPS to Address Pathogen Sources

Anthropogenic sources of pollutants likely need be reduced through employment of best management practices (BMPs). BMPs can encompass any program, technology, operational methods, or engineered systems which, when implemented, prevent, control, remove or reduce pollution. Potential BMPs which could be used to address elevated pathogen loadings in the City of Morro Bay are shown in **Table 5**

Table 5 along with their potential applicability to wet weather, dry weather, new (or re-) development, and existing development. These potential BMPs may be considered in the future after additional data has been collected and assessed in the City. These potential BMPs can be implemented in addition to the existing BMPs currently in effect.

In the following sections, the potential BMPs have been organized into the following four broad categories:

- *Treatment Control BMPs*: Any engineered system designed to remove pollutants by simple gravity settling of particulate pollutants, filtration, biological uptake, media absorption or any other physical, biological, or chemical process;
- *Site-Design BMPs*: Low technology practices designed to minimize the impact of impervious cover through the reduction of stormwater runoff volume and associated pollutants;
- *Source Control BMPs*: Activities, prohibitions of practices, maintenance procedures, managerial practices or operational practices that aim to prevent stormwater pollution by reducing the potential for contamination at the source of pollution; and
- *Non-Stormwater BMPs*: Practices, operations or activities aimed at reducing the volume and/or pollutants associated with dry-weather flows.

Table 5. Potential BMPs to address Fecal Coliform

BMP Types	Wet Weather	Dry Weather Flows	New/Re-Development	Existing Development	Description
Treatment Control					
Infiltration Basins and Trenches	X	X	X	X	Constructed control measures located in permeable soils that capture, store and infiltrate stormwater runoff over a prescribed period. Includes infiltration basins, infiltration trenches and porous pavement. Satisfactory removal is not expected in soils that are excessively well drained.
Porous Pavement Detention	X	X	X	X	This measure consists of impermeable blocks separated by spaces and joints filled with soil and/or gravel. The pore spaces between the pavers allow infiltration of stormwater into a designed storage facility below the surface.
Wet Detention Basin (Wet Pond)	X	X	X	X	Constructed basins that have a permanent pool of water throughout the year (or at least throughout the wet season). The primary removal mechanism is settling while stormwater runoff resides in the pool. Nutrient uptake also occurs through biological activity in the pond.
Bioretention (Porous landscape detention)	X	X	X	X	Landscaped features designed to capture, treat and temporarily store stormwater runoff on the project site. Bioretention is commonly implemented as parking lot islands or as planters in residential and urban settings.
Sand Filters	X	X	X	X	Usually two-chambered stormwater treatment devices; the first chamber is for settling large particles, and the second is a filter bed filled with sand or another filtering media to remove finer particles and other pollutants. Variations include public domain and proprietary media filters.
Constructed Wetland	X	X	X	X	Constructed basins similar to wet ponds that incorporate wetland plants in a shallow pool. As stormwater runoff flows through the wetland, pollutant removal is achieved by settling and biological uptake within the practice.
Green Roof	X	X	X		Consists of a thin layer of vegetation and soil installed on top of a conventional flat or sloped roof. This layer creates an environment suitable for plant growth without damaging the underlying roof system. Green roofs create green space for public benefit, energy efficiency and stormwater retention/detention and evapotranspiration.
Site Design					
Permeable Pavers	X	X	X	X	Impermeable blocks separated by spaces and joints filled with soil and/or gravel. The pore spaces between the pavers allow infiltration of stormwater into a designed storage facility below the surface.
Rain Barrel/Cistern	X	X	X		Collects stormwater from rooftops and stores it for future use such as lawn and garden watering.

BMP Types	Wet Weather	Dry Weather Flows	New/Re-Development	Existing Development	Description
Source Control					
Riparian Stream Buffer	X	X	X	X	A designated area along a shoreline, wetland, or stream where development or other activities are restricted or prohibited. The primary function of a riparian stream buffer is to physically protect and separate a stream from future disturbance or encroachment. If properly designed, buffers can remove pollutants from stormwater runoff.
Waterfowl Management	X	X			Reduces the number of geese and gulls roosting and defecating in or near the surface water. May employ the use of dogs, egg addling, and turf management. Also includes “do not feed the waterfowl” ordinances and signage. Applicable to open space and lakes/ponds with waterfowl populations.
Channel/Drain Maintenance	X	X			Maintenance activities that reduce the presence of biofilms or other substances which provide growth media for bacteria.
Non-Stormwater					
Dry-weather Flow Diversion to WWTP	X	X	X		Diverts dry weather, non-stormwater flows to the Waste Water Treatment Plant (WWTP) for treatment.
Dry-weather UV Disinfection w/ Filtration	X	X	X		Exposes dry weather runoff to UV light. UV light alters the bacteria’s DNA, which prevents it from reproducing and developing within the system. UV treatment does not alter water chemically; nothing is being added except energy.
Illicit Connection Removal	X	X			Works to find, fix, and prevent water quality degradation caused by illicit connections. Actions usually involve some form of infrastructure modification or repair that targets sewage cross-connections, industrial cross-connections and commercial cross connections.
Sanitary Sewer Overflow Repair	X	X	X		Works to eliminate overflow, spill, or discharge of untreated wastewater from the sanitary sewer system. Practices include cleaning maintenance of sewer line, repairing broken service lines, upgrading sewer, and constructing wet weather storage and treatment facilities to treat excess flows.

3.4 STRATEGY FOR PRIORITIZING BMPS

The potential BMPs summarized in Section 3.3.1 can be prioritized based on their feasibility of implementation, cost, and whether they address a potential major pathogen source. Based on the source information provided in the TMDL Project Report, and independent analyses by the City, BMPs that address urban runoff and human input sources should be prioritized. A ranking system was used to assess the expected effectiveness of each action and is shown in **Table 6**.

Table 6. Effectiveness Ranking System

Effectiveness Ranking	Description
5	Complete elimination of pollutant source
4	Significant reduction of pollutant source
3	Moderate reduction of pollutant source
2	Minor reduction of pollutant source
1	Little to no effect

The potential BMPs summarized above can be prioritized based on their feasibility of implementation, cost, and whether they address a potential major bacteria source. Based on the source information provided in the TMDL Project Report, BMPs that address urban stormwater runoff and human input sources, such as illicit discharges from boats in the harbor should be prioritized. The Regional Water Board also concluded that stormwater from point (i.e., MS4s) and non-point (e.g., agriculture, parks) sources contributes a significant fraction of bacteria loading to the Bay during wet weather, and may be one of the primary vehicles by which human, bird, and pet wastes are transported. The City will therefore prioritize BMPs that address these fecal sources, particularly in areas of the MS4 that discharge directly to Morro Bay.

Impervious surfaces include roads, parking lots, sidewalks, driveways, and any other surface that prohibits infiltration of water into the soil. Fecal waste that is deposited on impervious surfaces can enter the storm drain system and be discharged to surface waterbodies. For example, pet or bird waste could enter storm drains during either wet or dry weather if deposited on impervious surfaces and transported by car wash water, irrigation, or stormwater. Impervious cover in the Project Area is concentrated most densely in the City of Morro Bay. Thus, it is expected that BMPs that mitigate runoff from impervious surfaces would decrease fecal coliform loading from urban areas. BMPs will be prioritized for further consideration based on their ability to reduce runoff from stormwater flows and from dry weather flows.

As more Morro Bay-specific monitoring information becomes available, a subset of potential BMPs summarized in **Table 5**

Table 5 will be evaluated based on available information on pollutant removal potential from the EPA Menu of BMPs⁵ and the International Stormwater BMP Database (Wright Water Engineers, 2007, 2012). BMPs that will be considered for evaluation are summarized in **Table 7**

Table 7. Evaluation Summary of Potential BMPs

BMP Type	Evaluation Summary	Preliminary Ranking
Treatment Control		
Infiltration Basins and Trenches	Limited data available, but expected reduction in bacteria from runoff volume reduction.	4
Porous Pavement Detention	Inadequate data available for evaluation, but expected reduction in bacteria from runoff volume reduction.	4
Wet Detention Basin (Wet Pond)	Potential moderate bacteria removal with slow infiltration. Long holding times enable sedimentation, solar irradiation, and natural predation.	3
Bioretention (Porous landscape detention)	Expected to have moderate potential bacteria removal from sorption and filtration, as well as volume reduction.	3
Sand Filters	Potential moderate bacteria removal, but studies have shown inconsistent removal among sand filters.	3
Constructed Wetland	Limited data available, but potential moderate bacteria removal, similar to wet pond.	3
Green Roof	Limited data available.	3
Site Design		
Permeable Pavers	Limited data available, but potential high bacteria removal (analogous to porous pavement detention) due to decrease in runoff volume.	4
Rain Barrel/Cistern	Potential low bacteria removal with slight decrease in runoff volume.	2
Source Control		
Riparian Stream Buffer	Potentially effective for multiple constituents of concern.	3
Waterfowl Management	Potentially effective if applied in targeted areas where waterfowl are a major contributor.	1/4
Channel/Drain Maintenance	Effective in areas where biofilms or other substances that provide growth media for bacteria are present.	3
Non-Stormwater		
Dry-weather Flow Diversion to WWTP	Potential large reductions in bacteria due to removal of bacteria by treatment.	5
Dry-weather UV Disinfection w/ Filtration	Potential large reductions in bacteria due to removal of bacteria by treatment.	4
Illicit Connection Removal	Potential across-the-board reduction in pollutants associated with an illicit connection.	4
Sanitary Sewer Overflow Repair	Potential large benefit in reducing bacteria if SSOs are present.	4

⁵ <http://cfpub1.epa.gov/npdes/stormwater/menuofbmps/index.cfm>

Utilizing the most effective potential BMPs may reduce fecal coliform bacteria in Morro Bay. However, the City may have little need to adopt any additional BMPs if their current programs prove to be successful. Many studies have been carried out with the intent of gaining insight into the effectiveness of certain measures, including programs the City has already implemented such as pet waste management (IL2) and street sweeping (MO1).

One such report, published by the San Diego Regional Water Quality Control Board (SDRWQCB), lists several example activities that might be necessary (but not sufficient) to meet indicator bacteria water quality objectives (SDRWQCB, 2008). The list includes the following BMPs:

- Effective enforcement of all applicable ordinances, such as pet waste disposal and nuisance flow elimination ordinances;
- Implementation of an effective and compliant illicit discharge detection and elimination program;
- Effective prevention and collaboration to prevent discharges of sewage into and from MS4s;
- Education and outreach on requirements for proper disposal of all pet waste; and
- Discouragement of feeding of urban animals in areas where they are highly concentrated.

A technical report by Dr. Robert Pitt (University of Alabama) also highlighted the importance of pet feces control programs and illicit discharge detection and elimination programs as key elements to urban stormwater bacteria control, and added that street cleaning programs can have moderate effects on bacteria loading (Pitt, 2007).

3.5 IMPLEMENTATION SCHEDULE

The BMPs described in this WAAP are part of the City's broader SWMGD efforts. The proposed BMPs were selected because they are specific to the needs of the City, they protect and improve water quality, they are feasible based on the City's resources, and they are flexible to allow for continuous improvement over the course of the five-year permit term.

Implementation of the SWMGD, including this WAAP, will require that the City expend resources and staff time to ensure that the MEP requirement of the Permit is satisfied. The City will take advantage of existing water quality activities related to stormwater, particularly by partnering with community volunteer groups, City departments, and a coalition of other agencies to implement the SWMGD. By building upon the combined effects of these activities, the City will be able to implement a more effective and efficient program.

Table 8, condensed from the SWMGD, identifies the implementation schedule for each existing BMP per the 2014 SWMGD as well as the milestones and measureable goals (based on permit compliance year) that will be used by the City to track and assess implementation efforts. Measureable efforts will be addressed in the 2015 PEIP. BMPs that are ongoing or continuing are indicated by "x's" for all 5 years of implementation.

Table 8. BMP Implementation Table for Bacteria Control

Minimum Control Measures	2014 BMP ID / Permit Section	Measureable Goals and Outcomes	Permit Compliance Year				
			1	2	3	4	5
Public Education and Outreach	PE1	PE1A - Participate in SLO County Partners for Water Quality Meetings each year for planning and evaluating the status and performance of the stormwater pollution prevention public education and outreach programs within the County and for sharing information about what is working or not working. Participation will begin in year 1 and continue through the permit term.	x	x	x	x	x
	PE2	PE2A - If brochures are used as the media type to educate the residents, then the City will reach 20% of the households per year, with 100% of the households reached by year 5.	x	x	x	x	x
		PE2B - Post brochures on the City's website, if applicable.	x				
	PE3	PE3A - The City will evaluate these signs on an annual basis and determine if new opportunities for signage are necessary. Partner with the National Estuary Program to provide interpretive signage at high tourist impact areas.	x	x	x	x	x
	PE4	PE4A - Promote the Public Services Main Line Citywide for Pollution Reporting Hotline in printed materials and on the City Stormwater Pollution Prevention Website.	x	x	x	x	x
		PE4B - Record the number of hotline calls received. Track the types of reports, inquiries, and how they were resolved.	x	x	x	x	x
	PE5	PE5A - Provide mutt mitt stations in all City Parks.	x	x	x	x	x
		PE5B - Publicize the pet waste ordinance on an ongoing basis. Track the number and type of enforcement actions.	x	x	x	x	x
		PE5C - Distribute pet waste management brochures at Pet Stores and veterinarian offices within the City or use another type of media type to educate the public on pet waste management.	x	x	x	x	x
		PE5D - Post pet waste management public education and outreach information on the City website.	x				
	PE7	PE7A - Begin implementing CBSM strategies.	x	x	x	x	x
	PE6	PE6A - Maintain and update the City's Stormwater Pollution Prevention webpage.	x	x	x	x	x
	E.7	Community Based Social Marketing pilot project. The City will begin this task in year 1, in conjunction with a larger county-wide CBSM pilot project with SLO Partners for Water Quality. The County-wide pilot project is to educate the public about the need to pick up their pets' waste.	x				
	E.7.a.ii	a) Continue to develop and implement the Public Education and Outreach Program.	x	x	x	x	x
		b) Conduct surveys 2x during the permit term to gauge the level of awareness in target			x		x

		audiences and effectiveness of education tasks.					
		c) Develop and convey a specific stormwater message focusing on local pollutants of concern, target audience, and regional water quality issues.		x			
		d) Disseminate education material to target audiences and translate as appropriate.	x				
		e) Utilize public input in developing outreach program.		x			
		f) Distribute Educational Material.	x				
		g) Provide water efficient / stormwater friendly landscaping information.	x				
		h) Promote public reporting of illicit discharges.	x				
		i) Provide pesticide / fertilizer application information.	x				
		j) Provide materials to school children.	x				
		k,l,m) Develop messaging to reduce discharges from organized car washes, mobile cleaning and pressure washing, including educational materials for participants.	x				
Public Participation and Involvement	E.8	a) Develop public involvement strategy.		x			
		b) Consider Citizen Advisory Group.		x			
		c) Create Involvement Opportunities.	x				
		d) Ensure public can access information about the program.	x				
		e) Engage in IRWMP or equivalent.	x				
	PP2	PP2A - Storm drain marking will be required on all new development projects with storm drain inlets.	x	x	x	x	x
		PP2B - Check storm drain decals with the storm drain cleaning, replace decal as needed.	x	x	x	x	x
Illicit Discharge Detection and Elimination	E.9.a	Maintain an accurate outfall map, including a site visit to each outfall.		x			
	IL1	IL1A - Conduct illicit discharge and detection inspections for restaurants.	x	x	x	x	x
		IL1B - Perform illicit discharge and detection inspections for industrial facilities listed in the Phase II Small MS4 General Permit.	x	x	x	x	x
		IL1C - Track and trend violations to determine additional preventative and corrective actions that may be needed.	x	x	x	x	x
	IL2	IL2A - Enforce the pet waste ordinance.	x	x	x	x	x
	IL3	IL3A - Maintain the harbor department's free of charge pump out stations, along with signage and pamphlets delineating where the pump out stations are located. Report the number of hours the pumpout station has been used.	x	x	x	x	x
		IL3B - Enforce existing provisions in Municipal Code chapter 15.24.010 which prohibits discharge of waste.	x	x	x	x	x
	E.9.b	a-e) The City will maintain an inventory of all industrial/commercial facilities/sources within its jurisdiction (regardless of ownership), that could discharge pollutants in stormwater.		x			
		Assess priority areas once during the permit term.				x	

	E.9.c	a) Sample any outfalls while conducting E.9.a.	x					
		b) Annually sample priority area outfalls determined in E.9.a.		x	x	x		
		c) If sample outfall water contains pollutants in high concentration, then a follow up investigation will occur.		x	x	x		
	E.9.d	Develop written procedures for investigations and corrective actions that will be included as part of the Illicit Discharge Detection and Elimination program.		x				
	E.9.e	Expand the current municipal operations spill plan to include the necessary procedures for the entire city, including those items listed in the new Phase II stormwater permit.	x					
Post-Construction Stormwater Management	PC1	PC1A - Continue enforcing Morro Bay's current Zoning Ordinance with existing riparian buffer zones of 50 feet and wetland buffer zone of 100 feet.	x	x	x	x	x	
	PC2	PC2A - Continue to review current post-construction stormwater management in the development review process.	x	x	x	x	x	
	PC3	PC3A - Create a maintenance inspection program. Inspect project sites with post-construction runoff controls. Track number of site inspections.	x					
		PC3B - Inspect projects with post construction controls during construction to ensure BMPs are built as planned. Track number of inspections.	x	x	x	x	x	
	PC4	PC4A - The City will adopt a policy in the general plan that will include the importance of post construction and LID measures for stormwater management.				x		
	PC5	PC5B - Develop a schedule of BMPs to integrate all stormwater management control measures into all aspects of and use planning and development to attain and protect healthy watersheds.	x	x	x	x	x	
	PC5	PC5C - Coordinate with municipalities / agencies located in the watershed work together, and pool resources to define watershed scale issues and assess watershed conditions.	x	x	x	x	x	
	PC6	PC6A- Approved new and/or modified enforceable mechanisms that effectively resolve regulatory conflicts and implement hydromodification controls and LID in new and redevelopment projects. The post-construction and LID requirements became enforceable on March 6, 2014.	x					
		PC6B - Apply new and/or modified enforceable mechanisms to all applicable new and redevelopment projects. The post-construction and LID requirements became enforceable on March 6, 2014.	x					
	PC7	PC7A - Develop, advertise and make available LID BMP Design Guidance suitable for all stakeholders. Completed by March 6, 2014.	x					
		PC7B: Provide specific guidance on how to achieve and demonstrate compliance with the hydromodification control criteria and LID requirements. Make available to new and redevelopment project applicants. Developed by March 6, 2014.	x					
	PC7	PC7C: Education and Outreach: Documentation of goals, schedules, and target audiences for education and outreach. The City will conduct in support of the following strategic	x					

		objectives: enforceable mechanisms, hydromodification control criteria, applicability thresholds, LID BMP design, and compliance with LID and hydromodification control criteria. Document between March 31, 2011 to March 6, 2014.					
		PC7D: Tracking Report indicating municipality's accomplishments in education and outreach supporting implementation of LID and hydromodification control for new and redevelopment projects. Tracking for March 31, 2011 to March 6, 2014.	x				
		PC7E: Interim LID Implementation Apply LID principles and features to all applicable new and redevelopment projects. Maintain Jan. 11, 2011 through March 6, 2014.	x				
		PC7F: Tracking Report, for the period Q2 to Q8, identifying LID design principles and features incorporated into each applicable new and redevelopment project. The City will track LID projects from Jan. 11, 2011 through March 6, 2014.	x				
	E.12.k	Adopted the Central Coast Water Resources Control Board Post-Construction Requirements for Development Projects in the Central Coast Region.	x				
	E.12.d	Implement source control measures for regulated projects.	x				
Good Housekeeping for Municipal Operations	E.7.b.3	Pollution Prevention and Good Housekeeping Staff Training: a) biennial employee training b) biennial assessment c) requirement that any contractors hired shall be contractually required to comply with BMPs d) Provide oversight of contractor activities	x				
	MO1	MO1A - Sweep City roads on a weekly basis in heavily soiled areas. Heavily soiled areas are the Embarcadero and Downtown areas. Remaining areas including streets without curb and gutter will be swept once prior to the rainy season. These streets will be swept by the end of October. Streets with curb and gutter that are not in heavily soiled areas will be swept twice a month.	x	x	x	x	x
		MO1B - Sweep City-owned parking lots semi-monthly.	x	x	x	x	x
	MO1	MO1C - Track miles swept and the amount of material collected annually.	x	x	x	x	x
	MO2	MO2A - Implement routine inspection and cleaning procedures and schedules for storm drain catch basins and other components of the storm drain system that require cleaning at least twice per year (once before the wet-season) on an ongoing basis. Additional cleaning may be needed based on historical need in specific locations. The storm drain collection system inspection program will include inspecting all catch basins and other storm drain components twice per year. Catch basins and other storm drain components will be cleaned at least twice per year unless the inspections demonstrate that cleaning is not necessary. The number of storm drains cleaned per year will be tracked.	x	x	x	x	x
	E.11.d	Develop and implement Stormwater Pollution Prevention Plans for pollutant hotspots identified in the Phase II Permit requirement E.11.c Facility Assessment. Continue to implement the SWPPP for the Corp yard.			x		

	E.11.e	Quarterly visual inspection of hotspots using inspection checklist, tracked in log and kept with SWPPP.				x	
		Annual comprehensive hotspot inspection.				x	
		Quarterly hotspot visual observation of stormwater and non-stormwater discharges, observe discharge locations and identify any problems and BMPs that shall be remedied. Visual inspections shall be documented and kept with the SWPPP.				x	
		Non-hotspots shall be inspected at least once during the permit term.				x	
	E.11.h	Develop program to assess O&M activities for potential to discharge pollutants and inspect all O&M BMPs quarterly. Identify all materials that could be discharged from these operations.	x				
		Develop and Implement set of BMPs for O&M activities and evaluate BMPs quarterly.		x			
	E.11.j	Implement a landscape design and maintenance program.		x			

3.6 QUANTIFIABLE NUMERIC ANALYSIS

The City has chosen source control BMPs that are expected to effectively and efficiently target controllable sources within the MS4 to reduce bacteria loading to the maximum extent practicable. The BMP selection and prioritization processes are also based on a general understanding of prioritized pollutant sources within the City's MS4. However, given the fact that many of the BMPs are new activities in the City with little to no baseline effectiveness data, and given that they are mostly source control-type BMPs for which little performance monitoring data is published, it is difficult (and would be largely speculative and uncertain) to quantitatively estimate expected performance (e.g., load reductions resulting from source control implementation), which would be necessary to demonstrate whether WLAs might be attained as a result of this WAAP in combination with efforts and WAAPs from other agencies.

Assigning concentration reductions to source control BMPs is not feasible because it is not possible to tie changes in behavior to a number. However, while it is not possible to develop reliable quantitative estimates of the effectiveness of the existing and proposed source control BMPs, modeling of bacteria in Morro Bay can be relied upon to consider the impacts of MS4 bacteria load reduction on WLA attainment in the receiving water. The 1999 Bacteria Loading and Circulation Study (TetraTech, 1999) evaluated several general stormwater treatment scenarios on fecal coliform concentrations in the shellfish areas of Morro Bay. For a wet weather period in March 1998 (a large El Nino season), the model simulated that the reduction of City MS4 discharge concentrations from their baseline levels (based on measured first flush concentrations ranging from 4,500 to 15,000 MPN/100 ml) down to a background value of 2 MPN/100 ml.

Using this modeled concentration decrease, predicted fecal coliform concentrations in the northern Bay shellfish dropped 10-15% and the southern and central sites dropped 0-10%. However, based on the Bay monitoring data reported in the TMDL and by CDPH, it appears that a more significant concentration reduction is necessary to consistently achieve the SHELL and REC-1 geometric mean objectives. These results indicated that reducing the MS4 discharges down below 2 MPN/100mL, **eliminating all bacteria in the City's storm system, would still not achieve the TMDL wasteload allocations in Morro Bay.**

The model was not used to simulate beach surfzone bacteria concentrations, as there was not enough information available, therefore it is not possible to make the same quantitative estimates at this time regarding the potential for stormwater loading reductions to result in bacteria concentration reduction at the beaches. However, recent MBNEP monitoring data suggest that beach water quality near the City is very good and REC-1 objectives are being met most of the time at these locations (**Figure 5**). (Note that, per standard practices, measured *E. coli* concentrations are compared with the fecal coliform objective by assuming a 1:1 *E. coli* to fecal coliform ratio.)

Initial data from the targeted beach monitoring conducted by the City (described in Section 3.7.1) can be used to evaluate the progress of BMPs. Monitoring began at these sites in 2011, to implement the original WAAP. They are representative of the following types of land uses:

- WAAP1 = waterfront commercial and industrial
- WAAP2 = downtown commercial and business
- WAAP3 = residential

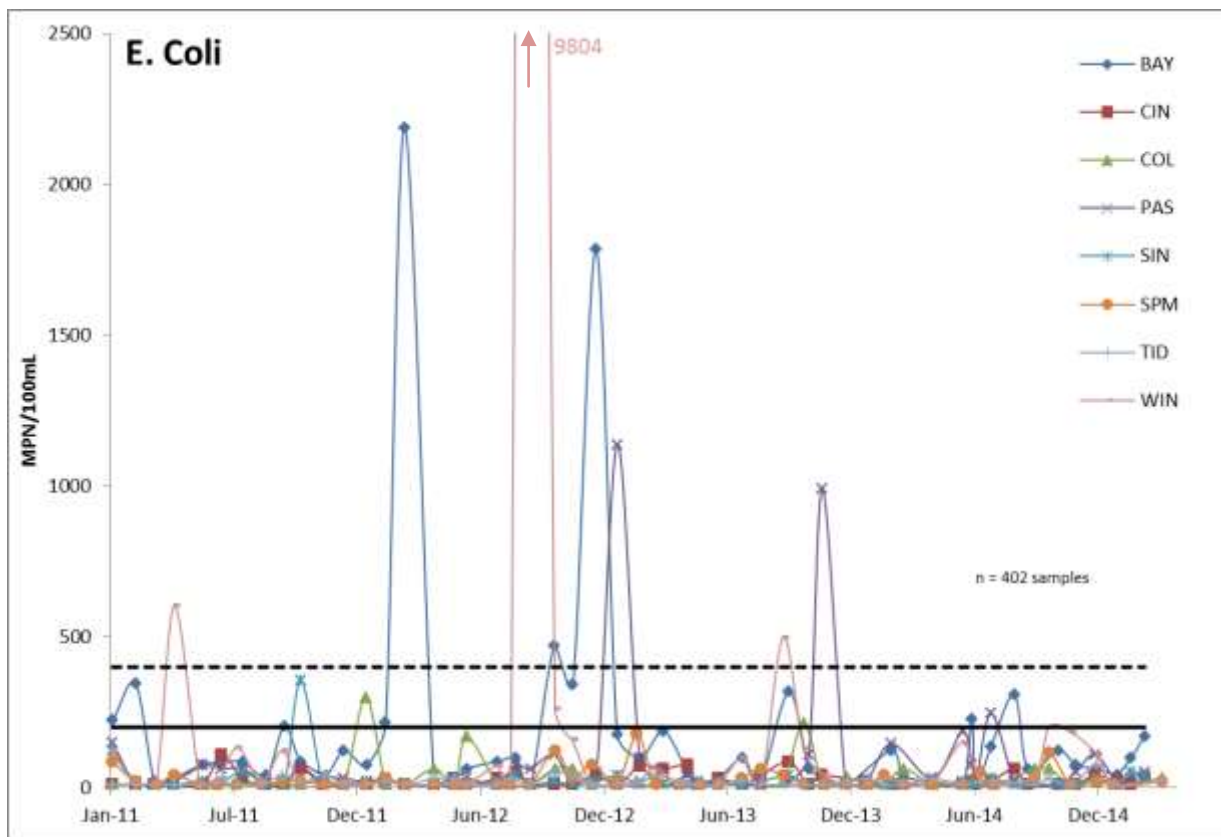


Figure 5. E. Coli samples collected along Morro Bay Shoreline, 2011 – present

As **Figure 6** and **Table 9** illustrate, concentrations fluctuate between months and seasons. It is important to note that wet season does not necessarily mean “wet weather.” Samples are collected every other month, whether it is raining or not. Therefore, **Table 9** differentiates between three conditions – dry periods (“dry”), times when it was raining lightly, but no water was flowing in the storm drains (“dry/wet”) and events when it was raining hard enough for water to flow in the storm drain (“wet”). All three locations had their highest concentrations during “wet” conditions (when the storm drains were flowing). Overall, the downtown commercial and business area (WAAP2) had the highest concentrations and could therefore be an area for focused BMPs.

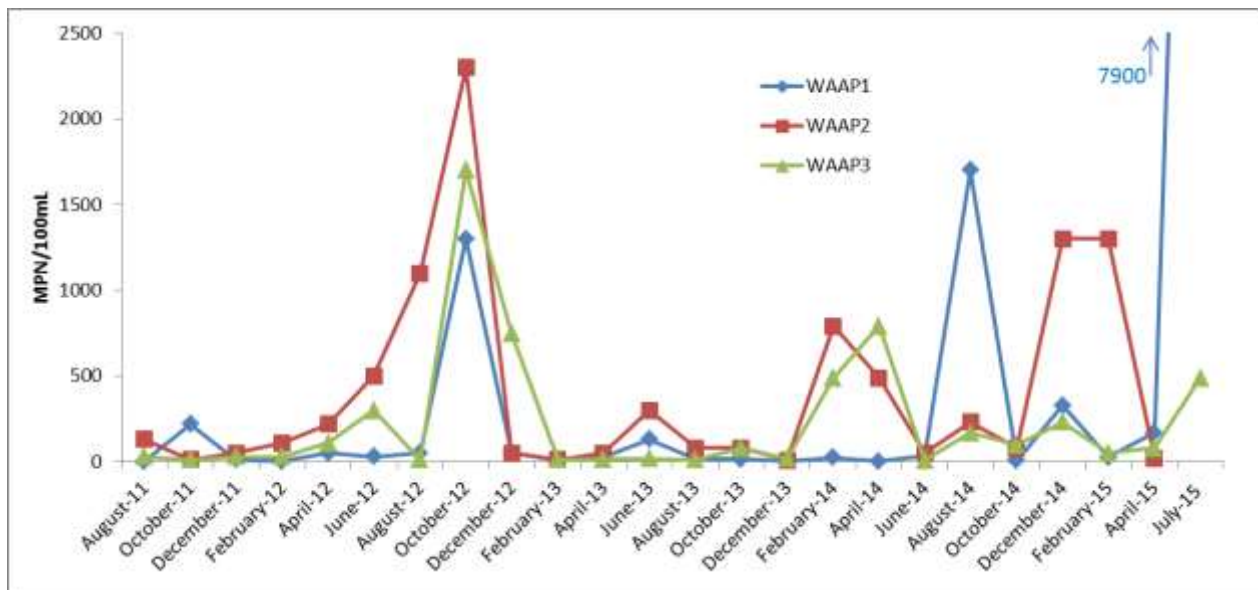


Figure 6. Fecal Coliform Results measured at three Beach Locations

With little other quantitative information available to shed light on WLA attainability, an adaptive management process is proposed. Through this process the City will modify the WAAP BMPs based on internal tracking of effectiveness measures (which are reported to the Regional Board annually), Bay monitoring data, and Regional Board TMDL monitoring and progress reports. The City also recommends that the Regional Board consider adjustments to the WLAs to account for reference watershed conditions or natural sources during the next TMDL reopener.

Table 9. Comparison of Dry versus Wet Season Fecal Coliform Samples

Site	Geomean (MPN/100mL)			
	Dry	Dry/Wet	Wet	All
WAAP1	48	11	54	41
WAAP2	100	65	344	138
WAAP3	42	88	150	70

3.7 MONITORING PROGRAM

The TMDL Support Document's Monitoring Plan states that the primary measures of success for implementation of the TMDL is attainment of the numeric targets, however other measures of success will also be considered when evaluating implementation of the TMDL. The TMDL therefore proposes two types of monitoring:

- 1) Water quality monitoring indicating numeric target attainment, and
- 2) Monitoring of implementation of actions.

These two types of monitoring are described further below. The TMDL suggests compliance is achieved initially by demonstrating through reporting mechanisms that implementation measures have been undertaken, and subsequently by showing that numeric targets are achieved through monitoring. Attachment G of the Phase II Permit requires the City to establish interim targets, since the TMDL does not, or to suggest other appropriate interim measures of pollution reduction and progress towards the wasteload allocation. As described in the numeric analysis above, eliminating all bacteria in the City's storm system, would still not achieve the TMDL wasteload allocations in Morro Bay. Therefore, the only reasonable interim targets to set for the City involve milestones for continued implementation of control measures, using adaptive management based on results of BMP monitoring. These interim target evaluations will take place yearly, during annual reporting.

3.7.1 Water Quality Monitoring

As specified in the TMDL Monitoring Plan, monitoring efforts are organized with the Morro Bay National Estuary Program (MBNEP) and their Volunteer Monitoring Program and coordinated with existing monitoring performed by the CDPH. The TMDL Monitoring Plan identifies 6 sites within Morro Bay and 13 sites in the creeks and tributaries of Morro Bay Watershed (9 in the Chorro Creek Watershed) that are to be monitored for bacteria on a monthly basis. Monitoring is performed by the Regional Water Board, the MBNEP Volunteer Program, and the CDPH.

Recognizing the important role that water quality monitoring plays in tracking progress towards TMDL targets, and in acknowledgement of the fact that bacteria reductions from the City's MS4 discharges would be most noticeable at the beaches nearest main MS4 outfalls, the City has implemented supplemental beach monitoring for bacteria since 2011. This new monitoring was implemented through a SWMP modification and was intended to meet new monitoring requirements that were raised by Regional Water Board staff during their SWMP annual report review. The monitoring locations are near the City's storm drain outfalls at three beaches between the State Park Marina and Coleman Park. These locations were selected based on their proximity to MS4 discharge locations and the fact that they are locations not currently monitored for the TMDL. The three sampling locations were chosen to provide a good representation of contributing land uses within the City limits. WAAP1 represents runoff from a waterfront commercial and industrial area, WAAP2 is representative of runoff from a downtown commercial/business area, and WAAP3 primarily represents runoff from a residential area (see results in Section 3.6). Several years of monitoring have now been completed, at great cost to the City (~\$1100/event), with a range of results recorded. The City feels that these resources could be better spent on other efforts to control loading and/or identification of other sources.

Figures 4 and 7 illustrate the monitoring locations along with surrounding land uses and the City's storm drain system. Currently dry-weather monitoring takes place twice per year and wet weather monitoring takes place four times per year, as weather conditions allow. Samples are collected and sent to a certified California laboratory to be analyzed for fecal coliform, *E. coli*, and enterococcus per EPA methods. Due to the per event costs mentioned above as well as the knowledge that the City is such a small contributor of pathogens to the Bay, it is proposed that this monitoring be reduced to once per year during dry conditions and twice per year during wet conditions (when it is raining and the drains are flowing).

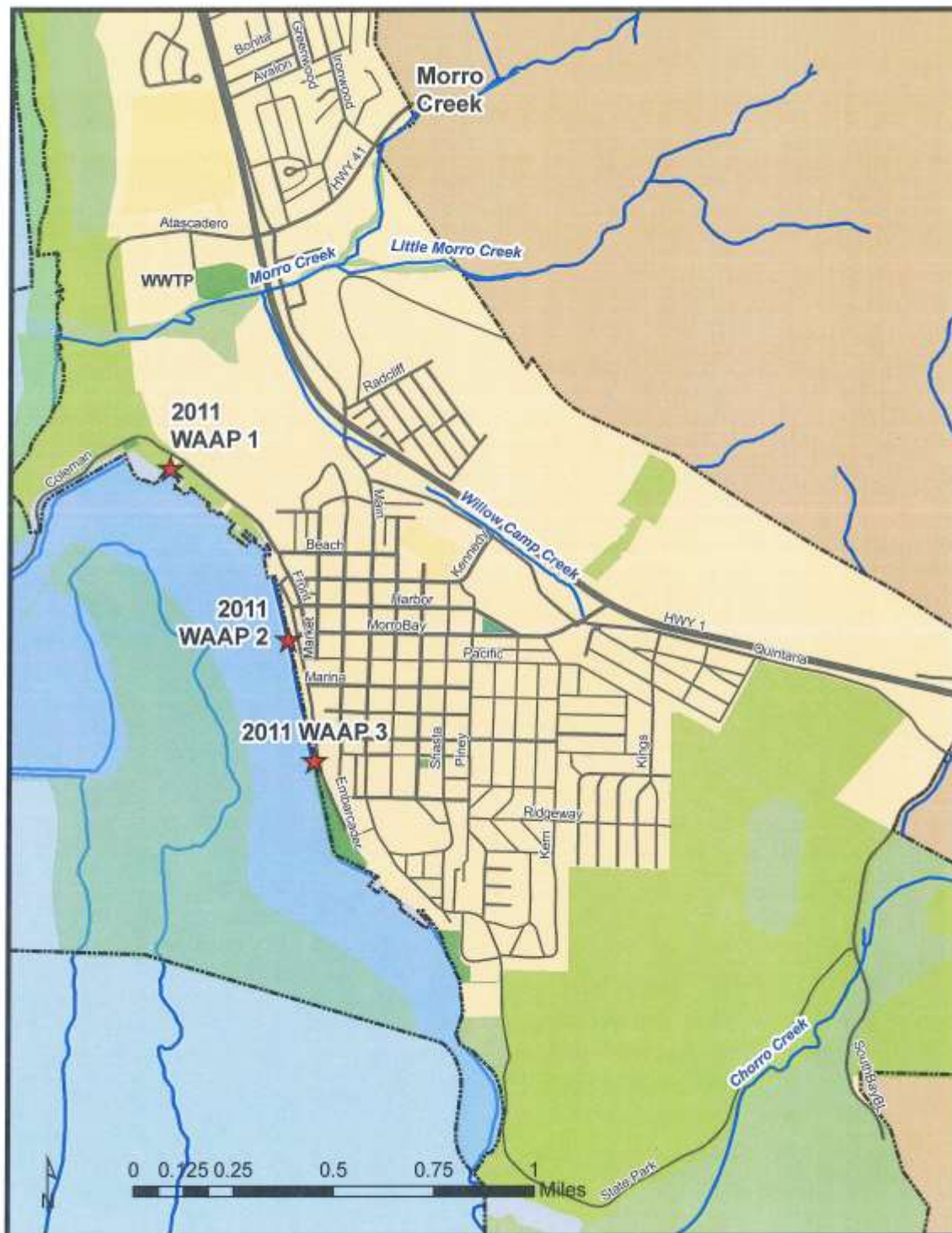


Figure 7. Locations of WAAP sampling sites within the City of Morro Bay

Supplemental water quality monitoring of Chorro Creek is not proposed at this time since very little of the City's urban area drains to this waterbody and since the majority of bacteria loading to Chorro Creek was found to be due to non-City sources (see Section 3.2 for this discussion). Furthermore, recent sampling by MBNEP has occurred along Chorro Creek and may continue into the future.

3.7.2 BMP Monitoring

In addition to monitoring water quality, the City will monitor individual BMPs as part of the annual SWMP process. Monitoring individual BMPs will include receiving public comments, keeping track of activities, and collecting any other information that may assist the City in evaluating the BMPs. The effectiveness of individual BMPs will be assessed on an annual basis in terms of progress made toward achieving the measurable goals. The effectiveness assessment process is described in further detail below.

Monitoring will also include the tracking of implementation actions. This will be executed by the Regional Board with voluntary assistance from the City along with the MBNEP, CMC Wastewater Treatment Facility, County of San Luis Obispo, Community of Los Osos, and the CDPH. As stated in the TMDL, Regional Board and MBNEP staff will review progress of implementation activities annually and will assess compliance every three years. When informed of this compliance status through Regional Board progress reports to the TMDL stakeholders, the City may adjust the bacteria BMPs in the Morro Bay watershed accordingly. It is assumed that the Regional Board will consider information provided in the City's SWMP annual reports as part of this compliance assessment process.

3.8 PROPOSED STRATEGY FOR ASSESSING BMP EFFECTIVENESS

The California Stormwater Quality Association's (CASQA) Municipal Stormwater Program Effectiveness Assessment Guide outlines a Program Effectiveness Assessment (PEA) strategy addressing both programmatic goals (e.g., raising awareness, changing behavior) and environmental goals (e.g., reducing pollutant discharges, improving environmental conditions). The PEA strategy can be used to evaluate BMP effectiveness, along with effectiveness assessment elements of the City's Stormwater Permit.

Based on the maturity of the City's current SWMGD (i.e., year 2 of implementation of the new Phase II Permit), control measures and BMPs are aimed at achieving outcome levels 1, 2 and 3 in accordance with CASQA's Municipal Stormwater Program Effectiveness Assessment Guide (CASQA, 2007). These outcome levels provide indications of program effectiveness through documenting activities, raising awareness, and changing behavior to control pollution at the source.

Outcome levels 1-3 are inherently less quantifiable than the other outcome levels described in the CASQA manual. As the City's stormwater program matures, assessments will begin to shift to higher outcome levels that require more data and discernable changes in loading and receiving water quality. It is recognized that the City's understanding of individual BMP effectiveness will in turn enable more accurate and meaningful measurable goals to be set in the future. **Table 10** summarizes the specific effectiveness measures for each BMP.

Table 10. WAAP Bacteria BMP Effectiveness Measures

	BMP ID	Effectiveness Measures
PUBLIC EDUCATION AND OUTREACH	PE1	PE1A - The number of meetings City Staff participated in PE1B - The amount of new materials added to the outreach and education program
	PE2	PE2A - Identify the brochures have been created; Number of households reached PE2B - Measure and record the number and types of brochures distributed PE2C - Brochures posted on web site (Yes/No); track number of hits
	PE3	PE3A - Number of signs installed
	PE4	PE4A - Number of materials checked out
	PE5	PE5A - Maintain information line PE5B - Promote reporting hotline and post hotline number on stormwater web site PE5C - Number and types of calls received
	PE6	PE6A - Number of Mutt Mitts distributed annually PE6B - Pet waste ordinance adopted on schedule (Yes/No); number and types of enforcement actions resulting from ordinance, compare year to year PE6C - Number of pet waste management brochures distributed PE6D - Brochures posted on web site (Yes/No); number of hits
	PE7	PE7A - Number of PSAs run per year and content of PSA; track the number of hotline calls generated by the PSAs
	PE8	PE8A - Compare public's behavior from the previous years without CBSM strategies being used
PUBLIC PARTICIPATION AND INVOLVEMENT	PP2	PP2A - Maintain a master stormwater stakeholder and interested parties list. PP2B - Number of stakeholder meetings PP2C - Annual report posted to web site (Yes/No) PP2D - Annual report available in the City Library, City Hall, and the Public Services Department for public review (Yes/No)
	PP4	PP4A - How many projects have storm drain inlets and how many projects marked the storm drain inlets PP4B - Percentage of storm drains checked annually
	PP5	PP5A - Number of meetings with NEP to discuss the Urban Watch and First Flush Programs Link to reports on City's website (Yes/No) PP5B - Number of tree plantings held annually
ILLCIT DISCHARGE DETECTION AND ELIMINATION	IL1	IL1C - Enforcement procedures developed and number of employees trained
	IL2	IL2A - Storm drain map completed (Yes/No) IL2B - Storm drain map updated (Yes/No)
	IL3	IL3A - Number of businesses inspected, number of violations and/or corrective actions reported, and number participating in the "Green Business" incentive IL3B - Number of illicit discharges found and number of facilities inspected; compare year to year IL3C - Inspection program created; inspections performed; number of illicit discharges found and number of facilities inspected; compare year to year IL3D - Number of violations
	IL4	IL4A - Ordinance adopted
	IL5	IL5A - Since the pump-out stations are free of charge, it is difficult to determine the amount of use. The pump-out stations do have to be maintained/repared so this will be used to measure their use IL5B - Number of violations

POST CONSTRUCTION STORMWATER MANAGEMENT	PC1	PC1A - Continued enforcement of Morro Bay's Zoning Ordinance Chapter 17.40.040
	PC2	PC2A - CEQA checklist revised
	PC3	PC3A - Number of building permits reviewed for stormwater management
	PC4	PC4A - Number of site inspections for post-construction runoff controls. Number of sites in compliance with the maintenance inspection program PC4B - Number of inspections of construction sites subject to the post construction hydromodification controls
	PC5	PC5A - Conservation and Open Space Element updated
GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS	MO1	MO1A - Employee training program implemented MO1B - Number of employees trained MO1C - Number of employees who pass the quizzes
	MO2	MO2A, B, & C - Amount of material collected and miles of streets swept
	MO3	MO3A - Number of storm drains cleaned per year
	MO4	MO4A - SWPPP implemented at Corp Yard MO4B - Number of inspection checklists completed MO4C - Number of non-compliance and response time completed
	MO5	MO5A - City road inventory maintained. MO5B - Manual developed MO5C - Number of employees trained
	MO6	MO6A & B - Checklist developed and facilities inspected
	M10	MO10A - Report clean marina scores every time an inspection occurs MO10B - Inspected facilities
	M11	MO11A - Audit conducted MO11B - Procedures revised MO11C - Inspections completed

3.8.1 Management Questions

Additionally, management questions and associated goals have been identified to assess the effectiveness of the City's efforts to reduce fecal coliform, including implementation of prioritized BMPs. The management questions and goals will be evaluated as part of the annual effectiveness assessment during the Annual Reporting process and will be re-evaluated as needed. The goals are established by the City as a way to gauge the success of their efforts; however, goals may be modified as needed based on the implementation of the program.

The management questions outlined below provide valuable feedback regarding fecal coliform BMP implementation. For the questions based on the CASQA PEA approach, the CASQA Outcome Level is identified within the brackets.

1. Are the impacted waterways meeting the TMDL targets for fecal coliform?
[Environmental – OL6]
2. Is urban stormwater discharger a significant source of fecal coliform to the receiving waters? Are there other sources that are major contributors?
[Environmental – OL5]

3. Is the City meeting the WLAs for fecal coliform?
[Environmental – OL5]
4. Is the City effectively implementing BMPs that target indicator bacteria?
[Programmatic – OL2-4]
 - a. Identify specific BMPs
 - b. Prioritize BMPs for pilot scale implementation
 - c. Evaluate the performance of implemented BMPs for fecal coliform load reduction
 - d. Implement BMPs that are effective in reducing fecal coliform loads
5. Is the general public aware of the need to properly dispose of pet waste, and are they doing so? [Programmatic – OL2-3]
 - a. Identify the source(s) of information for the residents (pet waste signs, PSAs, brochures, community events, dog tag licensing, etc.)
 - b. Evaluate changes in awareness and behavior.
6. Are the industrial and commercial sites that use, store, or could generate pathogens aware of the BMPs that they should be implementing on site, and are they implemented and maintained? [Programmatic – OL2-3]
 - a. Evaluate changes in awareness of appropriate BMPs
 - b. Evaluate changes in BMP implementation at industrial and commercial sites.
7. Are the reported sanitary sewer overflows (SSOs) potentially impacting the storm drains and/or receiving waters?
[Programmatic – OL3-4]
 - a. Evaluate changes in Fats, Oils, and Grease, (FOG) management practices.
 - b. Evaluate reduction of sewage discharges that resulted from implementing an SSO response plan.

In accordance with the new Phase II permit, the specific effectiveness measures for each BMP were submitted as part of the 2014 Program Effectiveness Assessment and Improvement Plan (PEAIP). The PEAIP identifies and tracks annual and long-term effectiveness, including the above mentioned strategy used to gauge the effectiveness of the BMPs. Annual assessments will also identify mechanisms for modification, such as any changes, expansions, discontinuing BMPs, or shifting priorities to make more effective use of resources.

3.9 BMP ADAPTIVE MANAGEMENT PLAN

As noted in the previous section, BMPs will be evaluated yearly during the annual reporting process and will be re-evaluated including its implementation schedule and compliance, and adjust it accordingly. The City will consider information provided by responsible parties, including monitoring data and what stage of implementation each BMP is at. If necessary, additional or alternative BMPs will be selected to support attainment of the TMDL WLA, keeping in mind the small percentage of the overall load contributed by the City. The WAAP

will also be modified to remove BMPs highlighted as ineffective by the BMP effectiveness assessment. A log of any subsequent WAAP revisions will be maintained.

3.10 PROGRESS REPORT PLAN

In accordance with the SWMGD, the City must submit annual reports to the Regional Water Board by October 30 each year. These annual reports will be used as the mechanism for WAAP reporting. Each annual report will summarize the activities performed for the reporting period. Each report will include:

- A description of BMPs implemented, including types, number and locations
- An assessment of the effectiveness of implemented BMPs in progressing towards attainment of wasteload allocations within the TMDLs specific timeframes
- All monitoring data, including a statistical analysis of the data to assess progress towards attainment of wasteload allocations within the TMDLs specific timeframes
- Based on results of the effectiveness assessment and monitoring, a description of the additional BMPs that will be implemented to attain wasteload allocation within the TMDLs specified timeframes

3.11 OUTREACH PLAN

Outreach to the community is a key element of successful implementation source control BMPs and community acceptance of structural practices. Further outreach beyond the jurisdictional boundaries is important to help TMDL stakeholders to work progressively and cost effectively toward the common goal of attaining their respective wasteload allocations. This outreach is particularly important, because as noted, the City's jurisdiction represents a relatively small percentage of the watershed of the overall TMDL Project Area (4% overall and 0.016% for urban areas) and the impaired waterbodies that flow through the City.

Public education, outreach, involvement, and participation are all important components to a successful stormwater management plan. The Phase II Stormwater Permit requires a Public Education and Outreach Program, which the City developed in the spring of 2014. Also in 2014, the City of Morro Bay began implementing a Community Based Social Marketing (CBSM) pilot program to reduce the amount of pet waste which is improperly cleaned up. CBSM is a results-based public education strategy which (1) identifies barriers and incentives to change and then (2) applies effective tools to remove those barriers and enhance incentives to (3) achieve the desired behavior change within the community. This pilot program is initially focusing on two areas within the City, North Point and the possibly the Harborwalk or Cloisters, and, if successful, will hopefully be implemented citywide, affecting behavior in both public and non-public spaces. This pilot program is one part of a larger, county-wide CBSM program being conducted by the Central Coast Partners for Water Quality, of which the City of Morro Bay is a member. A summary of the pilot program can be found in the CBSM "Scoop the Poop" Pet Waste Outreach Campaign Report (2014). The City also puts on an event each year with the MBNEP called "Dog Fest," which is an education event for dog owners and supports the City's Mutt Mitt program.

The City has the following custom brochures and flyers already on file (not just for pathogen outreach):

- Stormwater Pollution Solutions for City of Morro Bay Residents (2 different styles)
 - Lawn Care
 - Auto Care
 - Pet Waste
- Automobile Flyer – Do’s and Don’ts
- Restaurant Flyer – Do’s and Don’ts
- Best Management Practices for Construction Activities
- Illegal Dumping Door Hangers
- “Don’t Flush the Mush” Kitty Litter Poster
- Other various Flyers

Additionally, there are a number of brochures from other communities that could be easily adapted for Morro Bay. The City will explore these to determine additional brochures which may be useful for pathogen outreach.

3.11.1 Potential Partners

There are many organizations which can help the City with outreach and education efforts. The City is a member of San Luis Obispo County Partners for Water Quality, which pools funds from municipalities within the county to more effectively advertise the importance of preventing stormwater pollution. This group is also part of the joint CBSM effort.

Additionally, the MBNEP can provide educational materials and signs as well. MBNEP has an online “clean water pledge” which the City has decided to join forces on promoting.

There are also several local groups, such as the Morro Bay Guerilla Gardeners and ECOSLO, which are already active in the community and may contribute volunteer hours towards various outreach and participation programs. ECOSLO already coordinates county-wide efforts for Coastal Clean-Up Day.

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Phase II Small MS4 General Permit
Order No. 2013-0001-DWQ - Attachment G

NPDES General Permit No.S000004

ATTACHMENT G – Region Specific Requirements

Regional Water Board Approved TMDLs where urban runoff is listed as a source

TMDL Effective Date/BPA/Res. No.	Municipality	Impaired Water body	Deliverables/Actions Required/Wasteload Allocations
Region 3: Central Coast Regional Water Board			
TMDL and Implementation Plan for Pathogens for Morro Bay and Chorro and Los Osos Creeks Effective Date: 11/19/2003 BPA: Chapter 4 Resolution No. R3-2003-0060	City of Morro Bay	Morro Bay Chorro Creek Los Osos Creek Pennington Creek	Purpose of Provisions The purpose of these provisions is to implement the requirements of the Morro Bay (Chorro and Los Osos Creeks) Pathogen TMDL. TMDL Wasteload Allocations The City of Morro Bay and County of San Luis Obispo are assigned the following wasteload allocations: 1) for discharges to Los Osos Creek, Chorro Creek, and their tributaries, the fecal coliform geometric mean concentration shall not exceed 200 MPN/100 mL over a 30-day period nor shall 10% of the samples exceed 400 MPN/100 mL over any 30-day period. 2) For discharges to Morro Bay, the fecal coliform geometric mean concentration of 14 MPN/100 mL must be achieved and no more than 10% of the samples may be over 43 MPN/100 mL. Provisions for Implementing TMDL Within one year of adoption of this Order, the City of Morro Bay and County of San Luis Obispo shall each develop, submit, and begin implementation of a Wasteload Allocation Attainment Program that identifies the actions they will take to attain their wasteload allocations. The Wasteload Allocation Attainment Programs shall include: 1. A detailed description of the strategy the MS4 will use to guide BMP selection, assessment, and implementation, to ensure that BMPs implemented will be effective at abating pollutant sources, reducing pollutant discharges, and achieving wasteload allocations according to the TMDL schedule 2. Identification of sources of the impairment within the MS4's jurisdiction, including specific information on various source locations and their magnitude within the jurisdiction. 3. Prioritization of sources within the MS4's jurisdiction, based on suspected contribution to the impairment, ability to control the source, and other pertinent factors. 4. Identification of BMPs that will address the sources of impairing pollutants and reduce the discharge of impairing pollutants. 5. Prioritization of BMPs, based on suspected effectiveness at abating sources and reducing impairing pollutant discharges, as well as other pertinent factors. 6. Identification of BMPs the MS4 will implement, including a detailed implementation schedule. For each BMP, identify milestones the MS4 will use for tracking implementation, measurable goals the MS4 will use to assess implementation efforts, and measures and targets the MS4 will use to assess effectiveness. MS4s shall include expected BMP implementation for future implementation years, with the understanding that future BMP implementation plans may change as new information is obtained. 7. A quantifiable numeric analysis demonstrating the BMPs selected for implementation will likely achieve, based on modeling, published BMP pollutant removal performance estimates, best professional judgment, and/or other available tools, the MS4's wasteload allocation according to the schedule identified in the TMDL. This analysis will most likely incorporate modeling efforts. The MS4 shall conduct repeat numeric analyses as the BMP implementation plans evolve and information on BMP effectiveness is generated. Once the MS4 has water quality data from its monitoring program, the MS4 shall incorporate water quality data into the numeric analyses to validate BMP implementation plans. 8. A detailed description, including a schedule, of a monitoring program the MS4 will implement to assess discharge and receiving water quality, BMP effectiveness, and progress towards any interim targets and ultimate attainment of the MS4's wasteload allocation. The monitoring program shall be designed to validate BMP implementation efforts and quantitatively demonstrate attainment interim targets and wasteload
	County of San Luis Obispo	San Bernardo Creek San Luisito Creek Walters Creek Warden Creek	

ATTACHMENT G – Region Specific Requirements
Regional Water Board Approved TMDLs where urban runoff is listed as a source

TMDL Effective Date/BPA/Res. No.	Municipality	Impaired Water body	Deliverables/Actions Required/Wasteload Allocations
Region 3: Central Coast Regional Water Board			
			allocations. If the approved TMDL does not explicitly include interim targets, the MS4 shall establish interim targets (and dates when stormwater discharge conditions will be evaluated) that are equally spaced in time over the TMDL compliance schedule and represent measurable, continually decreasing MS4 discharge concentrations or other appropriate interim measures of pollution reduction and progress towards the wasteload allocation. At least one interim target and date must occur during the five-year term of this Order. The MS4 shall achieve its interim targets by the date it specifies in the Wasteload Allocation Attainment Program. If the MS4 does not achieve its interim target by the date specified, the MS4 shall develop and implement more effective BMPs that it can quantitatively demonstrate will achieve the next interim target. 9. A detailed description of how the MS4 will assess BMP and program effectiveness. The description shall incorporate the assessment methods described in the CASQA Municipal Storm water Program Effectiveness Assessment Guide. 10. A detailed description of how the MS4 will modify the program to improve upon BMPs determined to be ineffective during the effectiveness assessment. 11. A detailed description of information the MS4 will include in annual reports to demonstrate adequate progress towards attainment of wasteload allocations according to the TMDL schedule. 12. A detailed description of how the MS4 will collaborate with other agencies, stakeholders, and the public to develop and implement the Wasteload Allocation Attainment Program. 13. Any other items identified by Integrated Report fact sheets, TMDL Project Reports, TMDL Resolutions, or that are currently being implemented by the MS4 to control its contribution to the impairment. All allocations shall be achieved by November 19, 2013.